Master's Thesis of Geography

Political Ecology and Emerging Forest Conservation Efforts in Southeast Asia

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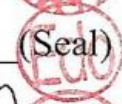Chair   이 정만 (Seal)

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Abstract

Deforestation has been increasingly dynamic in the tropical regions of Southeast Asia. Forests are known to many as assets for both rural communities and large companies. In response, concessions to logging practices have raged the region, reducing the size and diversity of forests. These practices have influenced ecological and socio-economic issues that have proven to be harmful to rural well-being.

To contain these problems, environmentalists have explored forest management by initiating activities aimed at improving local adaptative capacity and the regulatory environment. Achieving this requires stakeholder participation, particularly of government officials, organizational members, and locals. These participations range from tree-planting activities to acquiring financial support.

However, collaborative management contains challenges born from different demands of forest utilization. Within the conceptual framework of political ecology, each actor has their traditions and cultures based around forestry. Furthermore, as stakeholders carry varying levels of financial, political, and governing capacities, the different views and powers often pose an opening for "actor-to-actor" collisions.

Nevertheless, to improve conservation it remains crucial to balance stakeholder demands and simultaneously to preserve the environment. To determine the intensity of collaboration and sustainability in conservation, this research examines various provinces in Cambodia, Indonesia, and Thailand. This study utilizes existing archival documents for Cambodia and Indonesia, while the empirical data for Thailand's cases were gathered through semi-structured interviews with relevant actors. A total of 11 key-actor interviews were conducted in 2019 and 2020.

The results in Thailand indicate that conservation provided efforts of decentralization while improving the trust between stakeholders. Cambodia and Indonesia, however, have experienced instances of lack of faith between state-industrial powers and villagers within the authoritarian environment. The principal implication for this study is the need for more effective negotiation to foster forest management and conservation.

Keyword: *Conservation, Forest Management, Political Ecology, Land-Use Policy*

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Abbreviations

CCF - Community Commercial Forestry

CYN - Cambodian Youth Network

ELCs - Economic Land Concessions

ESIA - Environmental and Social Impact Assessment

FA - Forestry Administration

FCPF - Forest Carbon Partnership Facility

FLEG - Forest Law Enforcement and Governance

FMP - Forestry Master Plan

GIS - Geographic Information System

HOB - Heart of Borneo

MAFF - Ministry of Agriculture, Forestry, and Fisheries

NCPO - National Council for Peace and Order

NGOs - Non-Governmental Organizations

NTFPs - Non-Timber Forest Product

PLCN - Prey Lang Community Network

PRCF - People Resources and Conservation Foundation

PTT - Petroleum Gas of Thailand

RECOFTC - The Center for People and Forests

REDD+ - Reducing Emissions from Deforestation and Forest Degradation

RFD - Royal Forest Department

SFBMB - Sustainable Forest and Biodiversity Management in Borneo

SLC - Social Land Concession

S.S.A. - Office of the Health Promotion Fund

WCS - Wildlife Conservation Society

Chapter 1. Introduction

1.1. Research introduction

Ever since the birth of human civilization, humanity has depended on the forest. Rural inhabitants are especially known to depend on these tree-dominated areas for food and livelihoods (FAO, 2009). Forests have provided with food, fuel, medicines, and marketable non-timber crops that are integral parts of their daily life. Yet, at the same time, forests have also been exploited to expand the national economies and improve infrastructures, often detrimental to rural well-being. As such, developing nations especially are faced with issues from mismanagement of logging and land conversion practices. Overgrazing, land transformation, and expansion, to logging that exceed the rate of tree recovery, is known as deforestation (Food and Agriculture Organization of the United Nation, 2007). Deforestation is one of the reasons for the loss of biodiversity and social and political instability in rural locations (FAO, 2010).

As Southeast Asia nearly occupies 10 percent of the world's tropical forest, the region dominates in agroforestry productivity (Stibig et al., 2014; Sodhi, 2010). Not only do forests provide valuable timber species (e.g., teak (*Tectona grandis*)), the landscape is also a perfect location for large-scale plantations. For instance, Indonesia used roughly 69.0 million ha of its forestry for plantations and other economic purposes, which is far larger than the total protected area (29.6 million ha) (FAO, 2016). Other major countries in the region such as Cambodia, Laos, and Vietnam too, have sizeable coffee, cacao, and sugarcane plantations expanded through deforestation (Stibig et al., 2007).

Researchers such as Imai and fellow collaborators (2018) indicated that forests with abundant timbers and fertile soils are likely targets for deforestation. Southeast Asia boasts these qualities in its evergreen and semi-evergreen forests and has known to attract national and foreign investors and consumers. This, however, can produce land-use and regional planning problems with complex actor involvements. Land management complications and high forest encroachments encouraged leaders of Southeast Asia to devise a solution in the late 1900s. The common instruments utilized by many institutions are to establish general terms and conditions of agreements, policies, and conservation activities (Sitbig et al., 2007).

1.2. Research subject

In today's world, rural developmental action plans are well-oriented to the urbanization and transformation of agricultural sectors. Many Southeast Asian authorities provide good intentions to open its forestry for economic improvements. Oftentimes, however, poor governance and management authority creates a sizeable forest encroachment that expands to more than 100,000 ha (Cropper et al., 1999; Yamane, 2003). Many of once vibrant forestry has now transformed into large industrial estates that range from agricultural plantations (e.g., coffee, rubber, rice, oil palm, etc.), hydraulic, to mining fields (Chan, 2016). These transformations and expansion can occur without providing prior notice and can interfere with the livelihoods of the forest residents. As a result, friction can occur between government officials, companies, and local villagers (Yamane, 2003).

One common suggestion to solve deforestation issues is through policy and governance. Yet, most central and provincial governments particularly are focused on economic implementation. To steer path from this favoritism, environmentalists encouraged for monitoring forest management through actor cooperation between locals, national leaders, environmentalists, and organizations. The suitable management appropriate for rural and local communities is known as conservation, commonly known to protect nature. Conservation movements, formulated by government agencies to Non-Governmental Organizations (NGOs), idealize a for the coexistence of sustainability and economy (Ministry of the Environment, n/a).

Course, conservation policies are not perfect and are at most, flawed to a degree. Deforestation regulations can create more vulnerable situations for rural populations. For instance, despite the good intentions of anti-deforestation policies, it can simultaneously devalue deforestation rates and agroforestry revenues (Yasmi, et al 2010). Also, it can restrict local's land accessibility. Participants of grassroots groups, local agencies, and NGOs act as a mediator to offset the decisions of central governments and corporations (Shannon, 2011). These voluntary organized groups, along with local people, try to work together with state-industries to develop a common solution. Or, some may organize independently with local participants and work to reform oppressive social and political structures (Smelser, 1963; Rule, 1998).

Due to the collaborative nature of conservation, coordination between stakeholders is important. To accomplish such feat, conservation organizations and groups need to identify their objectives and responsibilities in retrospective to their collaborators. Developing collaborative and fair attitudes and activities involved is important to gather the actors who are willing to work with them (Hoag & Skold, 1996). Though, movements with multi-actor dimensions often have hierarchical control structures amongst their stakeholders. And, situations do exist where government officials bear excessive control of forest management. Strong conservation movements will try to strengthen communities of decision-making capacity and shape them with power for self-reliance (Nizami, 2013). The goal of this study is to see if conservation provided fair cooperative decisions in forest utilization and to improve local autonomy in forest management. Accessing information on the intensity of participation, conservation approaches, and activities could display the reasons for forest conservation success.

1.3. Research questions

The following two research questions are to be addressed throughout the study:

1. What effects do power disparities between government and local communities have on forest control?

2. What are the negotiation strategies used in political geographies of forestry?

1.4. Thesis structure and approach

To reflect on the effectiveness of forest conservation, this study first needs to grasp the trends in forest land use and ownership. Therefore, the study is broken down into four major sections, with each addressing deforestation and its relevance to case locations.

For this study's literature review, Chapter 2 will start introducing the concept of political ecology. The concept and relative framework express forestry as a space for human productivity. Not only does the forest provide important food and settlement location for rural populations, but it is also the source of tourism and agroforestry industries. Different actors have different demands in use of the forestry. Synthesizing with human geographical and land-use context signifies actor networking between human and natural resources.

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Chapter 3 focuses on deforestation in Southeast Asia. The details on deforestation will be discussed starting from its effects in the 1970s to the 2000s. Deforestation rates, however, can vary by nations, data collection methodologies, to even by the types of trees. These may become an obstacle to the study and as a result, the chapter will provide a broad understanding of the topic. Furthermore, it introduces the study cases on Indonesia, Cambodia, and Thailand, presenting details on its major deforestation drivers. Both details on deforestation drivers and conservation types set up the presentation of the following Chapters 4 and 5.

For Chapter 4, case findings of Indonesia and Cambodia are merged to present a comparative outlook. For detailed analysis, this study focused on the provinces of Kampong Thom in Cambodia and West Kalimantan in Indonesia. They share a commonality of having experienced with major practices of forest conservation management. The findings on the projects are mostly comprised of intermediate results and data, focusing on the strategies employed for deforestation containment.

Chapter 5 examines Thailand's provinces of Chiang Mai and Kanchanaburi provinces. These provinces have high access to forestry and conservation activities, providing the reason for said key-actor interviews. Those who provided their narratives expressed conditions regarding local forest accessibility, quality of its ecosystems, and factors to conservation success.

In considering the details of the success and challenges of forest conservation, the analysis generates knowledge in its governance and actor participation. Due to the involvement of complex socio-environmental interrelationships, this study seeks to promote a multi-discipline approach to assist policy analysis. Once conservation and its intensity of stakeholder involvements are identified, forest administration and other relevant organizations could enhance its policy direction according to the context of geography, culture, politic, finance, and environment.

1.5. Methods of study

As this study presents multiple cases within Southeast Asia, it may be difficult to tell regionally applicable key factors to forest conservation. Given the importance of context in understanding cases of conservation efforts, it may be

necessary to present the collection of case details that is potentially transferrable and coherent to each other. Most multi-layered researches utilize comparison tactics, enabling arrangements based on similarities and differences. Furthermore, this comparative analysis focuses on the empirical and theoretical details of the study more than historical events. The opportunities to test hypotheses and to use inductive reasoning to build on the narratives are the strengths of comparative analysis (Wad, 2001).

The standard comparative method involves an analysis of two case studies. Small samples do provide more opportunities for a detailed review of the hypothesis, yet based on this study's use of three Southeast Asian cases, the comparison will employ alternative techniques and visions. Studies with larger case examples predominantly follow the logic and system of argumentation presented by John Stuart Mill (1806-73). His book, *A System of Logic* (1843), is known for introducing scientific methods and procedures of comparison in social sciences that are relevant to high-numbered cases. The book provides details on four kinds of a method that can be utilized to understand discrepancies or interchangeable agents of research (Berg-Schlosser, 2015; Jahoda, 2017).

1. **The method of agreement**: comparing two or more cases and finding a single commonality between. The process also tries to understand the cause (or effect) and reasons for the agreement and similarity.
2. **The method of difference**: comparing two or more cases and identifying the single difference and unique values presented in between. Answers the question of why one area has such circumstance and effect over another.
3. **Joint method of agreement and difference**: combining the aspect of method 1. and 2.
4. **The method of concomitant variations**: examine any factors that vary from each other in any manner or phenomenon and determine if the variation is a result of a certain cause and/or effect.

According to these four methods, comparison details seek to identify reasons for the similarity and uniqueness of each case. The detail doesn't require a direct comparison, but rather suggests factors that relate to or guide the overall discussion of this study. Take, for example, the findings of Cambodia and Indonesia will be facilitated based on similar topics and events of discussion while indicating each case's unique attributes. Findings for Thailand will also present similarly to the prior

two cases, based on its narratives and discussions of two provinces that are represented in both provincially and holistic manner. Nevertheless, all prior cases will be able to show a clear distinction and similarities between Cambodia and Indonesia, and to Thailand.

1.6. Expected results

Hypothetically, a large portion of policy movements in Southeast Asia is controlled or be influenced by the government. What these means are the possibilities where conservation projects are mobilized for political reasons. It can change the geographical, capital, and social boundaries within forest communities. Locals will still be the underwhelming players and decision-makers in policy and forest management. Furthermore, as conservation includes collaborative practices, there are possibilities of interference based on disagreements amongst the stakeholders. These disputes may emerge from the unfair distribution of land and management autonomy. Based on the findings that contextualize actor-networks in forest conservation, the discussions on possible challenges could guide how to best support future policy processes.

Chapter 2. Literature review

2.1. Political ecology and human geography

Political ecology is a study approach that investigates the recent development and environmental issues (Benjaminsen & Svarstad, 2009). It raises numerous questions and discussions within the socio-environmental academics and political dynamics. Contrary to the individualist studies of ecology and humanity, political ecology blend both fields to dissect human-environmental relationships. To some degree, political ecology is a revolutionized theoretical field from its predecessor of cultural ecology (Walker, 2005).

The change of research mentality on environments is heavily influenced by the debate for logic and theory of social sciences. First utilized by Wolf in 1972, the following 1970s and 80s introduced academic disciplines that advocate social "-isms" and "-ologies" (Robbins, 2011). It consisted of answering the questions about the environment using the traits from human studies, which can have various ranges from feminism, system theories, to structuralism (Kull & Rangan, 2016). These theories of humanities stem from the 'sister' counterpart of political ecology known as cultural ecology. Both frameworks have a similar characterization by emphasizing relations and interactive activities (Bassett & Zimmer, 2003).

Political ecology, as its name suggests, elaborates on the interrelationship of politics and ecology. The conceptual identity of political ecology had been suggested by several renowned authors to have emerged during the 1980s. Forsyth (2008) emphasized that authors like Piers Blaikie gave birth to the modern foundation of the concept. Blaikie (1985) has particularly exemplified political ecology through his book, *The Political Economy of Soil Erosion in Developing Countries* (1985), which elaborated on the social-construct and after-impacts of erosions. This elaboration ties political powers and their influence on other social and natural factors. The approaches of Blaikie (1985) would later be common in modern research that synergizes politics, ecology, and scientific inquiries (Forsyth, 2008). More documentations emerged in the late 20th century featuring scale-based political interactions and management of the natural landscape (Blaikie & Brookfield, 1987).

Debates within political ecology have carried on the following basic principles throughout the decades. Understanding the economy, changes in political

institutions and their connotation to environments have been critiqued and brought opportunities for new study fields (Robbins, 2011). For instance, Greenburg and Park (1994) opted for an economic-view of political ecology that insisted "on the need to link the distribution of power with productive activity and ecological analysis, with its broader vision of bio-environmental relationships". Class and social stature soon adapt to the classical questions of political ecology and become the precursor to its modern conceptualization. Pro-ecological policies are likely to be directed in different ways based on one's social class. The idea of individual interests and how they collide with the another's become the heart of political economy and ecology altogether. A shift in direction started to appear in the late 1990s with a synthesis of capitalism and bio-environmental thoughts (Robbins, 2011).

One of the defining characteristics of political ecology is through the lens of Marxism. The very core of Marx's writings and influences stems from understanding the capitalist mode of production and how it drastically changes the world. Combining with political ecology, the question then becomes of determining how socio-environmental factors both can improve and deteriorate capitalism. For Marxist political ecology, Neil Smith (2006) argues that capitalism is a "vacuum" that extracts any commodifiable values within nature. And convert them into a new form of the valuable and useful source (Robertson, 2012). Nevertheless, the criticisms behind Marxist political ecology are its failure to identify social and political discourse (Castree, 2015). Yet, Marxist ideologies are still well utilized to display the connection between economical practices to political control. How these connections and ideas are displayed vary by authors of political ecology literature.

Table 2.1. Definitions of political ecology

Author(s)	Interpretation of Political Ecology	Implication
Blaikie and Brookfield (1987)	"Necessary to examine critically the political, social and economic content of seemingly physical and "apolitical" measures such as the Universal Soil Loss Equation, the "T" factor and erodibility"	Describes environmental degradations in the developing world and connects to state and capitalist management.
Greenberg and Park (1994)	"Ecology's broad perspectives on our biological and physical environment and its alternative emphases on individual competition and holistic analysis have already shown significant potential for dialogue with the more social and power-centered field of political economy"	Relationships between political economy and ecology are enormous, but flexible in questioning bio-cultural/political models.
Neil Smith (2006)	"Nature becomes visible in circumscribed ways that are governed by capital's 'laws of motion' – even when it is nature's 'real qualities' that are supposedly being valued for their own sake or for non-economic reasons"	The theories on the production of nature, space, and scale are determined by the development of capitalism.
Darcy Tetrault (2017)	"Provide the epistemological foundation for illuminating research on why social environmental movements and conflicts emerge at certain historical conjunctures and in specific geographical and cultural contexts, and of how resistance movements against dispossession and the destruction of natural resources are organized and sustained"	Ability to identify who gains control over the nature-extraction area and the actors involved in an institutional discourse with one another. These are influenced and operate based on geographies, cultures, and politics

Geographers studying socio-environmental relationships confront political ecology based on knowledge of scale and locale. Human geography points out the interest in the environment stems from culture and identity. Different human parties have their reasons and values for ecosystems. In rural territories with close access to the environment, its inhabitants of indigenous to ethnics have traditions, cultures, symbols, to religious motifs with each differing geography. There are village

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markets, ceremonies about trees, tribal rituals to hunting gatherings (Ghosh & Ghosal, 2019). Yet, apart from the local communities, national policies and development brought by political leaders and capitalists also take interest in the same ecosystems. Their desire for economic growth and prosperity transforms such a luscious landscape into a megalopolis. Hence, changing the value, knowledge, and usage behind ecology (FAO, 1990).

Most literature that connects political ecology to geography directs its attention to the politics of local and regional development. The focus takes significance on the role of scale where locale differences construct social and governance networks. With an interdisciplinary approach, the question becomes how communities integrate into the national and/or global economy while tackling issues of resource management. Because of geography discipline, the notion of land-use change is prominent to political ecology (Gezon & Paulson, 2005). Land-use change can be defined based on its two major processes. The first process refers to the expansions or transformations of the land cover, ranging from cropland to urbanization. The second process identifies as the management of existing land cover, with examples such as changing irrigation systems to farming practices (Davis et al., 2019). Because of its conditions, the land-use change is considered as one of the major drivers for biodiversity loss (Robertson & Doran, 2013).

The land-use change drivers stem from the need to contain population growth, increasing food production, pleasing demands for energy and infrastructures, and urbanizations (Elobeid et al., 2019). All of which are shaped and controlled by human technologies and knowledge. These controls are well defined by the powers of actors, and varying actors have different capacities that shape the landscape each in its ways. Empirical observations on-field and monitoring the patterns of land-use and drivers some of the major methodological directions for political ecology research (Gezon & Paulson, 2005). While somewhat of a different approach by Chapagain & James (2019) in a study of land-use with diseases, the relative patterns can be well correlated to the actors as well. For instance, the two processes for land-use and actor correlation can be identified as; i) modification of environments is brought by a certain degree of actor interactions, and ii) create variation in the distribution and densities of actors across geographical areas (Chapagain & James, 2013). Intensification of land-use can modify the mobility to the power of the relevant actors.

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Figure 2.1. Theory on land use and expansion
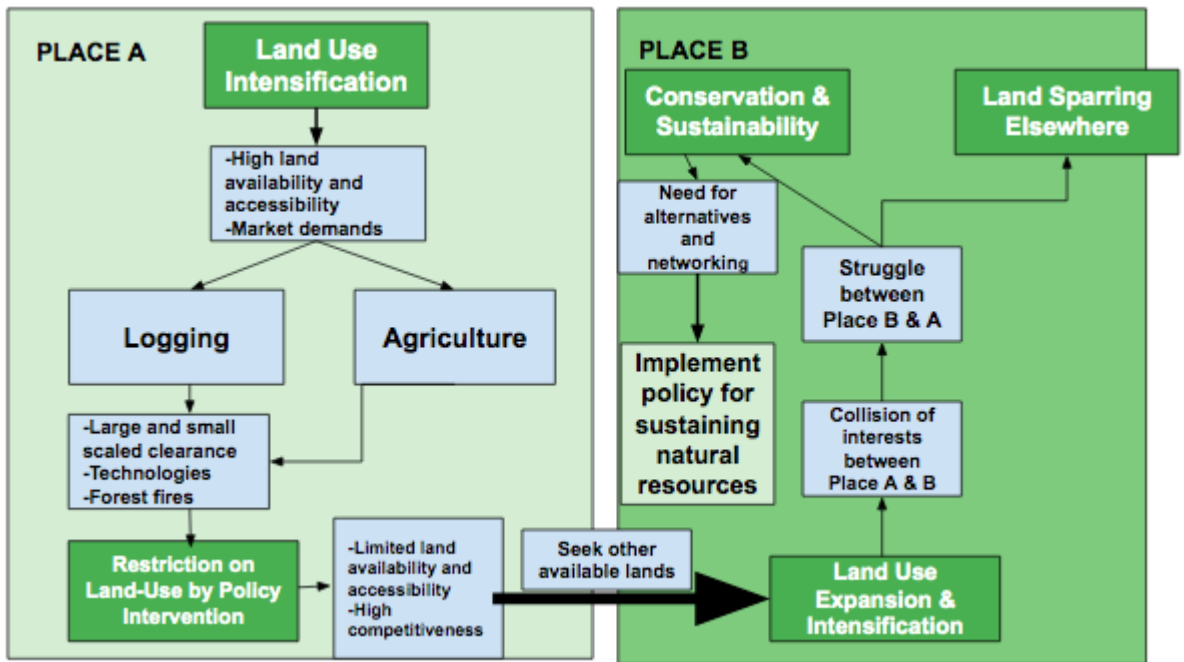
Figure 2.1 is based upon the theory of leakage and indirect land-use change (iLUC) by Meyfroidt et al. (2018). The chain starts from the left box where the availability of land and market demands for resources cause severe land clearance. Limitation on land-use soon would follow, creating limited accessibility of land in the location. Both local and business investors seek other lands, leading to Place B on the table. The right box (place B) can take place locally or distantly depending on the actor's mobility and geographic limitations. Conflicts occur between the parties of Place A and Place B over land use, and options are soon followed to the residents of Place B. Actor conflicts within land-use are common and in the later sections of this research, the study will discuss the choices to resolve the issues. Either the groups insist on creating a dialogue for sustainable policies and alternatives or seek other lands that trigger a repeating chain of the procedure.

Regions are characterized by complex cultural and economic practices operating within geographic and ecological boundaries. Distribution and transformation of species were orchestrated by organizational strategies-expressed in

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spatial, ethnic, incentive, and perspectives. Influenced by Meyfroidt et al. (2018), political ecology theories should aim for the following: (i) creation of models that replicate the functions of multi-interactions, (ii) focusing on scale-based studies with different geospatial interpretations, (iii) identify the polarity between local and non-local interests, (iv) producing knowledge that can be used for policy-creation and decision-making processes. Local knowledge and interests are often threatened by non-local terms (Hornborg, 2005). Political ecologists questioned interactive dimensions between local and the state, and the emergence of new biodiversity aims.

2.2. Political ecology and environmental degradation

Globally, the wealthiest and powerful entities often have control over large acres of land(s). Their control can extend to managing the distribution of both human and natural resources. Third World politics and elites are more likely able to control the forest information of rural communities to their will. The difference between the elites and middle/lower class is contributed by the power disparity between the actors in either the participation of conservation or as environmental land users. The disparities can be based on income inequality, which is one of the definite social problems (World Economic Forum, 2014) between executives in management and workers who act (Cobb, 2015).

A study by Cobb (2015) showcases how top organizers influence the structures of management in organizations and the incentives stakeholders receive. Stakeholders are one of the key actors to any economic and social systems as their interests and participation run said systems. They comprised many roles from individual citizens, communities, social groups, organizations, politicians, to entrepreneurs. And as an individual or a group, can affect a certain organization's achievements. Furthermore, they have the power to influence the decisions of environmental directions. Though it is usually the politicians, employers, to owners with high political-economic capacity, that can orient the decisions in environmental structures to their favor more often (Cobb, 2015).

Apart from the controls of the elites, environments with "survival-of-fitness" conditions can increase competition for nature indulgence. Whether it's for livelihood or social/economic capital, destruction of nature inevitably occurs at a rapid pace. Yet, humans also explore ways that could sustain their productivity. Paul Robbins (2004) informs of the language of 'construction and destruction' of nature

by the human conscience. The true essence of political ecology in the words of Robbins (2004), is to measure and question the process of destruction and construction within socio-ecological dynamics. For Robbins (2004), political ecologists mainly generalize the cause of soil erosion, deforestation, desertification, biodiversity loss, and water pollution based on ignorance and greed. While there is some truth to such critique, political ecologists also seek values that influence the resilience of vulnerable communities and households.

There is also the notion where poor and rural populations are the sole reason for forest degradation. This notion is quite far-fetched as Robbins (2012) argues that globally, very few numbers of villages deplete much of their natural resources by themselves. Their practices not only involve extracting resources necessary for daily consumption but are also sustainable. Even if the locations are to face scarce land spaces and resources, mostly settlers will be encouraged to explore alternatives to improve natural and social conditions. It creates an opportunity for networks to increase response time and efficiency to problematic conditions. In most cases, substantial changes in land-use patterns and solutions to scarce resources require connecting outside influences with enough political and monetary support (Robbins, 2012).

To which, numerous sociologists and anthropologists have started examining human networks. By understanding networks' context within political, historical, cultural, and economic factors, researchers try to determine the triggers for spatial transformation within environments (Stevens, 2005). Numerous species of animals, plants, and humans are susceptible to allocation and management by politics (Paulson & Gezon, 2005). These politics stimulate the mobilization of various actors across geographies for certain land incentives (Hornborg, 2005). And thus, clashes against already settled wildlife and locals ensue (Paulson, 2005).

Despite politics bringing prior problems, their power is needed to address the overlapping interests of both endogenous and exogenous actors. Governments with businesses and developers may not necessarily aim to preserve and protect the forests. Yet, Mohammad (2013) argues that every type of actor and group wants to create a "win-win" scenario with multiple benefits. This lines with conservation activities, where political and economic actors could participate in such sustainability practices for numerous reasons. One is to sustain the resources and land quality for further usage. The second is to reduce any tensions and conflicts with locals and the

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public upon nature destruction (Thompson, 2003). For instance, forest policies will consider stakeholders of people who live within or nearby the forests, and those who are outside of its reach that wants to settle for either housing or timbers (Mayers, 2005). And thirdly, there is the factor of fear that if locals are not sustained, social and rural economic pressures will develop and ultimately hamper the growth of the nation (Thompson, 2003).

Public policy and conservation analysts began to fascinate themselves on the designs of collective actions and how they ultimately influence the policy-making process. Walker & Hurley (2004) applied the concept of containment, counter-containment, and derailment to demonstrate the movements of the "pro-growth" and "environmentalist" group. The authors prioritize collaborative feats of conservation, detailing power relationships in actor networks. Mainstream political ecology frameworks impose on dialects between human society and nature alone. Walker & Hurley (2004) shifted from the norm and observed the 'practice and mechanism' of institutional collaboration upon management projects. Negotiated results of the process have power exercised by different actors instead of a leading actor. As Dowding (2008) implies, power is connected to the structures and is constrained from independently exposed at will. Addressing behaviors of power can lead to successful political and social agendas, which leads to the construction and implementation of policies (Svarstad et al., 2018).

As the writer for this paper, I am not aiming to re-assess the critical values of political ecology based on Neo-Marxist, Post-Marxist, and Feministic point-of-view. Each reflects on human/nature relationship-based political and economic rights. Even so, they alone can become an extremist view that clouds the general message of political ecology theories. Therefore, this paper will aim to solidify a broader political ecology perspective based on the actor-based drivers for deforestation and reforestation. As indicated by Forsyth (2003), extensive environmental issues threaten the very core of society. Based on the result, political ecology theorists seek to define the threats and to gather multi-disciplinary propositions for possible solutions (Walker, 2005)

2.3. Deforestation, local conflicts, and conservation

The transformation of forestry and its resources is known to be associated with human involvement. The activities generally involve logging, forest fire, and

agricultural practices which are all associated with deforestation. However, a single forest can attract global demands for food, energy sources, and raw materials in urban and forest-less regions. The definition of deforestation depends on how one views and defines forest. Indonesia's Minister of Forestry defines deforestation as an act for "permanent alteration from the forested area into a non-forested area as a result of human activities" (MoFor, 2009). On the other hand, Global Forest Watch (2014) refers to it as a loss/removal of trees within natural forests or tree plantations. There are clear distinctions between the two identities of deforestation, but it is difficult to define deforestation based on the intensity and scale of tree loss. Even so, for the sake of simplicity, deforestation will be recognized as a byproduct of land-use and change.

The management and conservation of the forestry natural resources depend on the ownership and the rights to the forest property. However, allocation and utilization of resources potentially involve more than one user even within a joint operation (McKean, 2000). The characteristics of 'non-excludability' and 'sub-tractability' allow non-members to gain access to the resources. This can delineate the original use of the resources by the institutions, making it difficult to achieve sustainable effects. Hardin (1968) opts for creating private or member-only accessible resources, which can reduce the free-riding and benefit-hogging from non-members. Yet, the flaw to Hardin's system is that political and economic institutions can control both the flow of resources and the people under them. As a result, indigenous, locals, and smallholders are falsely identified as "non-members," excluding them from accessing resources.

Still, all individuals and institutions are invaluable players that both have the human rights for accessibility and designing regulations that prevent excessive land control. The role of social leaders and government agencies act as a mediator within land ownership and accessibility (Bromley et al., 1992; Rout, 2010). Boundaries are often utilized to restrict or allow certain practices and humans to thrive. For instance, Ban Wan Sing forestry in Thailand had restricted all forms of logging practices in the territory. However, its community members are allowed for a specific degree of bamboo cutting for their daily needs (Rout, 2010).

These decisions are often placed by the leaders of government agencies, social groups, to industries. They are specialized with decision makings on land-use, meaning that either deforestation-induced concessions or sustainability of forest falls

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into their hands. Though at most, these leaders create an environment where mutual consent is sought between the actors and settlers for land-use distribution. Policies are what transform and sustain the environment, which is decided by government ministries and practiced by its departments and agencies (Rout, 2018).

Though, challenges are always given during unified policy implementation. Nation, state, district, and/or even a local aren't identified as a homogenous entity. They each contain institutions and individuals with their own ideal goal for forest governance and varying degree of impact on spaces. Disagreements are common amongst the directorate generals of forests if the management departments and agencies are different. For instance, some district governments favor economic activities to increase district revenues more-so than sustainable activities. Rural districts tend to display such cases, as areas tend to be ruled by the so-called "kings" who are the head figures. They too are prominent in displaying "image-saving" procedures where they promise to publics of political movements to support the livelihoods of forest communities. Some central governments opt to sell nature while aiming for maximizing profit. They created opportunities to develop ad-revenue relationships with their political supporters within the plantation, logging, tourism, energy, and other land investment agencies (Nightingale & Ojha, 2011).

However, household-level dynamic and family-dependent smallholding and "gardening" communities in Southeast Asia can lead to collective political resistance. Small resistance can restrict both land confiscation and reforestation to a certain degree. The strength of these parties largely depends on the democratization of national politics and the support of NGOs and civil society. The rules and movements can create a fighting force that can create a social response to the problem of political functions. "Insider groups" consisting of conservation interest parties are required to put pressure on other actors to influence policy direction (Grainger, 2004). The degree of accessing finance and policymakers determines the rate of pressure on governments and "outsider groups" (Smith, 1993).

Figure 2.2. A framework of creating conservation under common governance
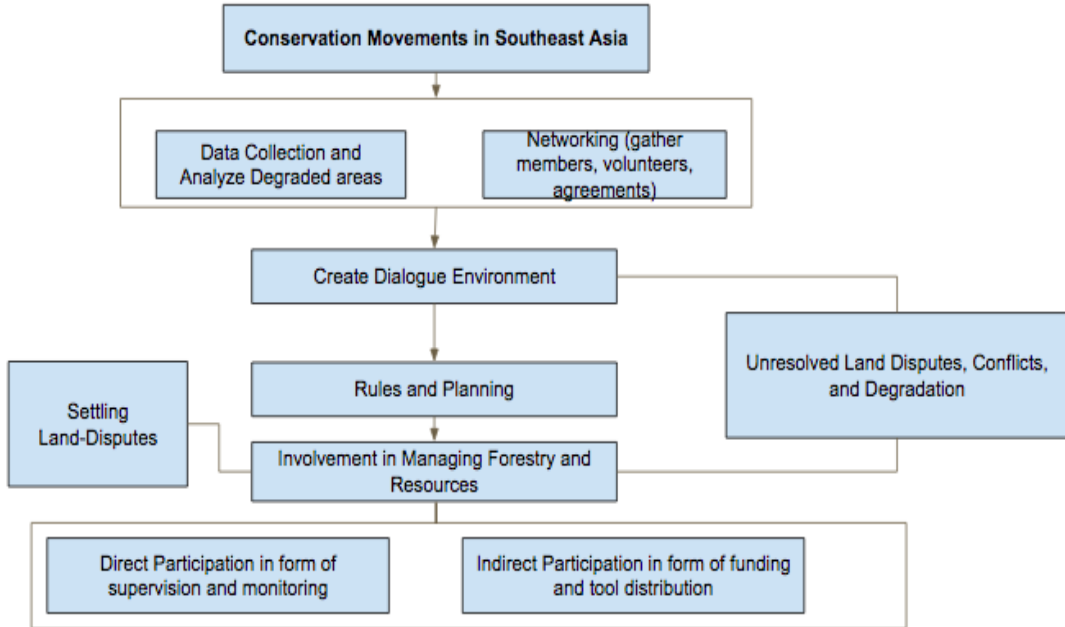
Figure 2.2. is a framework that details how conservation could influence policies or land-users from deforestation and local rights abolishment. This framework is based on the works by Rout (2018), but with few minor differences. First, both conservation (alongside government cooperation) have difficulty in implementing rules and land monitoring immediately. Even with external support and agreements from the government, some local communities would not agree to the terms. Before the initiation, conservation institutions should gather more members and develop plans that will persuade the government (central and other levels that support deforestation), domestic/foreign members, and local communities for dialogue meetings. Spreading environmental awareness through domestic and international conferences, committee networks, and support of Reducing Emissions from Deforestation and Forest Degradation (REDD+) can imprint the situation to the public and gather support directly and indirectly. Nevertheless, the central government's political viewpoint to disagreements by land-users can occur. Therefore, conservation efforts require another method for persuasion to settle land conflicts.

Table 2.2. Research focuses on political ecology studies

Focus topics	Details
Political policies and actors	Seek to understand the control power of political identities over environmentally connected actors. Can be identified based on ethnicity, race, gender, and class.
Environmental degradation and capitalism	Aimed to interpret how space is changed based on the level of economic power. And how are each of the social classes impacted and perceived based on such change?
Conservation and socio-environmental control	Efforts on environmental conservation are shown based on the display of varying actors. Results of success or failure are given and explain the reason by connecting to the political and economic context.

(based on source by: Robbins,2011)

With a large volume of political ecology literature existing in today's world, similar structuring and approach will exist and collide with one another. This also accounts for this study as well, considering the literature on policy discourses and land-privatization are constructed on identical politic-economic spaces. Scholars such as Hirsch (1995) invested in territorial public policies that shaped the landscape while Bromley (1991) on the natural political controls. The focus evolved with witnessing the contextual shift to the domination of political powers and their ideologies (Adams & Hutton, 2007). In the context of conservation efforts, Fortwangler (2007) to Peterson and the collaborators (2010) examined the interactions between private land exploiters and public conservationists. Then Green (2016) managed to investigate the community-based resource management based on power decline and manipulation of government systems. While political and private interactive analysis is the popular norm in the field, there is some absence in problematic points of conservation and local narratives. Politics can affect the social

construction and nature, but so does its legal and cultural systems of an area. Conservation and political ecology are a vast field in their rights and not all protected locations and society function the same way.

The findings of this study examine the use of forestry in Southeast Asia. Not only is deforestation constructing a global level of concerns, but it exhibits numerous politicized actions questioned by scholars and alike. Amongst the many countries of Southeast Asia, Cambodia, Indonesia, and Thailand are some of the few that exhibit strong examples of both forest concessions and related policies (Sodhi & Brook, 2006). Their scenery for destruction and transformation of its forests connects to the capitalistic and cultural points mentioned through political ecology.

Chapter 3 Deforestation in Southeast Asia

3.1. Deforestation since 1970

The rate of tropical deforestation has been high since the start of the twentieth century. Numerous studies conducted on deforestation correlated its effect to various forms of land-use. Corruption, poverty, corruption, poverty, poor forest management, high interests in the investment of lands, and agriculture are many of which enhances the forest transformation (Sodhi & Brook, 2006).

Deforestation is also known to contribute to climate change effects. 20 percent of global greenhouse gas emissions were solely contributed by deforestation in the 1990s. Deforestation's rate of carbon release in the atmosphere is said to be higher than the average emissions by automobiles. The effects of climate change are slowly becoming a destructive force in Southeast Asia. Trees act as a natural barrier to reduce carbon dioxide. High deforestation rates in the region are known to increase the intensity of forest fires and airborne diseases from the increased temperatures and droughts. The study by Cruz and colleagues (2007) provided an estimation that by 2040, the temperature will likely increase by 0.7-0.9°C. It will likely create a shortage of food products and freshwater with the growth of pests and invasive species with high temperatures (Cruz et al., 2007; Streck & Gay, 2017).

The declining rate of trees in Southeast Asia had started back in the 1970s and 80s. The rate was significant as most countries had seen nearly half of their tree covers removed. For instance, the Mekong Region comprising Thailand and Vietnam had lost more than 50 percent of its forest cover between 1970 and 1990. Whereas, Thailand alone had lost 30 percent (6 percent of which are from National Parks and Wildlife Sanctuaries) within the same period (Forest Management Bureau, 1988).

The early patterns of deforestation rates in the region were said to be stimulated by tropical timber demands. For instance, the Philippines is known to house 73 provinces with 4100km² in average in size. Only 22.2 percent of forests remained in the country during 1987. The Philippines is known to house a rare variety of *Dipterocarpaceae* tree families in high concentration, which has been sought out by both its neighbors and foreign trades that accounts for the nation's low tree cover (Weidelt & Banaag, 1982; Gillis, 1988).

Figure 3.1. Map of forest cover in Southeast Asia, 2000
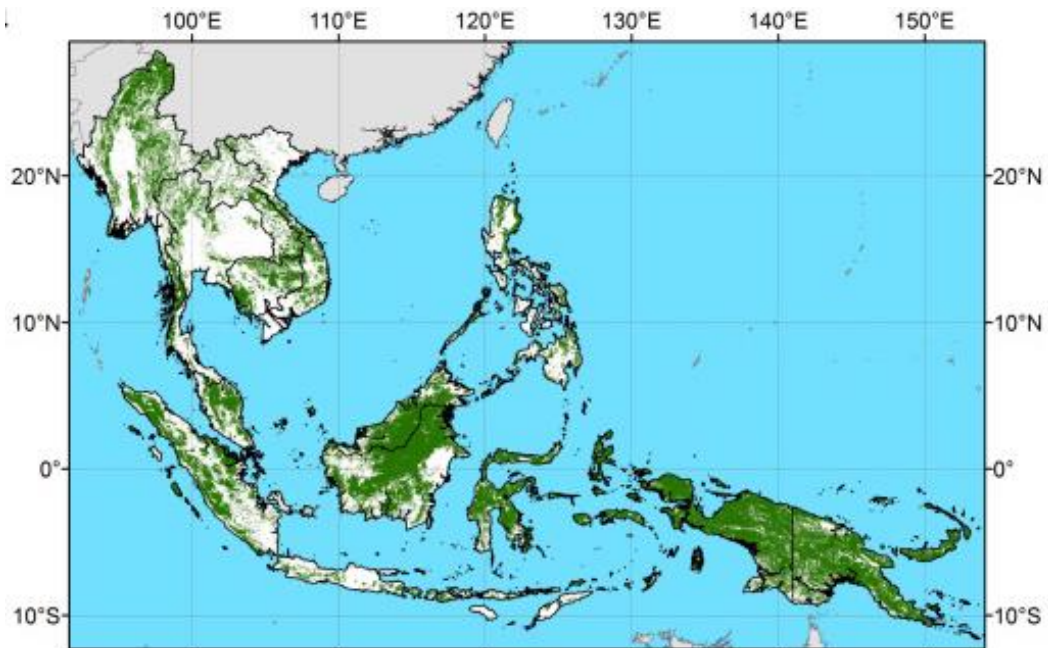
Despite what's evident in the Philippines, timber isn't the only reason for the cause of deforestation in Southeast Asia. As the decade passed, deforestation had started to see a different number of rates and its reasons for its pattern. Between 2000 and 2012, the general deforestation rate of Southeast Asia's mangroves ranges to more than 100,000 ha (Richards & Friess, 2015). A study by Richards and Friess (2015) highlights that aquaculture is the largest driver for land-use in Southeast Asia, totaling approximately 30 percent in general. Rice agriculture and oil palm plantations (especially in Malaysia and Indonesia) take up about 22 percent and 16 percent respectively. Though, there are varying degrees of deforestation rates by its cause. For instance, aquaculture conversion had first declined by nearly 10 percent between 2000 and 2008 and increased by the same percent during 2010. The opposite occurred with rice field conversion as it approximately increased by 40 percent by 2009 before declining. Oil palm plantations, however, had a steady percentage growth between 2000 and 2012 (Richards & Friess, 2015; Miettinen et al., 2011).

Figure 3.2. Graph of forest area percentage between 1980-2010
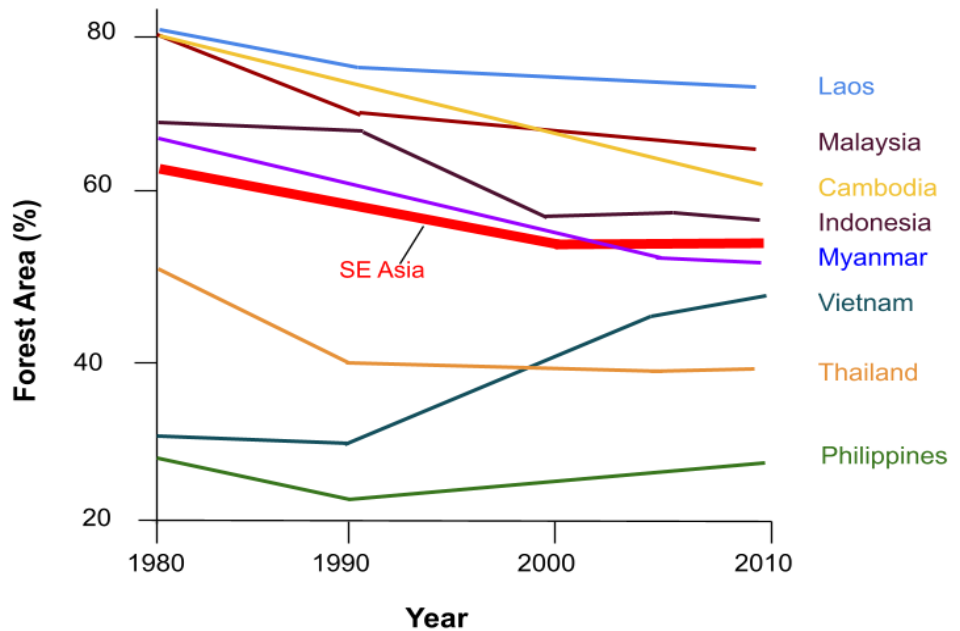
Though, the 2000s period, in general, had a lower deforestation rate compared to the past as indicated by Figure 3.2. For instance, Indonesia has seen a total of 4 percent rise in forest cover from 1990 to 2010 (Khalid et al, 2019). Philippines, Thailand, and Vietnam also maintained an annual growth rate of 0.7, 0.1, and 1.1 percent respectively from 2005 to 2010. Cambodia, Malaysia, and Myanmar, however, have seen an overall loss of forest cover. But their rates have been significantly reduced from the 1970s to the 1990s, with an average annual change of less than 1 percent (Forestry Administration, 2009; Tun, 2009; FMB, 2003). Some state that forest policies and reforestation influenced these numbers, but another rarely explored factor is unpublicized mangrove forests. These mangroves were part of the replantation efforts taken in the late 1990s and early 2000s and were likely to be unregistered as a reserve due to the trees being saplings (Richards & Friess, 2015).

Figure 3.3. Bar graph showing forest area in Southeast Asia, 1990-2010

Forest Area (million ha) in Southeast Asia, 1990-2010
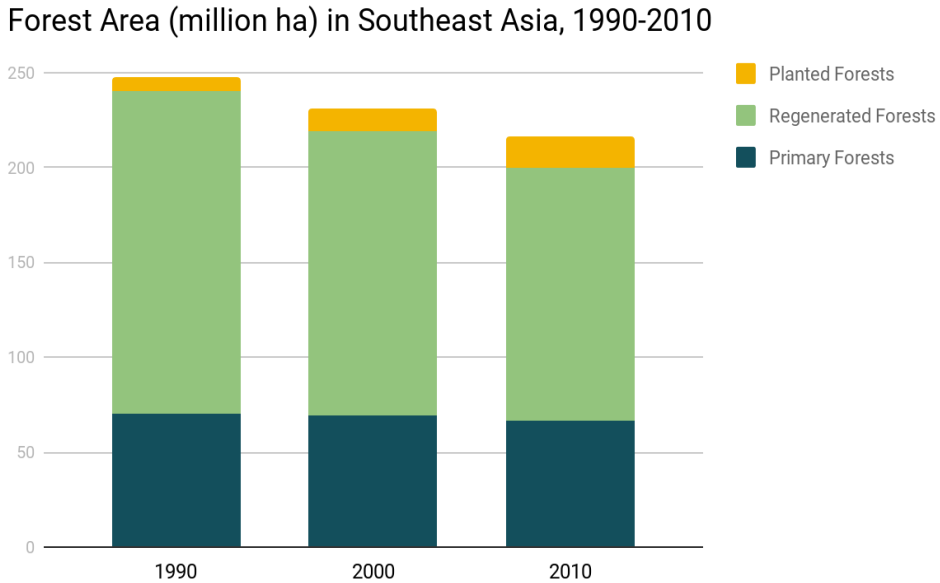
(Based on source data by: FAO, 2010)

Figure 3.3 indicates that Southeast Asia had a large overall reduction of forests of 33.2 million hectares (7.6 percent) from 1990 to 2010. More evidence highlights the reforestation efforts being the influential factors. Newly planted forests are still low in number, but compared to the decreasing regenerated forests, they are increasing at a marginal rate.

Stories and media also portrayed the reduction of forest loss and the substantial growth of planted trees in the early 2000s. Refutably, other sides of the academics and activists had criticized the statistics of forest areas of being remotely true. Much of the criticism lied in the increase of forest cover that instantly jumped from decreasing trees in the 1990s to the increase in the 2000s. Within Thailand Forest Authorities' 2000 remote sensing forest survey, the number of forest growth seemed inconsistent to its prior trends and mappings. The 1990s had a constant number of forest cover as seen in comparison to its 1991's 26.64 percent to 1998's 25.28 percent. The viability of the 1990s 25 percent of forest cover jump to 33 percent within the 2000s is limited in the number of forestry studies of Thailand. A

study by Jean-Philippe Leblond (2014) identifies the crucial factors that lead to the criticism of Thailand's 2000 survey. The methodology for the survey had changed the scale of its Landsat ™ remote sensing from 1:250,000 to 1:50,000. Not only do deciduous trees sighted by the device, but it also recognizes areas of maize cultivations and plantation points as forest covers. Leblond (2014) also added that many academic studies on Thailand's conservation movements generally focus on the rural northern highlands. 2000 remote sensing forest survey took large consideration of the forest covers in central Thailand areas; therefore, it is a little farfetched to scope the data as the generality of Thailand.

Despite the ever-existing cases of reforestation, Southeast Asia as a whole, still suffers from continuous loss of forest covers, averaging approximately 13 percent from 1990 to 2010 (Turner & Snaddon, 2015). The next section explains the likely drivers for deforestation and the counter-movements for the conservation of biodiversity, ecosystem, and human rights. In terms of the drivers, the next section will explain the cause of agriculture expansion, population growth, roads and development, and illegal logging.

3.2. Current drivers of deforestation in Cambodia, Indonesia, and Thailand

More often, the general understanding of deforestation stems from any activity that impacts the ecology of forestry (Timberlake, 1985). These activities are largely known to public eyes as procedures of social and economic policies within countries that are imposed in the name of development (Revington, 1991). Apart from the world elites and investors influencing the tree loss, rural and inhabitants of forestry communities also reduce their forests for agricultural and resource extraction livelihoods (FAO, 2010). Hence, in the major Southeast Asian countries of Cambodia, Indonesia, and Thailand, the main contributors to deforestations are constructed by the following four drivers:

3.2.1. Population pressures

To start, Indonesia is the 4th largest populated country, with about 240 million people residing on its different islands. With nearly 60 percent of the population settling on Java island, the area had become far more populated than ever before. Measures for transmigration to outer islands such as Sumatra and Kalimantan

were sponsored by the government since the 1960s. While the program itself was halted soon after due to the likely cause of deforestation and infringement of human rights by forcible migrations. A study by Darmawan, Stephan, and Nunung (2016) claims that despite the abolishment of governmental migration plans, spontaneous migrations happened across the islands. This is likely due to the limited habitable lands over time and conflicts over a land title. Spontaneous migration can cause far more forest loss impact than transmigration as their movement lacks management and supervision from the government (Billsborrow, 1992). Darmawan and his co (2016) identified that between 2000 and 2010, the relationship between migration and deforestation is founded and logging and clearance are also apparent in conservation zones. It is probable that most rural populations are poor and insist on any means necessary to improve their livelihood and settlement conditions. Migration also increases population pressure, promoting technological and livelihood changes (Klasen et al., 2010; Grimm & Klasen, 2015). New areas are needed to be opened through forest clearance by the migrants. This is the result of land scarcity and limited open lands for migrants as locals are faced with such issues themselves. Codjoe and Bilsborrow (2011) indicated that the migrants are often the groups that cause more damages to the forests than locals themselves.

Similar aspects of population issues are seen in Cambodia as well. On average, Cambodia's population growth rate is 2.5, which has been stable for a couple of decades. Of the total 14 million people numbered in 2008, about 19.5 percent of the whole population reside in urban areas while the rest (80.5 percent) live in rural areas (National Institute of Statistics [NIS], 2009). These rural majorities require extraction of natural resources to meet daily needs, which often leads to logging and clearance of trees. Despite the importance of resource dependence in rural communities, they alone don't pose as the largest drivers for deforestation. Rather, it is the economic inequalities between the rich and the poor that gears tree loss. The rich can use their wealth and influence to gain productive agricultural lands outside of the forest zones. With limited lands available, the poor often have to result in clearing the forests to have their usable lands. No one party is legally clean as each could handle illegal activities and bypass the laws through bribery to gain their property (FAO, 2010).

On the other hand, Thailand is known for its rapid population growth and urbanization. Within the population of 66.4 million, approximately 70 percent of Thai

people reside in rural areas, with most living just barely above the poverty spectrum. Nearly 20-25 million rural settlers reside near the protected areas and National Forest Reserves and about 30 percent of the population employ themselves in agricultural business (FAO, 2009). Like Cambodia, Thailand's frontiers provide opportunities for agricultural transformation through migration, which correlates with high deforestation rates. During the 1980s, Thailand with Costa Rica and the Philippines were known for their Human Development Index (HDI) and population growth, which transitioned to a positive deforestation rate. The rate of population growth could be attributed to post-WWII factors which include rapid rural population growth in frontier regions because of the war's mortality rate (Carmichael, 2008). Rapid population growth pressured the population in remote areas where economic potential areas were dropping with each growing population. Expansion soon occurred with the farmers' need for cash income (Rigg, 1987).

3.2.2. Agroforestry expansions

There are different interpretations and factors of agriculture behind Indonesia's deforestation. The Indonesian government believes that agricultural deforestation is to be blamed on the indigenous settlements. Traditional swidden agriculture practices are the problem as it lacks mechanisms to restrain their over-harvesting and degradation of soils. Dauvergne (2003) argues against the perspective and states the opposite instead. The indigenous population of outer Indonesian islands rather aims for the sustainability of their rainforest for household harvest. The harvest from the practice is limited, thus, only sustainable to its low populated settlements. It is the transmigrants from Java and other indigenous populations who utilize modern types of swidden agriculture that cause more destruction.

Aside from the regular agricultural expansion, oil palm plantations have been known to decrease the biodiversity of Indonesia more than other crops. Both Indonesia and Malaysia have an extent of 12.9 million hectares (Mha) as of 2010, which had been quadrupled since 1990 (Gunarso et al., 2013). With around 87 percent of global palm oil being produced in these locations, rapid expansion is more common than ever before. As a result, the ecology of Indonesia had been severely affected, including forest loss, declination of iconic species such as orangutan in Sumatra and Borneo, habitation degradation, and peatland destruction (Van Schaik et al., 2008; Koh et al., 2011). The expansion of oil palm plantations leads to deforestation with an average of 586 Kha per five-year period. A study by Austin and co (2017) digress that in the period later 2000s, Indonesia began to construct oil

palm plantations on non-forested land. This is due to more and more companies and governments beginning to adapt to "zero-deforestation commitments". But the question becomes whether the commitments reach a sustainable level of forestry in the Indonesian islands. Continuing with the outlook of Austin and collaborators' (2017) study, there is an estimate of stable deforestation level since 2005 as well as the deforestation by plantations reaching less than one-fifth of the whole in 2015 (Austin et al, 2017). Even without the commitments, more oil palm plantations were founded in non-forested locations. However, one possibility of continuous deforestation level adds up from the existing oil palm plantations in forested locations.

For Cambodia, most rural households, especially of the smallholding families, have lots of children who eventually get married and establish their independent farms. Despite 2 hectares of land usually being enough for farming households, the pressures imposed by the industrial activities and government agencies forcing eviction of lands promote searching for extra separate lands (-Source: Cambodia's forests and climate change). And smallholders to poor and landless farmers must engage in such activities as they do not have the resources and wealth to cover for the diversification of crops. Thus, they are faced with conditions that hamper their productivity and profitability more often such as weather irregularities and market fluctuations (Kong et al., 2019)

Like other major Southeast Asian countries, deforestation is correlated with the development of agro-industrial plantations. These plantations are granted by the state and allow for achieving economic land concessions (Davis et al., 2015). In terms of these concessions, Cambodia provides long-term leases to foreign and domestic investors for land and economic development. A study by Davis and his collaborators (2015) indicates that more than two million hectares of land were leased to these actors and likely qualify for the deforestation rate between 2000 and 2012. More than half of the forested area was removed with the annual deforestation rate falling higher than 30 percent of remaining forests (Davis et al., 2015). However, it should be noted that the investors aren't directly the cause of the concession. Rather, more often or not, the investors fall under receiving a share from economic productivity in the location and merely having ownership of the lands. The productivity comes back to the focus of agro-industries who are contracted at large due to vast market demand and profitability of crops such as hybrid maize. Though

in recent years the maize has been in decline due to constant degradation of the field, causing these businesses to move to cassava, orchards, and especially rice (Kong et al., 2019). Rice seems to be the dominant crop in Cambodia, as the average per hectare yield in paddy rice increased 1.1 tons within the 2002 to 2010 period (Michinaka et al., 2013).

Thailand has been especially known for popularized cash crop farming in its northern provinces. Maize has been popularized since the 1950s and has seen its profit through exports to Japan and Taiwan (Hirsch, 1987). Lowland farming is scarce as fewer lands are available for plots. Lowland farmers must settle to expand their working fields to the hills and the highlands. Trees must be removed to farm their preferred cash crops and more often the people use fires to clear the area. As the lowland farmers are equipped with limited knowledge on highland farming, their action often burns down the trees more than they had planned to. These farmers also are unable to rotate their use of the fields, quickening the land exhaustion. Also, highlands contain more dry fields than paddy fields, creating low productivity in crops such as rice. All the above factors influence the lowland farmers to move on to another land for their farming, repeating the process for forest destruction (Delang, 2002). Agribusinesses also take their hand in the cash crop farming, often starting with financial backing from the government. It is common to see the lesser smallholders have difficulty in gaining loans compared to the big agribusinesses (Phongpaicht & Baker, 1996). The government has a usual interest in promoting agricultural expansion and encouraging foreign investments into its nation, and agribusinesses tend to cause more clearing of forests than smallholders alone (Delang, 2002).

3.2.3. Road and developments

In Thailand's case, both the government and its military had a hand in road construction projects. From the 1970s to the 80s, 28 percent of the forest cover was removed in total. Along with that number, while agriculture, logging does cover a major part of the percentage, the other usage relates to the increase of roads in forestry surroundings. An example of road development goes to Northeast Thailand, where the roads would support the military in their mobility. The main goal, however, was to efficiently remove any hiding spots of communist influencers from Laos (Caldwell, 1974; Muscat, 1990). However, Southern and Central Thailand were founded to have more road density than that of the North and the Northeast. A study

by Cropper, Griffiths, and Mani (1999) relates the 10 percent increase in road density within South and Central Thailand to the 15 percent decrease in forest cover. The reason that Northern Thailand's road density did not contribute to the forest loss is that the agricultural households are finding more opportunities outside of their livelihoods. There is a regression in the agricultural sector, and more are finding their way to the South and Central urban districts, creating the need to expand the urban properties. The roads aren't a product of the locals but by influential individuals of political leaders, bureaucrats, and capitalists. Also, hydropower dams and highways had been constructed since the 1960s and new development projects are still existing under government plans (Samukkethum, 2015). However, more data analysis needs to be ensured to see if there are correlations between highways and railway development to deforestation.

Cambodia, along with most of the nations in the Mekong River line has built several dams for hydroelectricity energy. With a growing population and urbanization, energy demands spiked higher than ever before. Cascade dams were built in the Lower Mekong Basin (LMB), shared by Cambodia, Laos, and Vietnam through the Sekong rivers (Shrestha et al., 2016). The construction of dams requires large-scale clearance of forests and wildlife relocation. Completion of dam construction results in the development of new roads and infrastructures in its surroundings. Aside from deforestation, seasonal floods are common in the LMB areas. The relativity of forest flooding isn't well known in terms of study data in Cambodia. Regardless, more than 50 percent of high precipitation falls from May to October. Much of the water is directly flown to the Mekong River and storm surges can often create flood situations. Returning to forest loss, the study by Lohani and collaborators (2020) details the decline of primary forests in the Mekong area of Cambodia were 19 percent from 1993 to 2017. The percentage equals roughly 23,923 km² of forest loss in total. Generally, the rates are comparable to community and protected forests, which are lower overall by 190 km² (Lohani et al., 2020).

Data regarding deforestation resulting from infrastructure development is limited and uncertain for Indonesia. For this example, this study will highlight the data collection made by Sloan and his colleagues (2018), focusing on the 2.6 million hectares of the Leuser Ecosystem in northern Sumatra of Indonesia. There are road development plans and proposals in the province that are governed by the central government that are still prominent. To give an example of impacts, the forest of Ulu

Masen has been encroached to make room for its already existing roads (Linkie et al., 2014). Then there is an ongoing plan for road and hydroelectric development in one of the Leuser's areas (Hanafiah, 2017). Roads also act as a bridge to consolidate national and international trade, timber and agricultural markets, and tourism. Such factors contribute to the number of 49 percent road network extension between the 2000 to 2014 period (MoPW, 2017). More numbers should be expected as there are likely un-publicized routes and road development as central governments lack clear management over regional development plans (Persha & Andersson, 2014).

3.2.4. Illegal logging and demand for timbers

Logging in Thailand has been an ongoing activity with a long history. The forestry sector, consists of timber productions and exotic hardwoods of teak, having large attention in international trade. The RFD, with the addition of British capitalists, was known to cut down the teak forests to export its woods to Europe with repercussions extending to 500 forest loss in Thailand (Bello, 1998). In the 1880s, the northern region of Thailand had lost forests overall more than the rest of its countryside. Logging had continued even a hundred years past, as the state's forest policy opted to promote logging concessions to attract foreign businesses. This goes in hand with the early forest policies in Thailand especially in 1941, where its Forest Act allowed the government officials to cut down the forests for their profit, and concessions were given to timber companies as well. The output gains of timber production, however, became short with the years forward. The number continues to drop as in the 1970s when the timber industries were at large, only managing to contribute 2.5 percent share of Thailand's GDP. It could well be tied to the instances of logging limitations introduced with the logging ban of 1988, as the shares had fallen to 0.16 percent as of 1990. Urban dwellers with a network of protectionists had participated in opposing forest concessions and logging. As a result, the idea of logging for timber and concessions has been reduced based on the activity of corporate movements. Nevertheless, illegal logging is still optimal for outsiders who have a difficult period with agriculture due to periods of droughts and market fluctuations (Samukkethum, 2015).

From 2000 to 2005 in Indonesia, deforestation has caused an average of 1.09 million hectares per year as a combination of plantation conversion and concession by legal rights of timber industries (Hunt, 2010). Historically, islands of Borneo, Sumatra, and Java were mainly the target of deforestation for teak and Merbau

lumber during the 1990s (Palmer, 2001). All types of forests, including those of protected forests and conservation areas, had been damaged by illegal logging (Luttrell et al., 2011). As of 20013, approximately 15 million m^3 (60 percent) of Indonesian timber production has been circulating across the country (Hoare, 2015). Diminishing forests now shifted target to other islands of Maluku and Papua (Mongabay 2019).

The big percentage behind the deforestation in Cambodia before 2011 was Economic Land Concessions (ELCs), a patch of protected areas in use by the government and corporates for investing in agriculture developments. Identifying land as ELCs allowed legal opportunities for forest clearance. That was until 2012 when the government removed the influence of ELCs on forests and a law was implemented to halt concessions. What should be the start of cracking on logging operations haven't substantially slowed down the deforestation rates. The existence of large timber black markets allowed numerous attempts by illegal loggers to bypass the law (FAO, n/a; Mongabay, 2019). Poachers roam around the deeper parts of the forests to find rosewood. Since 2002, rosewood has been identified as protected species and cannot be cut down under legal means. Aside from illegal value, the richness in color and waterproof qualities made it desirable to the riches and furniture industries. Both poachers from neighboring countries and poor villagers are part of the illegal logging and smuggling of rosewood. Both parties carry amounts of rosewood to the borders of Vietnam, where companies with legal logging permits buy the rosewood and ultimately export it to China. A single rosewood bedpost can bring in about 1 million dollars to the seller and because of that, rosewood logging is common in the Cardamom mountains and Beng Per surroundings (DW.com, 2018).

3.2.5. Summary of deforestation in Southeast Asia

The earlier four drivers of deforestation are a cause of dependence and interest in forest land. The forestry sector makes a great contribution to the national economy, with numerous national and international industries bringing to life. Locals and indigenous populations also justify the raise in the national market through their activities in agriculture and logging. The common daily requirements for locals also explained its connection to negative forest-usage. Fuelwood use for heating and energy, with grazing for grass and fodder, are common traits of a local lifestyle. In most cases, sensible local communities understand the likely contribution of deforestation and do try not to excessively extract the resources. Yet, local

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communities also represent the negative coefficient of forest loss alongside the major industries (Dangi, 2009).

Figure 3.4. Cause map of deforestation in the generality of Southeast Asia
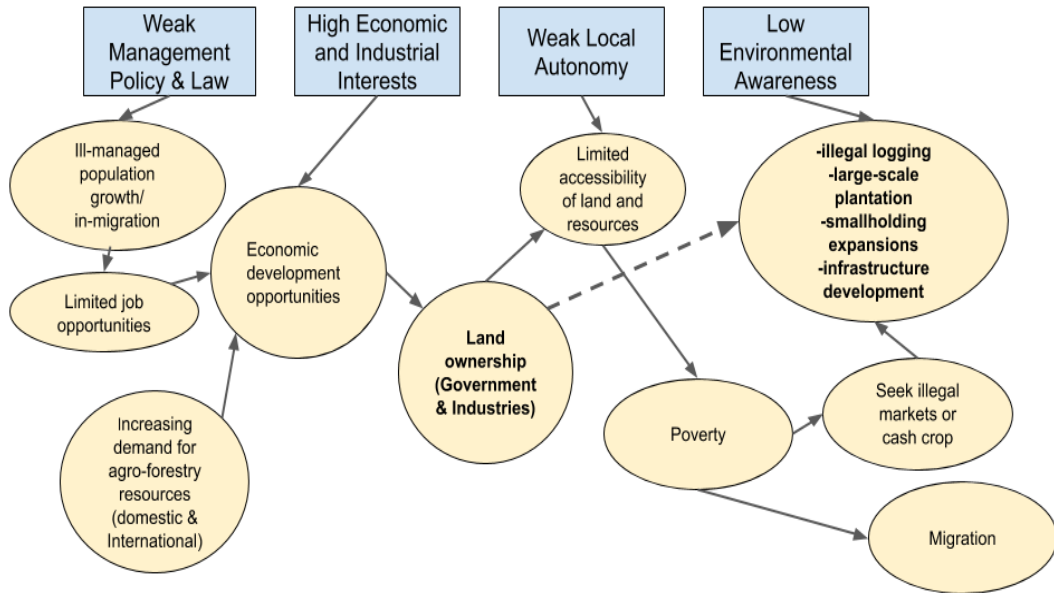
Figure 3.4 showcases the cause map for deforestation in the generality of Southeast Asia, based on the variables in socio-economic and political capacities of forestry actors. Most forestry problems in Cambodia, Indonesia, and Thailand are due to poor policy integration and weak regulations regarding population growth and movement. Even if the policies and laws for illegal forest land-use are well enforced amongst the social levels and geographies, the growth of humans will always create the need for new land and opportunities alongside. The idea of the population doesn't just apply to the people of a nation, but also migrants from neighboring countries and businessmen. The large interest in an area progress to strengthening economic opportunities based on suitable market demands. The clash between the interests of the locals and migrants to industries on lands reflect the shortage of land accessibility and affordability for low-income residents. Locals generally have low autonomy and

influence towards economic development and any form of land ownership. Even if the investors and cooperatives aim to increase the social, environmental, and economic capacity of the nation, if they aren't directed to locals, then poverty will emerge (Löhr, 2011). Insecure land permits and unclear land-use directions intensify the poor population to migrate for new opportunities (Dhiaulhaq, 2014). Or some will take a risk by entering the forests illegally and steal assets of timber and cash crops. To sum up, fewer people will follow the values of environmental sustainability and wildlife awareness when they face social and economic issues (Michinaka et al.,2013).

National leaders and their people have been advocating for solutions to resolve degradations and conflicts for many years. Without proper steps taken, the forestry destruction will halt agroforestry contribution to the national economy. With a large emphasis on the agroforestry lifestyle in rural households, developing nations especially need to make sure deforestation doesn't hinder their national growth. Furthermore, non-timber forest products add to food security, depended on locals for food and traders for exports. All these factors mean that forestry can have both national and international impacts. In the next section, basic forest management and conservation will be detailed.

3.3. Emerging conservation types

Due to the widespread deforestation experienced in Southeast Asia, drastic measures were considered to restore the forest cover. Governments are turning their sight to reforestation and afforestation programs. Apart from the bilateral and multilateral grants and loans, ironically the large sum of financial backups for reforestation funds comes from concessionaires and corporate investments. Since the 1950s and 1960s, reforestation projects have undergone in areas of high degraded lands and Forestry Departments often lead them. Locals weren't largely involved in the procedure, but for those who have been employed as labor with little benefits given. The procedure relied on large-scale planting of trees, with species including beechwood, gum, mahogany, and teak. These species were chosen as they carry a long lifespan in open spaces, easy to manage, and more importantly due to market demands (Neidel, 2012).

Figure 3.5. Key stakeholders in forest conservation and management

Nevertheless, forest management requires numerous stakeholder involvement for achievement. Figure 3.5 indicates key actors in forest management and conservation. Each has its specific roles and responsibilities:

- **Government**: has different governing levels with central at the top, provincial in the middle, and district/local level at the bottom. Central government often dictates the standard and direction of national policies and regulations. Certain provincial departments and district/local governments in general, are responsive to local situations and build community support systems.
- **Conservation Groups**: are formed by environmental activists, charities, to NGO members. Large conservation groups are often structured by the government departments. Their goal is to develop sustainable measures for forest communities, reduce deforestation practices by locals, and resolve land-use issues.

- **Companies and/or Institutions**: are any business groups that either invest in conservation or operate on forestry for personal gain. Conservation involvements are for publicity, the creation of sustainable and profitable business opportunities, or being sympathetic to public issues. Most companies and institutions operating in rural settings are owned by private operators.
- **Locals and Indigenous**: population who depended on natural resources and agricultural lands. Most resource extracting traditions in local communities allow for nature's regrowth. Most extract resources at a certain amount to satisfy their daily needs and sustain them for future periods. Or can over-extract and be part of logging activities.

All the mentioned parties occasionally become acquainted with each other during conservation projects. These projects often are approached at a national scale, with government agencies being in charge. Larger projects opted to create revenue opportunities with carbon removal activities. Yet, carbon markets are still niche and yet to be verified of their quality (Neef & Henders, 2007).

Experts anticipated that reforestation based on small-scale projects is likely to improve biodiversity and livelihood conditions. Signifying community participation and reducing soil erosions were major highlights for evaluating the success of these projects. Success requires addressing land tenure conflicts and crimes associated. Institutions cooperating with communities are to provide safety nets on local rights (Angelsen et al., 2012). And make sure that no collaborative and forest resource leakages occur. Whether a project achieves success or failure, future projects can adapt its result for further refinement (Nijnik & Halder, 2012).

More often, forest conservation aims to accomplish deforestation containment and local security through the designation of protected areas. These areas are not delegated to forests as its definition accounts for any "regions or zones of land or sea that are reserved for purposes of conserving nature and biodiversity." (Global Forest Atlas, n/a). In forestry, protected areas are supposedly the approach to reduce tropical deforestation (Andam et al., 2008). There are skepticisms on whether protected areas decrease forest loss. Studies by authors such as Rawson and colleagues (2011), to Duckworth et al. (2012), to Cazalis and collaborators (2020) all states of effective protected areas existing in the region. The latter researcher targeted

tropical forestry of the world and found a commonality of at least having the benefit to prevent forest fire and loss (Cazalis et al., 2011).

Another form of nature-economic sustainable activities stems from nature tourism. Globally, stakeholders from the ranges of the World Bank to energy industries (oil and petroleum) invest in types of nature tourism. The goal of nature tourism is to protect biodiversity while giving economic incentives to the local and/or indigenous people as the guide. Not all nature tourism abides by the known direction and large tour operators mainly have economic priority over everything else. This tourism often "sells" nature by having its attraction or accommodation within nature habitat with little to no protection approaches taken. Local and indigenous people hired can also be of small percentage and those who were hired, are working as part-time roles with little return or benefits. Despite its problems, nature tourism has the potential to preserve the natural habitat if it brings profitable revenue to the national economy (Honey, 2008)

Finally, the identity of community forestry has emerged decades ago that acts differently from common forestry. Provided by Blomley and his collaborators (2010), it is known as a "decentralized forest management" with a wide range of approaches by its different identities. Blomley and fellow collaborators (2010) covers the rest of the approaches of decentralized forest management adopted in Cambodia. The lists are as follows:

- **Community Forestry (CF)**: where management is prioritized by government or social groups
- **Community Commercial Forestry (CCF)**: with the help from the Wildlife Conservation Society (WCS), the goal is to focus on sustainable forest management and timber usage
- **Partnership Forestry**: is generally the management that is led by the commune council and community leaders
- **Community Forestry in Protected Forests**: controlled under by the Ministry of Environment but controlled through different legal procedure for community rights

Chapter 4. Comparing conservation and actor conflicts in Indonesia and Cambodia

4.1. Methodology

There are numerous environmental pieces of literature with a quantitative approach to determine trends in tree covers and relation to economic growth. Few connect with forest conservation and management impacts. These studies utilize historical evidence of conservation activities from the 1990s and early 2000s, to give enough time for the reforestation effect. These quantitative studies are accompanied by qualitative details, providing details on actor attitudes.

In this chapter, qualitative research is conducted to examine deforestation and conservation activities in Indonesia and Cambodia. A qualitative approach is selected due to its characteristics of multi-dynamic details to case locations. As it comprises two different cases, finding a common viewpoint can holistically present the study. And with the lack of empirical data-driven from field studies and interviews, this section will derive from investigating people's views and experiences. Instead, the following sections will be a precursor to the narratives for chapter 5's case study and bring out introductory explanations on land-use issues and forest conservation approaches. Therefore, the detail is more streamlined with categories that explain the situation, the actions taken upon such circumstances, and co-current impacts.

The study examines the provincial areas of Cambodia's Kampong Thom and Indonesia's West Kalimantan. Indonesia is notorious for large-scale oil palm and timber plantations while Cambodia for illegal logging and agricultural encroachment. There are more sides to the story with the inclusion of political interests. International influences have large impacts on these locations and become a reason to examine the locations. Both Kampong Thom of Cambodia and West Kalimantan of Indonesia have high rural populations with poor living conditions. Often its people are associated with low education and few slots of occupations available outside of their forestry dependence. Operations for forest management are also mainly optimized by the government and related agencies (MRD/GTZ, 1985; Lord & Chang, 2018).

The relative contribution of the following sections is derived from existing case studies covered by prior researchers. Archival and case studies are mainly utilized to determine the basis of deforestation problems, the emergence of conservation, and governing differences within the two locations. Information presented will review official documents from NGOs and national reports, journals with related articles,

conference presentation materials, and news articles. Because of the nature of this study methodology, the findings might not represent the situations and conditions properly on a provincial scale and could display national circumstances. The context of geography, economic status, cultural values, environmental presentations, and norms can differ by the district to villages. The data tries to provide a general academic understanding of deforestation and forest control in both countries.

4.2. Deforestation and local conflicts

Both Indonesia and Cambodia possess great biodiversity reserves and forestry in the world. For instance, West Kalimantan is located on the island of Borneo, the world's third-largest island containing tropical rainforest trove across the countries of Brunei and Malaysia. Borneo's rainforest inhibits 6 percent of the world's biodiversity, with 15,000 types of flowering plants to 3000 tree species (MacKinnon et al., 1997). Borneo also boasts rich animal life, with 13 different primates and mammals consisting of Asian elephants (*Elephas Maximus*) and Sumatran rhinoceros (*Dicerorhinus sumatrensis*), (Payne et al., 2002, WWF, 2005). Within the island, West Kalimantan is a land that covers approximately 31,000km². It boasts its forest wetland ecosystems that thrive on its river called the Kapuas, which is Indonesia's longest river in existence (Klepper, 1994). The river is connected to freshwater swamp forests, peat swamp forests, and dry lowland forests (Giesen & Aglionby, 2000).

Figure 4.1. Map of West Kalimantan, Indonesia
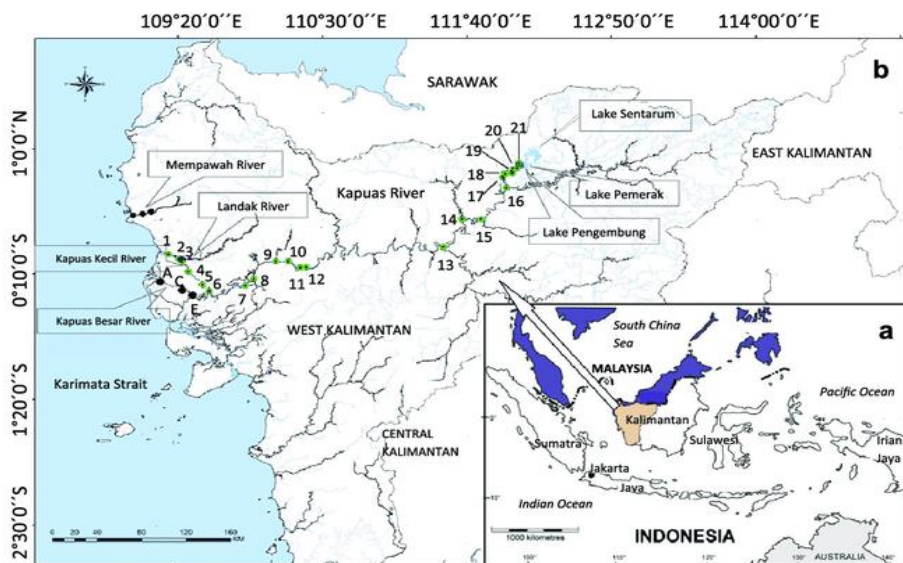
(Source: Loh et al., 2012)

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Two major ethnic groups reside within the province: the Iban Dayak and Malay (Kapuas Hulu Statistics, 2017). Both ethnic groups depend on agriculture and resource gathering activities for their livelihood (Persoon & Osseweijer, 2008). Within farming, shifting agricultural practices were often utilized. Major cultivation contributions include rubber, maize, cassava, and rice. Individuals who aren't farmers hunt wild game and gather non-timber forest products (NTFPs) of honey and nuts. Forestry is not just valued by the indigenous and rural populations for its necessities for survival. Trees and their relative geography can prevent pollution and land erosion, making the location a hotspot for both wildlife and rural populations to thrive (Persoon & Osseweijer, 2008).

Cambodia's Kampong Thom province also boasts its forestry with wildlife diversity and dominant rural settlements. One of its forests, the Prey Lang Evergreen Forestry, is the largest Indo-Burma Hotspot that covers approximately 3,600km² of area. The forest houses major wildlife from elephants, tigers, bears, to banteng (WRM, 2009).

Figure 4.2. Map of Kampong Thom, Cambodia
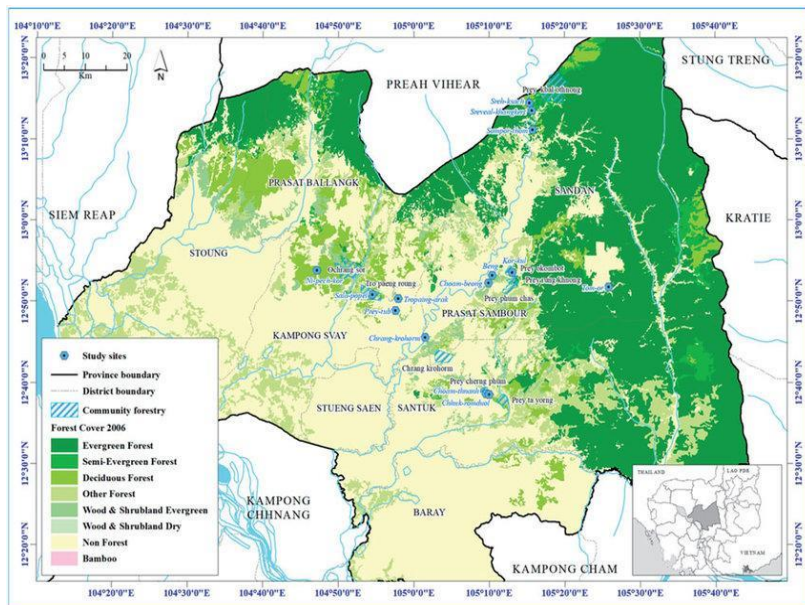
(Source: Nhem et al., 2018)

In terms of its people, there are roughly more than 250,000 of population settling within the 340 villages of Prey Lang boundary. People of Kuy are the dominant indigenous settlers, who define Prey Lang as "Our Forest" for its provisions of spiritual,

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cultural, and other essential properties for survival. Yet, due to the numerous infertile soils in Prey Lang boundaries, more often the rural groups depend on fisheries and resource extraction than on agriculture. Therefore, roughly 30 to 40 percent of local households' livelihoods depended on forest resources, with their annual income ranges from 280 to 345 USD (Hansen & Top, 2006).

4.2.1. Background on deforestation

Over the years, both Cambodia and Indonesia have seen numerous proposals for economic development. For Cambodia's Kampong Thom, there were multitudes of plans for mines, plantations, dams, powerlines, and road developments in part of ELCs (WRM, 2009). Much of the extent of these developments had overlapped with protected forestry in the province. One of which is seen in the Peng Per Wildlife Sanctuary. Despite the identity as a protected area, the Cambodian government allowed industries to take a portion of the forestry (Mongabay, 2019). Other forest properties like the Prey Lang National Park were also prone to company-induced concessions. Pheapimex-Fuchan, Everbright CIG Wood Co. Ltd., to Colexim are some of the examples of foreign-domestic companies with legal rights for their activities (Schmidt & Theilade, 2010).

Cambodia's government has supported these industrial concessions based on land rights and laws. For instance, the 2001 Land Law (Article 48) identifies land concessions as a product of any individuals or groups based on legal authorities and rights. Furthermore, the same law recognizes land concessions as necessary actions to contribute to social and economic growth. The problem, however, stems from the difficulty in managing population growth and ever-increasing demands for land and resources across the nation. Market calls for wood fuel, timber, infrastructures for airports to roads, agricultural plantations, to mining have become all-time high. In many instances, these demands outweigh the need for sustainability on nature and community rights (Poffenberger, 2009). This is evident with Cambodia's forest regulation and governance history. It is not only being weak to corruption, but the overall systems have numerous faults that can be exploited (Sovann & Saret, 2010). For instance, Cambodian Law mandates 100km² of land ownership per company within ELC programs. Yet, companies can acquire additional land by registering to the system with slightly different names (Mongabay, 2019).

Historically, even Indonesia has experienced numerous deforestation cases based on infrastructure improvements and industrial concessions. Occasionally, the Indonesian government wanted to urbanize and improve its island by urbanization and strong rural markets. Their plan features the establishment of roads and other

transportation connections that bridges rural and urban markets (Dove, 1985). Apart from roads, however, the governmental envision for island improvement was through enhancing the agroforestry industries. West Kalimantan is one of the many provinces in Borneo island which undergo extensive industrial activities by foreign companies. For instance, during the 1970s, Philippines companies were legally granted rights to large-scale concessions by the Indonesian Department of Forestry (Wadley & Eilenberg, 2005). High numbers of deforestation were a product of their establishments of rubber and oil palm plantation expansions (Casson, 2000). As of 2016, Borneo maintains 8.3 million hectares of industrial palm oil plantation, which on average is 39 percent of global oil plantation (Fishman et al., 2017).

Amongst the deforestation impacts in both nations, locals were also subjected to its contribution. In West Kalimantan, several ethnic groups were known to practice agricultural expansions (Dove, 1985). When compared to the practices of Cambodia's ethnic and rural populations, however, Indonesian ethnic's impact on forestry is deemed marginal. Most rural households in Kampong Thom extract fuelwoods, which is used for cooking and heating energy. It is also to some, their source of income as the dry season from December to May provides difficulties in agricultural production. However, fuelwoods are quite scarce in number, providing high value in its market. The outcome creates many instances of villagers trespassing other territories for fuelwoods during the dry season. The study by Ehara and fellow collaborators (2016) indicates households' strong dependence on forest resources, even if it creates situations for arrests and conflicts (Ehara et al., 2016).

4.2.2. Conflicts in response to deforestation

Ecological loss isn't the only problem created by deforestation. Concessions that expand beyond its liable boundaries and rights create tensions between social actors. Varying reports on the relationship between private companies and local communities illustrate tensions rather than cooperation. These tensions often lead to one-sided impacts, with locals being suffered from the oppression by the companies. For instance, a South Korean firm named Think Biotech had concession rights for the portion of Cambodia's Prey Lang forestry. Upon the majority of the opinion brought out by the Prey Lang locals, the said company's range of concession exceeded its given area. The extension of the company's concessions had reached out to the community forestry and as a result, hindered local farmlands. The said concession had also removed major non-timber and forest products of rattan, mushrooms, and herbs (WRM, 2009). Additionally, the company's activities increased levels of air (dust), water, and noise pollution (Yasmi & Gritten, 2011).

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Companies such as Think Biotech are oblivious to their impact on the villagers. No efforts are made by said companies in reimbursing the damage done to the forests as well. Danielle Keeton-Olson (2020) from the Mongabay news headlines the disconnection between the companies and locals as a product of the Cambodian government. The Ministries and said departments that oversee forestry governs with insufficient ground survey data, often creating confusion on forest boundaries. Furthermore, government officials prefer to create close relationships with the companies more so than villagers. Opportunities to create new jobs, strengthen the national economy, and the ability to partner with foreign markets and diplomats are made possible by having strong state-industrial relationships. Beneath the public surface, however, government officials undergo corruptive dealings with the companies for shares and returns. As a result, land permits are given without undergoing requirements, giving an unfair disadvantage to the locals in comparison (World Bank, 2006; Yasmi & Gritten, 2011).

Similarly, Indonesia has conflicts created by foreign companies. An example of Indonesia's case is with Bumitama Agri Ltd (BUMI.SI), a company from Singapore Exchange (SGC) responsible for crude palm oil production in Indonesia. They control over 198,000 hectares of land and 133,000 of which are for palm oil cultivation in West and Central Kalimantan of Borneo and Riau in Sumatra. Further land increases with unchecked expansions due to Indonesia's poor forest governance (Rainforest Action Network, 2013).

Bumitama Agri Ltd is one of many companies in Indonesia featuring multinational stakeholders. The Rainforest Action Network (2013) expands on Bumitama's financial web, spreading across 5 different facilities from varying nations. These include:

- Japanese based Bank of Tokyo -Mitsubishi UFJ and Sumitomo Mitsui Banking Group
- Singapore based OCBC and UOB
- Indonesia based Bank Ekonomi and Bank Permata
- The Netherlands based Rabobank International
- Malaysian government-owned CIMB Bank and Indonesia government-owned Bank Mandiri

Most of these institutions are well connected with foreign governments. Banks have provided more than $142 million to Bumitama Agri Ltd for an annual rate of 13,000 hectares of palm oil plantations. Investors and subsidies have at least 7 percent of the shares. Governments are taking fewer initiatives against these companies

because of the deeply rooted financial backgrounds. Pressures are accumulated to the locals, who have little to no political capacities for alternatives (Rainforest Action Network, 2013).

Apart from company-induced conflicts, overlapping land-use has frequently troubled Indonesian territories. Indonesia's West Kalimantan has a strong cross-border relationship with the Malaysian state of Sarawak. Historically, both human and natural resources were well distributed across its border and kept its political behaviors in check to remain close. Yet, the eighteen districts of Malaysian state Sabah had been known to cause problems to Indonesia's Borneo provinces. Much of Sabah's concession plans had been known to expand towards Kalimantan provinces without prior notification (Ancrenaz, 2013). Politics on cross-border concessions haven't been well settled and governed, resulting in increased hostilities of communities. Their aggressions were fueled by not just expansions, but also the embezzlement of lands (Lim, 2014).

Trends of land grabbing have been staggering in numbers since its emergence in the late 1990s. Immense migrants from Madura Island had settled in West Kalimantan. Madurese were known for their involvement as contract labor in plantations and forest concessions during the early 1900s. With Madurese's migration to West Kalimantan, their work habits had interfered with the Dayak population. The lifestyles of Dayak tribes involved in growing crops in community forest reserves. Tensions between the two escalated when Dayak's crops and livestock were damaged from Madurese's plantation expansion (Peluso & Paddoch, 1996). Furthermore, Dayak tribes were facing difficulties in getting legal recognition and accessibility by the state in land-use than of migrants. Land-use and concessions are legalized by the Indonesian parliament in East and West Kalimantan. Migrants and companies were receiving more permission from the state than Dayak ethnics. There are few cases where Dayak and other locals sold their available lands, which is a result of schemes by companies (Peluso & Paddoch, 1996). Not just their lands, but Dayak's accessible water is known to be polluted from the chemical operations of agroforestry industries (Kalimantan Review, 1994). Dayaks were pressured to a point where they replied with violence against Madurese. The conflict between Dayak and Madurese were considered Indonesia's largest indigenous tragedies (Smith, 1996).

These types of local conflicts were followed by political responses. The government desired to resolve tensions through peaceful options, often composed of ceremonies with glorified agreements amongst its leaders. These activities had no resounding impacts in resolving conflicts as the ceremonies appealed to elites and leaders instead of villagers. The government instead had relied on violence through

deploying police and military. More than hundreds of Dayak and Madurese had been arrested for carrying knives and firearms. Controversies appeared with the arrests as few individuals without weapons were arrested instead. Furthermore, the Madurese population was arrested on fair and peaceful terms, while the Dayak population was contained by the military (Smith, 1996). The inconsistencies and unfair government regulations were often made in quick succession without proper situational awareness. NGOs, grassroots groups, and locals had begun to raise awareness of forestry and local rights issues. Within the time gap between past conflicts to recent decades, substantial changes were starting to appear in the form of cooperation between government and local groups.

4.3. Conservation efforts: local and environmental security

4.3.1. Emergence of government-controlled conservation

In recognition of the growing forestry degradation, both government and social groups introduced a range of management plans. Numerous conservation studies that observe conservation movements are mostly controlled by the government. They conform to top-down approaches, with few opportunities for the local and volunteers on decision-influences. REDD+ initiatives are commonly devised from the cooperation between governments and NGOs. These initiatives and their constructed programs oversee deforested locations across the globe. Cambodia's REDD+ programs were officially launched on February 26, 2013, under the management of the Forest Administration (FA). The goal of the program is to limit nature degradation and related local issues in the country (Hardtke, 2014).

The main goals and objectives of REDD+ are as follows:

- increase wood fuel and timber supply
- reduce demand on timber and wood fuel by developing efficient use or switching to other fuels and commodities
- continue using the resources while improving access to alternative resources and protecting nature

The REDD+ strategy planned to oversee 3.1 million hectares of protected forest, indicated by the 2008 Protected Areas Law. Additionally, the program undergoes a 20-year long term based on its national forest management plan (2010-2030) (Banks et al., 2014). The same plan includes countermeasures to reducing deforestation, which are:

- understand the existing regulations for land concessions (figure out how

concessionaires could avoid forest clearance on protected areas under the guide of REDD+)

- revision of the Environmental and Social Impact Assessment (ESIA) regulations
- identifying and finding resolution keys on conflicts within existing agricultural developments
- develop and initiate land-use planning at national and sub-national levels
- implement laws relating to large-scale development (limit or regulate its intensity and scale)
- improve Forest Law Enforcement and Governance (FLEG) (potential support from EU or partnership programs)

The said aims and objectives are generalized by national leaders and central levels of governance. Under the provincial and district management, different agendas and directions are implemented. For instance, the Prey Lang initiative is a league of affairs between Cambodia REDD+, UN-REDD Roadmap, World Bank, and Forest Carbon Partnership Facility (FCPF) (GoC, 2010). Their main objectives are as follows (Sovann & Saret, 2010):

1. identify areas with high deforestation threat and in dire need of implementing local forest protection

2. implement conservation programs in numerous locations by extending conservation areas in Prey Long as protected forest to separate ELCs developments.

Additionally, REDD+ projects in Prey Lang and of Kampong Thom areas included objectives to improve local accessibility and livelihood conditions. Traditionally, while majority of locals in Kampong do access the nearby forestry for resources, most do not own legal proprietorship. Therefore, REDD+ work to safeguard local's accessibility rights through forestry activities that combines sustainability and livelihood practices. Few approaches include (ITTO, 2015):

Conduct climate-smart Community Land Use Planning (CLUP): Consists of monitoring land-use plans and practices. Activities that release carbon are assessed, to provide options for carbon-reduction (e.g. renewable energy) instead. Promote communities and land-users to use their land more rationally.

Improve Law Enforcement: The Forestry Administration routinely patrols, captures, and legally judges the participants of illegal-land use activities. FA accomplish such feats through field visitations and hiring mobile enforcement units.

Provide Agricultural and Forestry Extension Activities: Supports include livestock care and production, medical care, crop diversification, technologies for no-till agriculture, and crop rotation.

Forest Management and Rehabilitation: The FA and other community forest management committees are to receive training in forest management.

Livelihood Development: Enhances the accessibility of agriculture and NTFPs, while promoting less-dependence on cash-crop agriculture.

Nevertheless, to accomplish most of REDD+'s objectives, protected areas need to be designated. Prey Lang Wildlife Sanctuary is one of the reserves achieved through agreements between the Royal Government of Cambodia (RGC) and NGOs. As of 2016, there are roughly 431,683 hectares of wildlife sanctuaries in Prey Lang forestry (USAID, 2018). Establishing wildlife sanctuaries transformed policies to include cooperation between NGOs, locals to the government (USAID, 2018). One part of such cooperation involves training the management basics from FA and/or Community Forest Management Committees. An example of training involves handling remote sensing and geographic information system (GIS) for forest data survey (ITTO, 2015). The second aspect of cooperation is the ability of forest stakeholders to provide opinions and drive decision-making procedures. Villagers can provide their inputs to a degree, as indicated in the Cambodian Environmental Code (USAID, 2018).

Indonesia's REDD+ projects, on the other hand, had started earlier in 2007 by the Ministry of Forestry (MoF). Despite its early initialization, much of the period was used for devising their plans. Since its planning phase in 2007, the development of pilot strategies took four years (2008 to 2012) while actual activities were greenlit in 2012 (Indrarto et al., 2012). Even then, it took about 7 to 8 years before anything substantial had been established (Casse et al., 2019).

Like Cambodia, Indonesia's REDD+ also connects local livelihoods to conservation activities. Non-timber forest products are highly promoted to agricultural locals (plantation workers) as alternatives. The Indonesian law permits local access to NTFPs such as herbs and fruits. And often, the locals are the only actors who want to exploit these resources, which they depend on heavily. Companies, on the other hand, won't raise tensions with the locals on NTFPs as they seek agricultural and timber resources (Howson, 2018).

REDD+ regulates its activities through top-down management. The central government has the most control over the policies and activities, followed by the

provincial administration. Despite such power involved, they can organize the funding and facilitate investments for suitable conservation procedures. For instance, they have a hand in separating the plantation and mining locations, implement reforestation tax, and balance fund distribution to stakeholders (Ekawati et al., 2019). Alternative energy sources, such as "green" geothermal are being promoted for investments as well. The effects are still limited, but REDD+ hopes that their efforts will be able to create an environmental economy that both local and private sectors depend on (Korhonen et al., 2014).

Apart from REDD+ programs, because of the unique cross-border nature of Borneo Island had occasions for a multi-governance approach. As promoted by the leaders of Brunei, Indonesia, and Malaysia, several NGOs and research institutions had explored pathways for multinational cooperation, leading to the establishment of the Heart of Borneo (HoB) Initiative in 2007 (IPCC, 2014; McCoy & Servent, 2017). The initiative aims to reduce deforestation in provinces that share borders with the three nations. Indonesia focuses on the West, Central, East, and North Kalimantan. Brunei on Belait, Temburong, and Turing. While Malaysia emphasizes on Sarawak and Sabah provinces (WWF-Indonesia, n/a).

With its official signing taking place in 2007, each of the nation's representatives presented with the vision that they intend to uphold (WWF, 2006, 2007). The vision highlights the historical feat of the island's diverse nature and relative human activities and insists on sustaining such norms.

"Borneo's forests, water and biological diversity are critical for the prosperity of the entire island. The continued maintenance of their natural and cultural wealth is of local, national, and global importance. At the very heart of Borneo there lies a uniquely rich, largely forested landscape. It straddles the transboundary highlands of Brunei, Indonesia, and Malaysia, and reaches out through the foothills into the adjacent lowlands. Our vision for the heart of Borneo is that partnerships at all levels ensure effective management and conservation of a network of protected areas, productive forests and other sustainable land-uses"

(WWF, 2005)

Under these envisions, approximately 22 million hectares of Heart of Borneo forestry were planned for jurisdiction (Sabran et al., 2014). The initiative was formulated to provide alternatives on active logging, mining, and agricultural concessions while improving local welfare (Houten & Koning, 2018). It has reduced the loopholes in land-use permits and created far-efficient joint-developments which

consists of the following (Strategic Plan of Action, n/d):

1. Network of protected areas

2. Sustainably managed natural habitats and resources

3. Transboundary management initiatives

4. Ecotourism

These collaborative managements aren't just limited to actors within Borneo alone, as there is a five-year term agreement with the National Institute of Technology and Evaluation (NITE) from Japan for researching potential pharmaceutical forestry products. Such advances provide room for expanding Brunei's natural market inventories. Also, foreign investors can make advances to improve the ecosystem services of Borneo, given the opportunity for economic productivity. The example of dual touristic options and agroforestry livelihood sustainability is said to be experienced in the Betung Kerihun National (Cosslett & Paddenburg, 2012).

The prior examples of forest conservation all require varying involvements between stakeholders. Each actor is required to fulfill their roles during participation. Not all actors will agree upon the roles and benefits they've assigned to and changes will be needed if necessary. To have stable conservation progress, each stakeholder will need to uphold a fair amount of responsibilities that match their participation conditions. The WWF HoB Global Initiative showcases stakeholders into four different actor parties which consist of business, civil society, community, and media. The government is missing from this list considering that they are the ones who are to ensure these parties conform to their responsibilities. Nevertheless, Table 4.1. below exhibits the 4 parties and their duty within forest conservation (Cosslett & Paddenburg, 2012).

Table 4.1. Role of 4 different parties in a large-scale conservation initiative

Party	Role
Business	-need to ensure a low impact on the environment from their economic developments (includes construction, production, and distribution) -share information (land use percentage, possible impacts) through large communication platforms (forums to RSPO) -create a social environment for transparency and accountability (building trust, strengthen partnerships)
Civil Society	-idea factory (build green economy plans) -monitor actor networks and environment -supervise the conservation movement
Community	-change/enhance technology, skills, and capacity and equip for a green economy -stimulate collaboration with different actors (no matter the actor conflicts, need to attract the attention of commercial and financial sectors for lenders, investors, and insurance providers)
Media	-tool to spread the message on sustainability and natural capital -connect with people from the HoB area to international parties -help raise awareness of HoB impacts and values -aim to change people's attitude and behavior on nature -influence the need for policy change and stakeholder capital

(Based on the source by: Cosslett & Paddenburg, 2012)

Government and large NGO-based programs had enlisted varying parties to create a common cause. Though, local communities have more work to accomplish compared to other parties due to their low technological, negotiation, and leadership skills, to financial powers. In these large initiatives, however, elites and leaders' control and influence the conservation course. Grassroots movements and national NGOs conform to giving conservation autonomy to ethnic, indigenous, and rural populations. The next section informs on locally-based conservation efforts and the empowerment of local contributions.

4.3.2. NGOs and locally-based conservation efforts

Grassroots and national NGO groups are more likely to satisfy community concerns. Yet, due to the limited accessibility of their details, much of this section is covered through NGO reports and news articles. One of the well-detailed local conservation groups is the Prey Lang Community Network (PLCN) in Cambodia. It

was established in 2000 and operates in villages within the provinces of Kampong Thom, Stung Treng, Kratie, and Preah Vihear. The network consisted of forestry communities, local NGOs, and adolescent groups called Cambodian Youth Network (CYN). Alongside this network consist of outside support institutions such as the University of Copenhagen, Danish CSO Danmission, to Web Essentials (Bori et al., 2020).

The differences between governmental and local NGOs' conservation approaches are based on how concessions are contained. The PLCN has to create communication with the forest department first to request for monitoring of logging operations. Requests are made with providing documentation of excessive deforestation by ELCs (Bori et al., 2020). When negotiations don't work, protests are formed. Instead of targeting the government, these protests target specific concession companies consisting of; PNT Company, Thy Nga Development and Investment Company, CRCK Company, Chhoung Hong Rubber Better Company, and Think Biotech (Prey Lang, 2014).

Participating villagers are committed to such movements to make sure their livelihoods are preserved. Their daily income activities involved smallholding, fishing, and resource extraction (e.g., resin). Villagers take the initiative to make sure that no damage is done to their livelihood through forest patrols. More importantly, participating in these local conservation movements allow villagers to partake in meetings to influence landscape management. Oftentimes, larger gatherings and assemblies are attended by leaders of communities and/or villages as representatives. While regular villagers from both genders of men and women, along with children of age, participate in physical conservation activities (Equator Initiative, 2018).

However, there are health and safety risks associated with villagers' patrol activities. Illegal loggers and hired enforcers of concession companies can incur verbal and physical threats to the villagers. In response, the PLCN took measures to resolve tensions and risks through peaceful dialogues. Though when it doesn't work and the violence escalates, legal terms are discussed with the government to enforce peace. The detailed actions against illegal and company concessioners are listed in PLCN's Joint Statement in May 2015. This statement was submitted to the Kingdom of Cambodia and the relative government of the Ministry of Agriculture, Forestry and Fisheries, and the Forestry Administration. It indicates government support and joint cooperative measures, which includes (Equator Initiative, 2018):

1. The government should provide enforcement against the violent offense in the Prey Lang boundaries

2. Public disclosures of the Sub-Decree and economic development plans before its implementation
3. Provide with the ability for PLCN to provide some influence over landscape development
4. Allow PLCN to take legal against government officials, local authorities, and other individuals involved in illegal forms of concessions at necessary
5. Provide with power to prevent unfair use of intimidation and threats from the court and armed forces against PLCN
6. Enable all parties to preserve the Prey Lang zones as a mean to enhance the human and natural capacity
7. Prevent the use of saw machines as legalized under Article 70, Chapter 13, Forestry Law, on Measures Governing Forestry Activities

The prior measures were established to empower locals, which requires the government to lower their authoritarian power. This itself is a major challenge to overcome and a bit farfetched for leaders and elites to do so. As of this study's period, there has yet to see major effects taken from the measures. For instance, as of March 2020, four activists of PLCN had been sent to the compound by the concession company and police of Kratie province. The PLCN has requested the parties to release the activists without conditions, but there hasn't been any further information after. It may well be difficult to request the government to provide local groups of forestry administration (OpenDevelopment Cambodia, 2020).

Yet, not everything in local conservation is problematic as seen with the Prey Kbal Bey community forest of Cambodia. The conservation act is part of a long lineage of projects by cooperation between The Center for People and Forests (RECOFTC) Cambodia and Ti Por communities. The difference between PLCN is the well-constructed awareness of agriculture, fishery, and forestry issues by the local government. RECOFTC and local government officials are dedicated to sharing their forestry knowledge with communities through support networks. This cooperation emphasizes preserving livelihoods rather than political empowerment, which has seen a degree of success (RECOFTC, 2018).

In terms of West Kalimantan of Indonesia, there are less publicized local conservation movements. This study provides examples of a few that made contributions to the locals of the province. First on the list is the People Resources and Conservation Foundation (PRCF), a Los Angeles-based NGO operating in Indonesia for at least two decades. Their service location is at Nanga Lauk village which is in Kapuas Hulu District of West Kalimantan. The main object of the group is to make sure locals have proper forest accessibility. Numerous approaches experiment in result,

which involves agroforestry, forest patrol (as an occupation to access the forest legally), to ecotourism. This ranges from villagers' participation in these roles and also allowing local opportunities in conservation decisions. Furthermore, similar to PLCN, the group attempts to provide NTFPs (honey and rattan) for alternative livelihoods (Asia Sentinel, 2019).

What's different about PRCF is that there are efforts for the appreciation of cultural identities. Cultural arts programs are marketed for the female and children of the communities, consisting of traditional crafts (e.g., ikat) and historic guides. Not only do these programs allow women and children with wages but provide opportunities to connect with tourist markets (Asia Sentinel, 2019).

Another management initiative to note is called Sustainable Forest and Biodiversity Management in Borneo (SFBMB). This project was made possible with a Malinau-based NGO called LP3M, in coordination with the PRCF. It is known to have substantial financial backers such as the Asian Development Bank, as well as being approved for operation by Indonesia's Ministry of Environment and Forestry. The project operates in two sites - Nanga Lauk Village Forest in West Kalimantan and Punan Adiu Customary Community Territory in North Kalimantan. For this study, however, the focus will be on Nanga Lauk Village Forest (LTS International & Daemeter, 2018).

In the specific site, the SFBMB aims to operate its conservation objectives in the basic and simplest terms possible. There isn't a movement for empowering local politics, nor are there activities to reduce land-use conflicts. Simply, the conditions are to make sure locals can collect forest necessities. The following activities are operated to ensure the objective is achieved:

- negotiate with the Ministry of Environment and Forestry to receive approvals for ecosystems services for the village community
- create regulations on the village for sustainable forest resource use
- identify the boundaries of the village and its forests
- create a schedule and members for forest patrols
- plant nectar-producing trees for honey production, along with sustainable trees that can provide sellable timbers
- find non-timber and forest products for village use
- create an income system for villages in their acts for forest products, and try to increase its amount

Objectives such as these require not just cooperation within NGOs and

communities, but also with the government. Even with large participation and activeness of local groups, funding and legal procedures are often attained from the government and other large institutions. To properly manage the activities, resources (human and natural), funds, and land documentations, there needs to be some sort of chain of command. The organizational structure chart below illustrates the structure and general roles proceeded in such management.

Figure 4.**3.** Structure of the overall forest management institution in villages
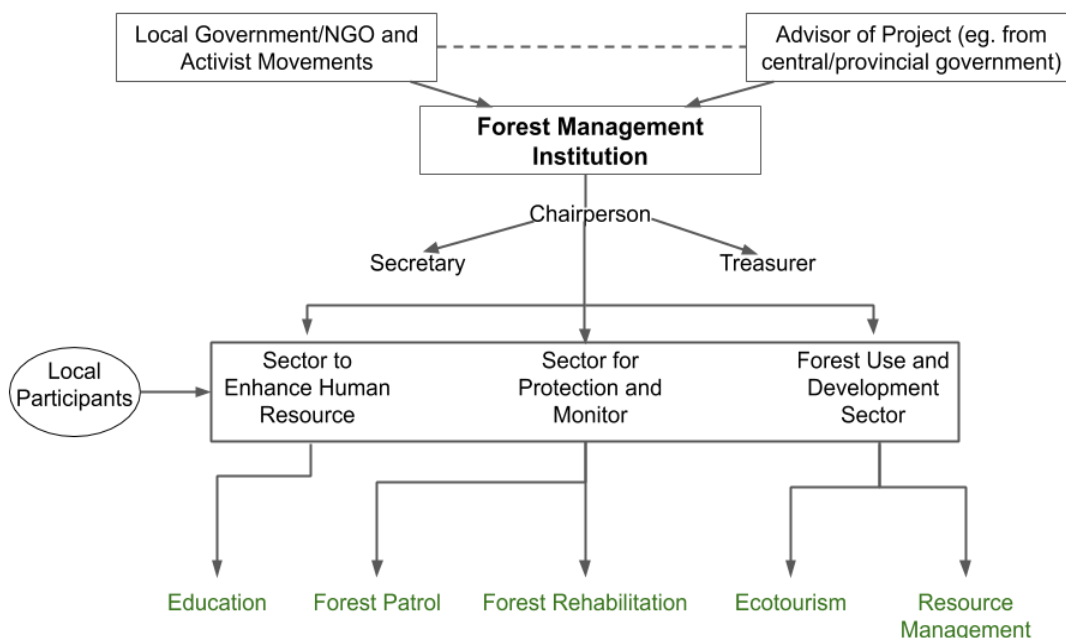
(based on the source: LTS International & Daemeter, 2018)

Upon examining Figure 4.3., the institution and its projects are overseen by either the local government or NGO. It can also have both parties taking the helm of management, given the required political and economic capacity of the conservation institution. They also delegate its members as secretary and treasurer for order in projects. The approval of the projects is made possible by advisors from the central to the provincial governments. These projects often fall under the 5 categories regarding education (sustainable and renewable), forest patrol, forest rehabilitation (replanting trees and period for regrowth), ecotourism, and resource management. And locals employing within these five activities summarize the forest conservation efforts in Cambodia and Indonesia.

4.3.3. Summary on conservation approaches

In terms of forest conservation, both national cases moved according to political directions. In Cambodia, its government made public statements to reduce their ELCs impact on forestry. Their goal is to convert 1 million hectares of ELC area into Social Land Concession (SLC), an area specifically for the landless, poor, and rural populations (Royal Government of Cambodia, 2003; Chheng, 2016). This transformation is accompanied by the conservation efforts, with registering protected areas through NGO and Ministry of Environment cooperation (Sengkong, 2016). Followed is the construction of livelihood mechanisms that drives sustainable activities (OpenDevelopment Cambodia, 2016).

Indonesia had its current president, Joko Widodo, implement a moratorium on deforestation activities in 2011. It is an act to preserve an area of approximately 66 million hectares of primary forests and peatlands from further deforestation (Euronews, 2019). The moratorium followed numerous policies on enhancing the food security of the nation. Push for investments in sustainable food productions had been high within the Indonesian agriculture domain. Though, few issues regarding this pledge exist. First, this support builds toward companies more so than to the smallholders. Secondly, the moratorium pledge for 1 million hectares of paddy field dedicated to food security. Not only is the land more offered towards large companies, but acquiring this land requires clearing up parts of forestland, which contradicts the policy aim (Madhi et al., 2014).

The concerns regarding deforestation bring up the question of whether conservation can coexist with economic development. Conducting forest conservation plans often require negotiations with economic developers. Large conservation institutions often work with the government, determining how projects should proceed. And most cases seen in the study cases do not call for heavy negotiating approaches with the government that already received corporate agreements. That is not to say that government alone leads to cooperative conservation, as communities to organizations may not be agreeable to their terms. Researchers Madhi and fellow collaborators (2014) argue that negotiation can be possible when participation or some sort of acknowledgment of actors increases. Rural and poor populations tend to desire more participative authority on forest conservation while organizations seek compensation for not "destroying" the forestry.

Compensations for companies usually require to be of equal value as their initial reason for concession. The economic forest is one alternative, which as its name states, is forestry only used for economic purposes. For certain cases, this forestry is

for smallholders and other farmers utilizing its quality soil and NTFPs. Though, as these forests are separated from local's access, they are provided as an option to satisfy the developers (Theilade & Schmidt, 2011). The possibility of not letting the companies take forests is made by carbon credit and stock. This stock is to provide companies that limit or reduce their carbon emission activities with equal monetary value. Carbon stock, however, has still yet to be utilized globally and has a little international market. Its value is still yet weak to be proper and further examination on it is required for validation. But, for now, most governments and their leaders find efficient alternatives through enhancing timber imports than exports. Reducing log import tariffs, taxes, and solidifying local and rural accessibility to foreign timbers were found to be an ideal solution (Pragtong & Thomas, 1990).

But more importantly, national leaders and their people need to realize the value of forest conservation. It is not only because of the risk in the local and rural economy through deforestation but also the possibility of over-reliance on imports soon (Mahdi et al., 2014). Regretfully, economic issues aren't only the likely problems considering the possibility of civil tensions and violence between the locals and state-industrial powers. A proper balance between forest conservation and economic development needs to be settled for success. Whether deforestation and actor tensions have settled with forest conservation will be examined in the next section of this paper.

4.4. Intermediate outcome of conservation

4.4.1 Benefits from forest conservation

In West Kalimantan, the studies by research colleagues along with Gaveau (2013) and Santika (2017) correlated conservation to deforestation rate. They had conducted extensive quantitative surveys on Borneo forestry and had concluded that some deforestation had been restricted from expanding. Protected areas especially were founded to be effective as less than 1 percent of its land had been cleared for industrial purposes (Gaveau et al., 2013). Santika and collaborators' (2017) outlook on Sumatra and four Kalimantan provinces also found positive, reflecting its mean of 2012-2016 deforestation limitation rates. Soils for smallholding and forests for conservation were mostly identified in high altitudes, which have a relative distance from the oil palm plantations. Nevertheless, lower altitude forestry had experienced increased deforestation instead. While both studies indicated a positive outlook on forestry overall of Borneo, fluctuations of value exist when examining certain provinces and years (Gaveau et al., 2013; Santika et al., 2017). For instance, Kalimantan provinces had its highest deforestation rate from 2012 to 2016 (Santika et al., 2017)

Kampong Thom on the other hand, still has its ELCs undergoing its development. Collaborative efforts limited 20 percent of 615,306 ha development planning while 40,000 ha for rubber concessions were canceled altogether. The result correlates to the limitation in forest crimes and poacher activities in its forestry. Villages such as Puloung to Pu Cha within Prey Lang territories had regular patrol activities, to which were contributed through proper training by experts and safety gadgets (Global Witness, 2009). Not to mention, these buildouts are linked to conservation events for strengthening community participation. Events, ceremonies, to competitions on recycling and tree preservation offer prizes of community value, such as hand tractor to monetary value up to 500 USD (RECOFTC, 2018). All of these are made possible with the extensive support provided by the local government and conservation organizations.

Decentralization benefits

Decentralization is defined as the change in governance, with powers and authorities transferred from national to sub-national levels (Bardhan, 2002). The logic behind this shift is to improve the responses between the top and bottom levels of authorities (Talitha et al., 2019). Moreover, decentralization has the potential to promote public participation and civic engagement in political decisions (Rondinelli, 1981). Commonly, decentralization is profound in government systems, where district and local governments have more control over local affairs. Additionally, district/local governments are also able to generate revenue through taxes that were only meant for central government (Martinez-Vazquez & McNab, 2003). All these factors allow district/local governments to become attentive to the neighborhood's grassroots movements and territory administration (Talitha et al., 2019).

A decentralized management system in Indonesia had occurred since the 1990s. This change happened when groups of environmentalists and communities expressed their concerns regarding forest degradation to the Indonesian government during the late 1990s. Their concerns were a product of restricted access to their forestry and the nation's scarce forests number. The major shift in governance had brought to light through the fall of the past Indonesian president, Soeharto, in 1998. All government departments and related regulations (including forestry) had changed the system and its procedures. Following are the government's regulation and two decrees which transferred the authority to issue local logging permits from central to district governments. These permits are known as the Forest Product Harvesting Permit (HPHH) and are specifically for individuals, farmers, and cooperatives at a maximum of 100ha area (Yasmi et al., 2006).

Furthermore, district governments gained authority over rural mining (Soetarto et al., 2001). The power they've possessed allows them to separate mining developments and expansions from reaching rural communities. This and local land-use factors are settled by the district government's control on land permits. Such permits are to a great extent, dictated by the central level and its fellow ministries. The permit authority of the district government, however, is for smaller-scaled developments and land-use factors. Yet, with many rural expansions and activities are operated by private landowners and villagers, district governments are seen to effectively control illegal logging and local landholding (Soetarto et al., 2001).

The effectiveness can be attained as central governments often favor large corporations for land-use as previously stated. Corruptions and high monetary returns to its officials cannot be excluded as the driver for deforestation. Course, this does not mean that the district government is exempt from corruptive practices. Yet, district governments offer far more opportunities for locals to express their concerns. Also, these officials in forestry departments promote and provide access to NTFPs, connection with recognizable NGOs (e.g., Worldwide Fund for Nature (WWF) and Wildlife Conservation Society (WCS)), and medical and insurable supports (Soetarto et al, 2001)

Cambodia on the other hand provides more extensive details on government decentralization. The National Forest Policy introduced in 2002 states:

"The goal of environmental and biodiversity conservation, poverty alleviation, economic development and good governance and the recognition of the local community's right to traditional use of forest by providing benefits to local communities through using and protecting the forest and wildlife"

(Carson et al., 2005)

Upon its policy, laws and mandatory guidelines were constructed. There was an approval for the Forestry Law, which in its Article 40 dictates that all local communities have the right to use the nation's forestry for their livelihood. Besides, Article 17 of the CF Management Sub-Decree mandates that of local community representatives in managing its community forestry (Kampong Thom Forestry Administration Cantonment, 2008).

Decentralization effects are well-founded during the examination of Kampong Thom cases. First and foremost, neighborhood forestry management is responsible for the commune council and leaders of local communities. Article 43 of the Law on Khum/Sangkat Administrative Management 2001 defines these actors as having legal

abilities to preserve community forestry and its resources (Kampong Thom Forestry Administration Cantonment, 2008).

As the managers, the process of conservation first prioritizes letting villagers express their concerns. Most village households carry rights for agricultural cultivation (e.g., rice) and NTFPs (e.g., *Kuy, Seman, Daskun, and Vor Lmeat*). Apart from the evidence of stolen land and resources, other concerns stem from limited market and profitability. Due to the scarcity of travel roads and transportation to large markets, conservation efforts in Kampong Thom work to build village and community markets. Furthermore, developing a transportation system without requiring large forest concessions is planned by both communal leaders and the state's national development plan (Kampong Thom Forestry Administration Cantonment, 2008).

Upon examining the positivity of decentralization, few aspects of changes in the local systems can be identified. Cambodia also has opportunities for a few of its villagers to run campaigns for the local resource management committee. And this election is facilitated and promoted by government-driven research centers. Elected villagers had also participated in resolving environmental issues regarding village flooding (Marschke, 2000), extinction of wildlife, and damage to local traditional activities (Marschke & Berkes, 2005). These issues can be discussed and proceed with solutions with the Cambodian provincial governor and the Minister of Environment. Despite these opportunities, numerous problems persist. Problems on illegal fisheries are far more televised and mobilized for resolution by the state than of forestry in Cambodia. Furthermore, the implementation of strategies by locals is still underperforming (Marschke, 2012). These types of issues create authoritarian conflicts and tensions over forestry, which are further examined in the next section.

4.4.2 Challenges of conservation

Despite the numerous conservation options available, further examination revealed that social and environmental challenges persist to this day. Retracting from the study by Santika and colleagues (2017), it may be safe to correlate the 2015 deforestation rate of Kalimantan provinces to El Niño droughts. On many occasions, the extreme case of droughts leads to a decreased availability of agricultural and natural resources and limited market profitability. Some rural individuals, therefore, seek income from timber or place their land ownership and permit to the sale (Santika et al., 2017). Furthermore, forest fires caused by natural and illegal agricultural means are not well regulated, despite the promotion of forest patrol (Gaveau et al., 2013). The rate of deforestation containment, especially in Kalimantan, is merely compared to the same type of substantial rate from decades ago, highlighting the improvements.

Deforestation is still a risk in both Cambodia and Indonesia not just because of illegal forest activities, but also due to the forest management system being inconsistent (World Wildlife Fund, 2007; Laurance, 2013).

Figure 4.4. Diagram of challenges in forest conservation
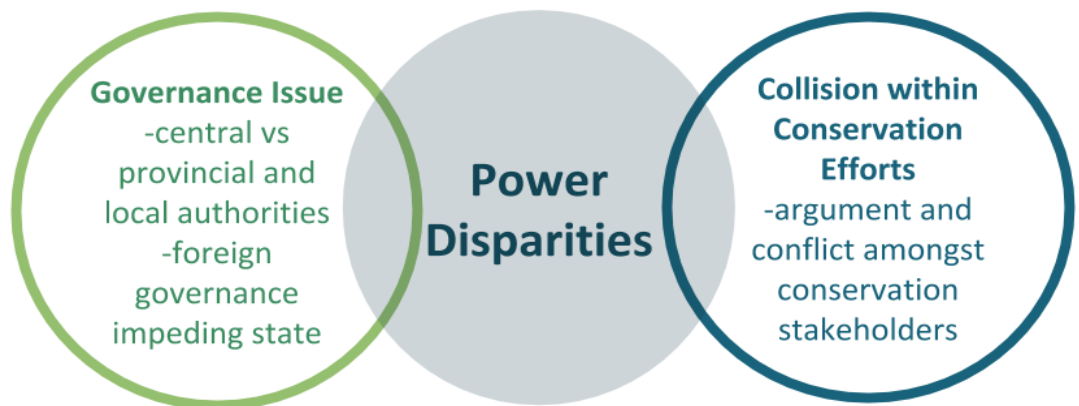
The disarray of conservation and its management system are derived from ever-existing power disparities. These disparities are often defined by the tensions between the government and local communities. Power disparities are particularly accentuated in cases of Cambodia and Indonesia. In all locational cases, power disparities are broken down into two sub-factors: governance issue and collision within conservation efforts. Base on Figure 4.4., local and state cooperation is at risk from international market pressures. Furthermore, each party has its desires, demands, and governance capacities to which can interfere with fair cooperation agreements unless given stakeholders of equal value. Each case discusses the motivating forces behind cooperation disputes.

Governance Issues

Upon examining all three nations of Borneo Island, Indonesia is known for its troublesome forest administration. Indonesia's part of HoB land is structured to be

managed by the provincial and district government. The nation is already facing poor economic and social growth conditions. Conservation efforts are supposed to provide sustainable profit. Yet, its activities do not generate stable income for both officials in charge and the locals. Moreover, numerous conservation efforts in charge by the provincial and district government face limited financial support from both national and international stakeholders. With financial burden, few officials and villagers look to over-extraction and illegal logging activities. Forcing their ways into other protected areas, which is the same area they are organized to preserve (Persoon & Osseweijer, 2008). Such problems are said to have been caused by over-reliance on decentralized forest governance. In the case of relatively poor regions and areas, decentralization can be of poison as local initiatives alone might not possess the financial and technical capabilities required for management (Husin, 2005).

Moreover, decentralization creates coordinative issues between levels of government agencies. Central and local governments follow their interpretation of decentralized regulations. This is followed up in the study by Yasmi and collaborators (2006), indicating how central agencies still controlled the forest management system despite decentralization. In the same study, central government officials voiced his/her claim, stating that decentralization never allowed full authority on logging permits to local authorities. The local authority is only possible when the local departments fulfill the requirements to own qualified members and socio-economic capacities. Even when the district departments carry such authority, problems are created when they provide more land incentives to corporate and business leaders than smallholders similar to how central authorities did (Soetarto et al., 2001; Yasmi et al., 2006).

Trans-national developments and cooperation also interrupt positive elements of decentralization. For instance, the province of Sabah planned for highway underpasses and forest corridors for better HoB connectivity. Recently, Sabah's Chief Minister informed the public on how these roads are to pad on existing roads and routes and requires no new forests to be cleared. Furthermore, this project was in an agreement between various state agencies and local conservationists (Mongabay, 2019). However, community forests within north HoB passes are still vulnerable to development. Most upgrades on existing roads are known to produce deforestation, as it also promotes new economic activities and settlements in the surrounding area (Laurance, 2002). And these new types of developments are not well communicated and managed between different provincial and national agencies. More often, the political leaders carry multiple priorities that aren't well planned and consulted before initialization. Local problems (land-use and accessibility, eviction issues) are left to be handled by local departments, which are often created by these development plans of

higher and/or foreign leaders (Sloan et al., 2019).

The dysfunctional dynamics between government levels also influence the impacts of Cambodia and Indonesia's REDD+ programs. Programs, in general, were difficult to implement due to political and bureaucratic complications in both nations. For Indonesia, central governments have high interests in the oil palm and timber industries and allow their large presence to continue despite their agreements for REDD+ tactics (McGregore et al., 2015). And the people who create these inconsistencies are the ones who take the helm of REDD+ in West Kalimantan, consisting of the governor, provincial leaders, and provincial secretaries. Whereas the non-government actors are to act as third-party beneficiaries with limited space for local conservation inputs (Lestari, 2019).

The gap between the control powers claims few faults in REDD+ implementation. For instance, international participants have a large capacity to design and influence their strategies. With how REDD+ has numerous national and international participation, there are bound to be overlapping arguments on ideas. Furthermore, REDD+ is also preceded by intra-governmental policies. With the example of Indonesia, some foreign secretaries decide on plans that coexist with economic growth without grasping the risk of increasing deforestation. The Forestry Law (Law No 19/2004) is one example as in paper, it prohibits any mining on protected areas. But foreign mining companies were provided with permits for land-use beyond protected areas, with no repercussions (Ekwati et al., 2019; Korhonen et al., 2014).

Additionally, the promise for reforestation activities to reduce carbon emissions are less implemented than planned for. Within rural local settings, its government in agreement with collaborating NGOs to develop reforestation, sustainable tourism, to patrol activities. Yet, for full implementation, the blueprints for these activities must be submitted to the UNDP for approval and financial backing (REDD+, 2012). Not only are these approvals less likely to occur for locally based parties, but even at approval, the lack of funding made it difficult for these activities to survive (Lestari, 2019).

Outside of REDD+ and Indonesia's cases, Cambodia's governance issues related to illegal logging. Cambodia's Beng Per Wildlife Sanctuary is continuously being targeted by timber companies. Companies from China, for instance, have their employees sneak into the Sanctuary at night to log in secret. Furthermore, they are known to make deals with Cambodian villagers of monetary value (approximately 1000 USD) for their migration. Some of the villagers take this offer as their debt from smallholding and land rent increases (The Diplomat, 2016).

The Chinese's role in deforestation accounts for the ever-increasing illegal logging activities. Supposedly, logging and timber trades that aren't supervised by the state are deemed illegal. Yet, several underground networks from China and Vietnam connect to Cambodia for unregulated logging activities. China is considered the world's largest importer of natural resources, with its wood processing industries dominating the market. Just between the five-year gap of 1997 and 2005, China increased its forest product imports from 6.4 billion to 16.4 billion USD (White et al., 2006). These numbers are contributed by Vietnam's timber routes from Cambodia to Vietnam and ending in China. Vietnamese gather rare timbers such as rosewoods from Cambodia (with hired workers from Cambodian villages) back to their country, process them as clean lumber, then ship them to China where they turn into high-quality wood furniture (Baird, 2010; Singh, 2014). There are also rumors and statements from Cambodian villagers where villagers were encouraged by the border authorities of Cambodia and Vietnam to log and ship to Vietnam (Singh, 2014).

Upon such allegations, there were numerous callings against the Cambodian government for their illegal actions. The Environmental Investigation Agency (EIA), an international NGO, made cases against the government and its timber smuggling in 2017. Around 300,000 cubic meters of rosewood had been transferred to Vietnam and was supported by the government authorities. Cambodia's Ministry of Environment dismisses the EIA's claim and presents two objections. First, the smuggling isn't connected to deforestation as the ministry was known to crack multitudes of large-scale concession cases. And secondly, the government does not have the right to offer any form of timber export license and permit to Vietnam (Radio Free Asia News and Information, 2017). Nevertheless, there are possibilities for unpublicized cooperative actions between the Cambodian and Vietnamese governments with Vietnamese's increase in timber imports (GOVIET, 2019; Forest Trends, 2019). Countering the excessive illegal trade and logging will require a nation of strong transboundary leadership and the following law to regulate both nations and their authorities (Forest Trends, 2019). Which may be difficult to achieve unless the nation undergoes a political shift that understands the gravity of its situation.

Collision within conservation efforts

Conservation efforts are not always perfect as stakeholder disagreements can occur at any instance. Actor disputes are created from disagreeable directions, approaches, and distributed controls of conservation. There were instances of elites and non-community members of conservation in the district of Kapuas Hulu of West Kalimantan, that took excessive control on land ownership and accessibility. Despite the efforts for local empowerment, REDD+ had provided insufficient conservation

incentives for villagers. For instance, villagers and smallholders were provided with a local land tenure letter (*Surat Keterangan Tanah* (SKTs)) that allowed them to obtain land certificates. Most of these letters, however, were known to be in the hands of the elites and leaders (Yuliani et al., 2010).

Faulty strategies and management also produce power disparities in Cambodia's governance (FAO, 2018; Nhem et al., 2018). Cambodian government first called for commitments to safeguard indigenous and rural populations during 1957, with the introduction of the International Labour Organization's Indigenous and Tribal Populations Convention. However, no effective laws and policies were implemented till the 2000s (e.g., Land Law 2001 to Sub-decree on Community Forestry Management 2003). Furthermore, the supports and benefit distribution had numerous inconsistencies. For instance, Nhem and collaborators (2018) noted that amongst the registered 107 indigenous people communities in provinces of Ratanakiri, Mondulkiri, Battambang, Kampong Speu, Preah Vihear, Kratie, and Stung Treng, only 13 villages had received Collective Land Titles Certificates (CLT). These certificates allow restricted movements of illegal logging, unwelcome in-migration, and land-ownership corruption within received villages (Nhem et al., 2018).

Unfair treatments of local communities had numerous villagers respond with the following actions. One type of approach was through communication with the Ministry of Agriculture, Forestry, and Fisheries (MAFF) authorities through letters for situation resolution. On most occasions, the MAFF fails to respond to the locals and numerous cases of unfair land-use are still unresolved to this day (Yasmi & Gritten, 2011). When such diplomatic approaches fail, locals respond through protests. During the early 2010s, hundreds of villagers across the Kampong Thom boundaries had protested against the government, which are countered with police and military might of government powers (Radio Free Asia, n/a; REED-monitor, 2011). These types of protests often end with three possible endings. One, local protest movements are demobilized as villagers fear for their properties and more social rights being taken after protests. The second possible outcome is a further escalation of violence, with villagers resorting to armed weapons (e.g., knives and poles) to demand changes made by the government. And lastly, government officials step down to listen to villagers' concerns and proceed with making agreeable decisions. The last outcome also has the possibility of failing to reach a proper conclusion as governments could not provide the incentives that locals desire. it may be of locals demanding social, financial, and medical kits that are too much of the government's burden and try to please the locals with minimal benefits at first. Or corporate developments on land had already manipulated the officials in their favor, creating a continuous war between the locals

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and state-industrial powers (Yasmi & Gritten, 2011).

The tradition of actor conflicts is often developed by the choices made by the central governments. Indonesia's tension between oil palm plantation industries and communities are naturally founded through the government's migration programs. Islands with large populations such as Borneo and Java promote migrations to their "underdeveloped" provinces or outer islands (Gillespie, 2012). The open labor for these migrants attracted oil palm sectors, and the migration ideas of the central government and created rapid population growth and oil palm expansions. The woes of local authorities and communities upon deforestations and limited lands were unable to be handled by themselves alone. The central government did not take these issues into account when promoting these migrations (Koczberski et al., 2012). And considering the forest conservation marketing by the central government through REDD+ and HoB initiatives, their decisions disturbed the fortification of community forestry. The Indonesian Law 23/2014 was to improve forestry through coordination with ministers with provincial and district authorities (Lampung Provincial Forest Service, 2016). The minister did less and less approve the process for conservation forestry movements to convert Social Forest to Community Forest Management (Wulandari et al., 2019). The central authorities took little to no actions to resolve migration issues and approval of provincial and district rule on forestry, as the development had generated profitable oil palm productions (Koczberski et al., 2012; Potter, 2012).

4.5. Summary and remarks

The cases in Cambodia and Indonesia reflected the land development fluctuation through government decisions. On one hand of the spectrum, the government collaborated with NGOs to implement long-term forest conservation, largely at provincial levels. They worked to justify vulnerable forestry as protected areas and empowering its communities' forest accessibility and livelihoods. Conservation also aimed to design a decentralized management system, allowing for direct local participation and guidance. Experimental forest management wasn't necessarily recent as its effects can be evaluated before 2000. Yet, most long-term practices and local participation were highly prominent during the middle to late 2000s.

Because of its recent cooperative participation, there are still state-industrial powers who do not conform to sustainability deeds. Actor conflicts on forest land permits still exist to this day. One of the major weaknesses in conservation movements is its direct attention to reducing carbon emission and stakeholder participation and less on limiting conflicts. As a result, power disparities exist in Cambodia and

Indonesia. Stakeholders in general have difficulty in bringing equal levels of cooperation. Financially and politically capable actors don't necessarily want to support and distribute their power to weaker parties. Despite efforts of decentralization in forest conservation efforts, the necessary regulations still proceed in a centralized manner.

Larson's (2005) argument on the 3 factors to re-centralization does relate to the result of conservations. First, central governments identify forests as a public asset. This means that even if the locals have viable permits for access, this can change with the state's actions that are supposedly for public benefit (e.g., road infrastructures). Secondly, the local government departments lack the capital and manpower to properly handle the management of large-scale conservation projects (e.g., REDD+). The second factor goes alongside Larson's (2005) description of its third factor, where there is a lack of trust and inconsistencies between local and central levels of management.

There are still existing cases of community strain through central management in Cambodia and Indonesia. While cultural identities and traditions seemed to have been well preserved through conservation, heavy militarism and dictating by state leaders pose problematic situations to forest conservation (Savi, 2020). These conflicts are not well addressed and mandated within conservation and governmental legislation. For the future, scholars such as Walker and Daniels (1997), Castro and Nielson (2001), and Yasmi (2006) state that forest management needs to create a mechanism to address different levels of dialect (village, district, and national). These capabilities are more for negotiation, to which Yasmi and collaborators (2006) argue that negotiation wasn't used for resolving conflicts between locals and companies in West Kalimantan forestry. Both NGOs and governments need to supervise these locals to provide the necessary training for such skills (Castro & Nielson, 2003). Whether the negotiations will be profound in Cambodia and Indonesia in near future isn't certain. Yet, other Southeast Asian countries such as Thailand could potentially utilize conservation skills to the fullest with their different backgrounds, making the case viable for comparison.

Chapter 5. The political ecology of forest conservation in two specific Thai cases

5.1. Background and methodology

The geography of Thailand is categorized into directional regions of Northern, Northeastern, Central, Eastern, and Southern sections, with a total of 76 provinces. Thailand also shares a border with the nations of Myanmar, Malaysia, Cambodia, and Laos. Based on the data by RFD in 2015, Thailand's land area consists of 51.8 million ha, with approximately 31.6 percent being forests. About 44 percent of the nation's forestry identified as National Forest Reserves, while 12 percent is represented as a protected zone (Sritanatorn, 2009).

Since Thailand's introduction to its first National Economic Plan in 1960, industrialization became the priority over any other policies. Nation leaders encouraged Thai citizens to reap the natural resources as a means to increase rural GDP and decrease the poverty rate without any consideration for regrowth (Luangaramsri, 1999; Sritanatorn, 2009). The Royal Forest Department of Thailand (RFD) was founded in 1896 to control the overconsumption of forest resources. However, the department's early practices weren't proper as RFD's first Director-General was H. Slade, an individual from Britain favoring teak exports to European homes (Sritanatorn, 2009).

It wasn't until 1987 when the nation started to properly display forest management in response to public pressures. Generally, central government officials are the head of forest management. They first analyze and review the situations, policy plans, and target stakeholders before the initiation processes are passed to regional, provincial, and local governments. All policies approved by the central levels are to follow the protocols of the Promotion and Protection of National Environment Act B.E. 2535 (1992 A.D.). It also must proceed accordingly with the National Strategy on economic developments (Masawat & Roongtawanreongsri, 2012). Upon able for procedures, Thailand's policies regarding local opportunities are for their fair forest access, and to participate in any forest restoration activities. This, to which as Kunphoomarl (2000) argues, isn't enough to stimulate beneficial changes to locals.

In the 90s, forest policies began to adapt revisions in the hope to fix prior issues. The Constitution of 1997 redirected the nation's National Park management with its authorities fairly distributed amongst related stakeholders (Government of Thailand, 1997). It raised the opportunities for forest development consultancy to communities.

Also, 1998 saw the initiation of extensive livelihood protection programs. And following the early 2000s, her majesty Queen Sirikit of the Royal Family and in cooperation with RFD raised public attention on sustainability and reforestation through tree planting and recycling periods (Royal Forest Department, 2008; Sritanatorn, 2009).

Entering the 2000s, Thailand had undergone a political turmoil that changed the assembly of governance. Various elections followed with major protest movements against political corruption. In this turmoil, the nation was divided into two factions: the supporters and oppositions of Thaksin Shinawatra, the former Prime Minister of Thailand (Shinichi, 2010). The pro-Thaksin faction mainly consists of the northern Thai population and has the greatest number of parliamentary seats. The supporters are also characterized by high low-class participants, while the anti-Thaksin faction is comprised of middle to upper classes (McCargo, 2011).

Whenever an election is held, tensions escalate between the two factions. Protests occur whenever one faction is losing in the election and depending on its impacts and size creates a situation for a new election to take place. It is an ongoing cycle of tensions that also make way to influence the network of social hierarchy (Shinichi, 2010). For instance, with most Thaksin supporters comprised of agricultural communities, the Hmong, Karen, and Lahu hill tribes in the north have long-term friction against the lowland public and farmers since the late 1990s (IUCN, 1999; Shinichi, 2010). Much of this friction, however, is directed towards forestry livelihoods. Lowland publicity identifies their contamination of watershed to be caused by the hill tribes' slash-and-burn practices. The types of actions that are escalated from these blaming games are interference on forest accessibility through barricades and protests (Luangaramsri, 1999).

Both conflicts and vulnerabilities had lasted for decades, and it isn't until 2014 when there are notable changes. Forestry Master Plan (FMP) was implemented to support highland populations through restricting outside logging and forest encroachments (Wittayapak, 2008). Additionally, FMP aimed to increase the number of resources available by raising approximately 7 percent (from 33 percent/17.1 million hectares in 2014 to 40 percent/20.5 million hectares) of national forest cover within 10 years (Lee & Webb, 2011). The same year followed with the implementation of Order 64 by the National Council for Peace and Order (NCPO). Order 64 and Order 66 directs government agencies to restrict deforestation. There were limited deforestation movements from the commercial corporations, investors, and sellers. However, the damage was rather largely done to the villagers as NCPO displaced thousands of forest villagers (Prachatai, 2014; Pawakapan, 2015).

Agricultural populations in the north deemed government decisions to be unhumanitarian, while the generality of lowland does lean against government decisions (Hongladarom, 2000). While it may seem that the pro and anti-Thaksin tensions escalate further to the forest population, there were notable tension relievers by actors of religious institutions and local NGOs (Bangkok Post, 1999; Hongladarom, 2000).

5.1.1. Characteristics of study methodology

The presentation of this study's qualitative data is influenced by Daly & Cobb's (1989) research principles of connecting humans with the dynamics of social and environmental structures. This ties into the study's rationale behind choosing the two Thai cases (Chiang Mai and Kanchanaburi) is their sizeable forest practices and management.

The 11 participants for the key-actor interviews each have occupations, livelihoods, and conservation roles closely related to forestry. 3 key-actor interviews were conducted in Chiang Mai on August 15 and 16th of 2020. While the rest of the interviews (9) were from Kanchanaburi, taken on February 19 to 21st and 23rd of 2020. All interviewees had permitted for their information to be used for this study and recording. The type of key actors interviewed are different, but they are identified as follows:

1) Conservation leaders (1 in Chiang Mai, 3 from Kanchanaburi)
2) Buddhist monks (2 in Chiang Mai, 1 from Kanchanaburi)
3) Local government official of forestry department (1 from Kanchanaburi)
4) Villagers participating in conservation (2 from Kanchanaburi)
5) A villager who is affected by conservation (1 from Kanchanaburi)

To protect the privacy of the interviewees, their names and detailed affiliations will not be disclosed. Participants will be identified in the manner of "Participant A," with few details on what they do related to conservation and/or forest work. The identification will be ordered alphabetically according to the interview date without separating by case location. And with the time gap in data collection date between Chiang Mai (2019) and Kanchanaburi (2020), the latter case had more interview questions mentioned to the participants with more depth regards to actor cooperation and conflict.

The field visitation and interviews were made possible with the help of the student interpreters from Mahidol University's Institute for Population and Social

Research Department. Both recording and note-keeping had been done to collect the data (aside from one interview from Kanchanaburi done through email), with permissions by the interviewees. Each of the interviews generally lasted about forty minutes, with some interviews lasted more than an hour with the interviewee's time availability.

As all the interviews were conducted in the Thai language, the interpreters provided their support for its translation to English. Yet, due to the degree of Thai contextual definitions and interpretations, numerous adjustments were made to the English translation for clarity. Some of which had also impacted the participants' understanding of Thai translation on the questionnaires. For the sake of time and clarity, not all questions prepared were given and answered by few interviewees. And with the difference in case location and roles, the collected interview data is organized by commonalities. To ensure that rich information is presented, it may be necessary to combine at some point to present a combined case idea that represents Thailand as a whole.

Based on the collected participant data, the presentation of results in further sections can be explained through three major characteristics:

1) Understanding of the Problem: connected to the participants and areas history in forest degradation and usage. Recognizing the problem creates awareness and a medium for gathering ideas for alternatives.

2) Importance of Location: Thailand's forests are important for human survival and needs. Also, certain forestry areas especially in the north provide an impressive landscape for natural investments.

3) Outstanding of Conservation: there are many instances in Chiang Mai and Kanchanaburi with large cultural directions to practice sustainable forms of forest management and use.

5.2. Kanchanaburi; promotion for conservation

The Central portion of Thailand is the dominant region of Thailand, holding the nation's capital megacity of Bangkok. Central Thailand contains 22 provinces, which are divided based on the following four-region systems of Greater Bangkok, Sub-Central Thailand, Western Thailand, and Eastern Thailand.

Kanchanaburi is a province in Western Thailand, situated at a latitude of 15 degrees north and a longitude of 99 degrees to the east. The province covers approximately 19,483km of landmass, making it the third-largest province in Thailand.

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The climate of the province is mainly subtropical, composed of long wet seasons with subsequent term periods of dry seasons (Suksawang, 1995). While the national census estimates 801,519 of the population in the province (National Statistical Office, n/a). While Kanchanaburi is well known for its alluvial sapphire mining industries since the 1900s, now the location is representing nature tourism that boasts its mountains and forests. Some of the top touristic locations consist of Erawan National Park and Falls that channels the province's large rivers, Kwai Noi and Kwai Yai (Kamyo et al., 2016).

With approximately 25 percent of Kanchanaburi belong to farming, most rural populations engage in agricultural practices. Paddy rice planting is highly popularized, followed by sugar cane, corn, to tropical fruits like papaya and pomelo (Delang, 2002). Also, both rural and ethnic residents rely on forest products such as mushrooms and bamboos as the region is abundant with a mixture of deciduous, dry evergreen, and bamboo trees (Santiphop, 2009). For this study, the interview case will be focused on the southern district of Sai Yok, which has high forestry livelihood and land-use dependency.

Figure 5.1. Map of Kanchanaburi, Sai Yok district
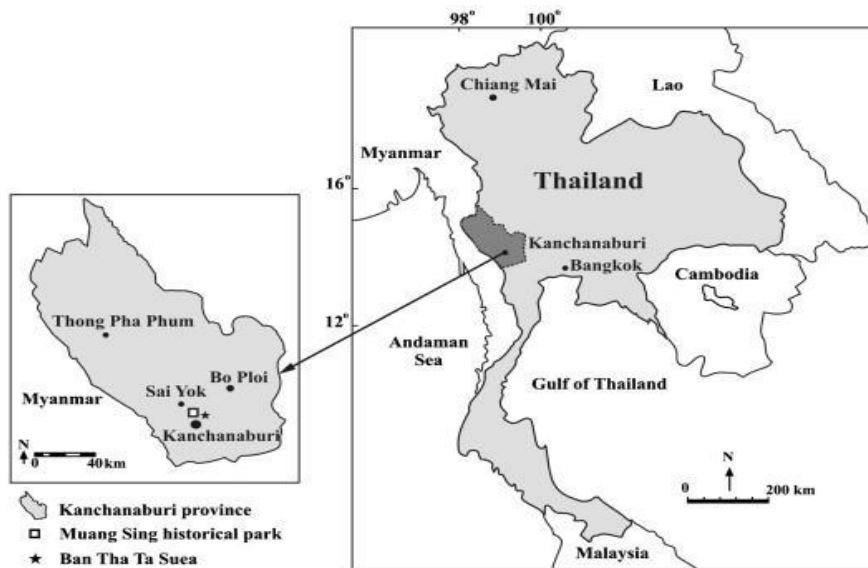
(Source: Soonthorndhada et al., 2005)

5.2.1. Effects of deforestation as perceived by the participants

During the late 1900s, Kanchanaburi saw a rise in large-scale logging concessions as a result of the nation's timber export promotion. Apart from the

practices of agroforestry industries, villagers had also been seen to log and over-extract forest resources. Their actions were at the highest during dry climates, which is the time of the season with low harvest and productivity of crops. Some villagers take risks in illegal logging and extractions considering the high trade value in markets. The types of timbers people seek are teak, alongside resources that range from flowers, honey, medicinal herbs, and especially charcoal (Thaworn et al., 2010).

Decades ago, a large percentage of Thai villagers had founded to partake in illegal logging. The one who's experienced this was Conservation Leader C (2020), a leader of a forest conservation group supervising Sai Yok district who detailed this deforestation issue:

"In the past, the forest area was very fertile. My father is a community leader and I was a villager. I did sugarcane farming. I see the problem is that there are people who come to cut the wood and sell it in Kanchanaburi. The problem of deforestation started in 1982 and has been going on for about 10 years. Droughts in later periods destroyed forestry. Capitalists and villagers cut down trees to make charcoal for wholesale and selling in Bangkok."

During the 1980s and 1990s, Thai rural had a low belief in forest conservation. More villagers began to tune into logging over-farming. Apart from money, villagers began to experience low accessible lands for farming. This not only made them participate in illegal logging, but some were also found to steal resources from neighboring areas. These problems are said to be influenced by corruptive deals and practices of certain village leaders and government officials. Conservation Leader C (2020) further explained the details regarding corruption:

"The problem is the bribes of officials. Sometimes, community leaders are paid 500 baht to 2000 baht by government officials per trip. Occasionally, community leaders take the money and either allow officials to log. Or, villagers get to pay to log"

Course, private companies are also involved in these deals. Many of which had a request for and received concession rights by the government to install mining facilities. Most companies often boast their relationship with the government and RFD to communities to justify their actions. Some villagers have experienced being threatened or contacted to leave their homes and forests. An example of this experience is shared by Villager B (2020), who is a smallholder and conservation participant from one of the villages in Sai Yok:

"We have been badly affected such as being threatened by capitalists, soldiers, and police to stop the forest conservation. They threatened to arrest us under the law. In

the forest area, a mine would be constructed by capitalists. The villagers were offered money and other benefits if they let the capitalists cut down trees and construct the mine."

Before these developments result in negative feedbacks, village leaders and government officials often promote its fair reasons. First, there will be more efforts to create efficient communications and transportation between rural communities to urban settings. Another is the possibility to open new occupation roles for villagers aside from agriculture and fishery. However, there is the possibility that these developments are decided out of underhand dealings between leaders. Furthermore, jobs aren't necessarily opened to locals and hire expertise instead.

Like Cambodia and Indonesia, power disparities have also taken effect in Thailand. Despite there exist of governmental policies for fair local rights, locals are still well disadvantaged. Even within the village, its leader or village headman (*Krut*) can influence the economic dispositions of the villagers. While it isn't specified whether the problem with leaders is still apparent to this day, all three interviewed villagers did mention their experience with them. Also, the problem falls under the issue of "collision within conservation efforts". Not only are there disagreements between leaders and villagers, but villagers too, separate themselves between those who participate in conservation and those who do not. Further details will be covered in a later section.

Bringing changes to environmental direction and resolving conflicts isn't an easy feat, especially in villages. Conservation Leader D (2020), a chairman of a conservation group in Kanchanaburi, indicated that villagers will engage in ways to resolve deforestation and/or land-use conflict if it hampers their customs and introduce useful values to their livelihoods. To do so, conservation members who are made up of volunteers needed to convince villagers of potential conflicts, resource depletion, and targets from deforestation policies. Conservation Leader C (202) asserted on how conservation tried to limit villagers' logging practice:

"Conservation in the early stages consists of a volunteer group made up of 10 people and worked with the government in the watershed development office. Whenever there is a forest invasion or logging, we are dispatched to warn about the consequences of cutting down trees. I warned and told them to give up many times. Many villagers did not like our efforts because the villagers wanted to cut down the trees."

Conservation members aren't suppression units and have to rely on only negotiation. Both Conservation Leader C & D (2020) indicated that they do not possess

any authoritarian power to dictate land-use direction. They rely on their acceptance of villagers to carry out substantial conservation works, yet some villagers can also threaten this consensus. As conservation members do not have aggressive power, few do not feel the need to listen to them and even try to overpower them.

"The villagers have cursed us and even threatened us because villagers did not agree to conservation."

Lastly, another factor in deforestation is the lack of clear forest land distinctions. Kanchanaburi's local forest department official, Government Official A (2020), indicated that some villagers take advantage of this borderless situation to expand their agricultural territories. Moreover, it is difficult to address unlawful cultivation of resources with a lack of evidence. All these problems were impactful decades ago, yet still exist to this day even with revised regulations. Even then, due to the prolonged periods of excessive logging and land-use that impacts their water and food supplies, more public began to look for alternatives.

5.2.2. Shifting for forest conservation

The shifting perceptions of conservation began to grow in rural communities. Deforestation has continued to thrive in Kanchanaburi. Apart from land shortage, concessions from industrial farming and mining had polluted the central water supply from the Khwae Noi River. The pollutants had been found to cause health issues such as skin rash commonly to villagers (Hares, 2006). Furthermore, Conservation Leader D (2020) indicated that a percentage of villagers are wary of relying on only the governments with the possibility of being oppressed. In these situations, the best bet they thought was to cooperate with conservation groups to improve its environmental and social conditions.

"The villagers have judgment and wisdom to accept things that do not cause any trouble for themselves, their families, the communities, the villages, what they bring to introduce, promote, use, practice, and create value. People do not necessarily believe in justice from the government. Rather, the leaders and villagers accept ideas of us and put into practice."

Conservation Leader D (2020)

Course, the statement about government injustice by Conservation Leader D (2020) isn't all true for Thailand society. Government Official A (2020) indicated that officials do also take initiative for conservation and local rights. The government do their utmost efforts to create a community environment without forcible instructions.

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Suggestion kits are provided to the villagers instead. In many cases, Government Official A (2020) emphasized their passive approaches to villagers, which can be pinpointed on the following statement:

"Promote the villagers to benefit from the community forest for better living. The villagers look after the forest and have their rules. Because people believe that if people benefit from the forest, they will see the importance of the forest and help to preserve and create rules for using the forest."

At this point, those who are willing to cooperate are more willing to meet with conservation groups and vice versa. Both groups can have a stable connection with each other since conservation members make frequent visits to villages. Furthermore, some conservation leaders are fellow villagers themselves, and like with Conservation Leader B and C (2020), they act as a local leader through community consensus.

For some villagers, they hope to restore some order in forestry through their actions. Villager B (2020) and his fellow villager and conservation participant, Villager C (202) both make efforts to preserve their lands and resource accessibilities for their future generations. Also, Conservation Leader B (2020) who is an acting local conservation leader in Kanchanaburi, promoted villagers' concerns on wildlife conditions. Elephants especially are major mammals that long settled in Thai landscapes. Yet, tourism developments have interfered with elephants' mobility and habitat. Understanding that forests aren't for humanity alone, participating villagers felt the need to take responsibility to create an environment for coexistence.

5.2.3. Initialization of local community participation

Despite the concerns and evidence of villagers' deforestation causes, most rural traditions go against over-depletion practices. Rather, most have their norms and rules for cultivating resources to its bare-necessary amount households require. For farming, employing traditional shifting cultivation is said to be less degrading compared to modern approaches. All these practices, however, are subjected to changes due to the interferences by the promotion of different land-use practices from the governments and other villagers.

The general outcome brought vulnerable villagers to seek collaboration with conservation agencies. Conservation Leader D (2020) informs that the reason for the collaboration is to empower villagers for influencing the government's forest policies. Since establishing contacts with government officials is difficult for villagers alone, conservation that forms local committee members have a higher degree for government negotiations.

Also, conservation programs and movements will need to be designed to bring accessible profits to local communities. Most villagers wouldn't be participative if the conservation activities do not link to their livelihoods. Activities that only consist of recycling and other simple sustainability practices aren't enough to stimulate village participation. Government Official A (2020) detailed the type of conservation attitudes and behaviors that creates participation and benefits for the villagers:

"At the same time, they also make use of the forest, such as finding bamboo and mushrooms. Communities have rules to follow. Allowing the villagers to find forest products during seasonal periods can allow villagers to earn a million by selling forest products and various products. They are an additional income for the villagers. At the same time, the forest remained and didn't deteriorate. A strong community will do this and villagers will benefit from the forest. They saw the result and acknowledged the importance to cooperate in the care of forests"

It isn't certain whether the conservation directions have documented rules. Instead, most participants portrayed a strong sense of moral respect amongst stakeholders. Each has a degree of shared value, benefits, trust, and terms that are agreeable amongst conservation networks. Practically speaking as Conservation Leader D (2020) claims, it is never easy to find one common forest direction amongst stakeholders. There will always be differences and arguments, even between villagers as Government Official A (2020) indicates. Villagers with a sense of strong responsibilities and attitudes for conservation will be more likely to conform to the rules.

These responsibilities also create a new or enhancement of existing conservation and/or forestry culture. For instance, Buddhist Monk C (2020), a conservation participant in Kanchanaburi, said that involved activities or beliefs can include Buddhist faith and principles. Some of the main Buddhist traditions include Buddhist prayers and ceremonies. All of them are devoted to the teachings of Buddha and its scriptures from Theravada traditions.

While there are different types of Theravada Buddhist identities in Thailand, most conform to the primary orientation of spiritual and meditative settings of forestry. The forest landscape has long connected with Buddhism with its birth and enlightenment of Buddha, and it's setting for monastic providence. Furthermore, forestry provides people with medicine for healing, education for upbringing a code of discipline, and cultural activities that link or impact lifestyle approaches. But, in terms of practicing forest conservation, the tree ordinary ceremony is said to be

significant in the protection of the trees. The ceremony has simple procedures that are practiced by both Buddhist monks and citizens, which involves wrapping an orange Buddhist robe to a tree. This said tree now greatly symbolizes the value of Buddha and under Buddhism law, any individual who cut the said tree will face persecution.

Figure 5.2. Ordinated trees in a community forestry in Kanchanaburi

Apart from Buddhist cultures, villagers also conform to the common roles and educations. Patrols are done mostly to keep a wildfire from happening. However, there are times when containing forest fire and logging conditions are beyond villagers' controls and require government supports. Though, not all conservation groups seek help from the government as detailed by Conservation Leader D (2020) and Buddhist Monk C (2020). As both the interviewed participants and rural villagers mostly comprised of the age group from thirty and older, they are well knowledgeable on forest geographies and resource conditions. It may well be apparent that some certain situations and groups can be well managed only with local autonomies or need a central direction from government agencies. Still, whether of having a top or bottom approach, strong local participants of conservation have another goal to raise conservation awareness. Which is also directed to other villagers ignorant of deforestation consequences.

5.2.4. Role of third-party actors in conservation

Upon the participants' responses on the collaboration aspect of forest conservation, several emphasized the importance of both local and non-local stakeholders. Common responses on collaboration reach out to companies, research,

and academic institutions, other NGOs, to urban and foreign volunteers. Conservation Leader C (2020) explained further details regarding these parties' active collaboration with its conservation group:

"Community has collaborated with the Royal Forest Department (RFD) of the Ministry of Natural Resources. The RFD has invited researchers from NGOs from Japan (Doing research for 3 years by traveling once a year) to research the benefits of forest management such as an increase in clean oxygenation. How much oxygen can be produced from the forest? We calculated from the total forest area with results and documents. They can be used for public distribution. Also, an international organization of UNDP came to support the whole of Kanchanaburi in patrols and promoting forest care."

The government, too, has enlisted numerous supports from the institutions that aren't all related to forestry nor conservation. These supports not only involves providing tools and assets but to create an opportunity to promote local participation as well. Government Official A (2020) further clarified the involving institutions and their encouragements for community conservation activities:

"We have a network with SCG regarding paper mills, pulp, seedlings of eucalyptus (alongside installing weir) to support in the management of community forests. PTT (Petroleum Gas of Thailand) and Ratchaburi Electricity Generating Holding Company (Ratch Group) help construct a community forest contest called 'Green Planet Project' to which many community forests were rewarded for their good preservation works. The Government Savings Bank, S.S.A. (Office of the Health Promotion Fund), and Dedo (Bio-based production) promote communities to recycle waste such as bamboo into various products. While both public and private educational institutions such as Mahidol University involved in the research of community forests."

Few of these institutional involvements were verified by interviewed conservation leaders. Villager A (2020), a rambutan and cassava farmer and acting freelance trekking guide for researchers and college students, also attested to the involvements. The villager specifically mentioned PTT, SCG, to Environmental Conservation Foundations, who have been setting up wires and employee volunteering in its village. The purpose of the weir in forests is to prohibit invasive species from entering the forests, and numerous interviewees highlighted its importance. Yet, Villager A (2020) saw weir being unnecessary:

"We should not build weirs in creeks, either. Building weirs is like throwing trash in

the forest; it is "useless" because water naturally circulates in the ecosystem. It might still be alright in the first year after building a weir but, a year after that, water becomes more shallow and the weir becomes trash. It's better not to build them. Moreover, some kinds of fish cannot migrate upstream to lay eggs because of them."

The effectiveness of the weir is controversial as other forest locations were found to prevent watershed damage. Yet, since the Villager A (2020) has long been working in the forests and knows well of its native species, there are some merits to the claim. While further analysis could be useful, interviewees collectively still favor the idea of having some active supports by third-party groups.

Though, these third-party institutions and even of government mainly provide supports through indirect involvements. As result, Buddhist Monk C's (2020) forest conservation only has participation from its temple's neighboring villagers and Buddhist monks. While the number of members is low in general, the interviewee indicated that small participants lead to fewer frictions and more agreements. This is because most of its members already have strong relationships with each other as they are in the same or closely situated neighborhood. Well scheduled monthly meetings and forest-merit making ceremonies with favorable attendance saw the effectiveness of preventing neighborhood forest encroachment. It may also saw its result possible due to the nonexistence of structural chains and pressures of regulations.

Still, how far has this success had carried Buddhist Monk C's (2020) forest conservation is unclear. But judging from other conservation movements' need for cooperation with both government and third-party institutions, geographical factors could have some influence. For instance, the forestry and neighboring area surrounding Buddhist Monk C's (2020) temple have limited telecommunication and road transportation reach due to its valley and rugged location. Pit stops and sizeable accommodations are seen many kilometers apart, possibly indicating the area's low interest to economic investors. Even then, this may not be the driving factor as other rural locations in Thailand have similar geographies and contexts. To determine how conservation may be successful with or without proper state-industrial collaboration, the negotiation types need to be understood. The next sections on Chiang Mai could detail more on conservation success factors and actor agreements.

5.3. Chiang Mai: how forest conservation remains productive

The location of focus in Chiang Mai is within and nearby the border of Doi Suthep-Pui National Park, just a few kilometers northwest of Chiang Mai City. Overall, the province experienced a wet season from May to October, and a dry season from

November to April, with an average annual rainfall of 1736 mm.

During agriculturally favored seasons, Hmong and other hill tribes tend to cultivate cabbages and other horticulture of salad vegetables. They depend on an irrigation system that transfers water from the northern watershed. Despite their agriculturally productive lifestyle, most villagers also partake in selling traditional hand-made crafts to guides in National Parks for further income (Elliot et al., 2019).

Figure 5.3. Map of Chiang Mai, Chiang Dao district
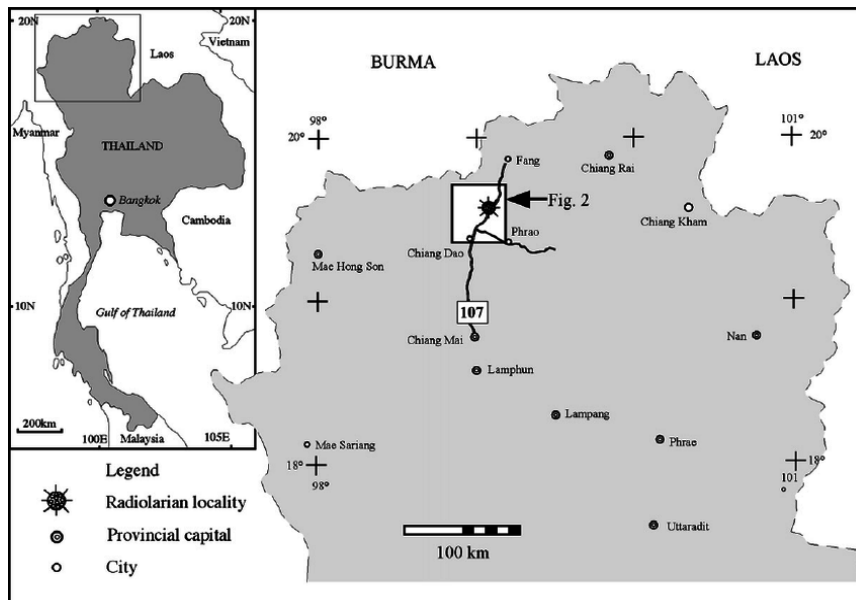
(Source: Randon & Caridroit, 2007)

One of the striking aspects of the rural population of Chiang Mai is their large participation in conservation projects. Take, for example, 1996's national project in celebration of His Majesty King Bhumibol Adulyadej's Golden Jubilee is to reforest more than 8000 km². Numerous Chiang Mai farmers agree to limit their crop cultivation size to 50 ha on valleys with large deforestation impacts (Elliot et al., 2019).

5.3.1. Cooperation in forest conservation

Like how the participants from Kanchanaburi considered the importance of cooperation, Chiang Mai's participants also regard it accordingly. For Conservation Leader A (2019), a local and conservation project leader supervising Chiang Mai, specified having more than eighty participants involved in his conservation movement. More than half consists of Chiang Mai locals, while the rest comprised of volunteers

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from companies (e.g., Mingmit Coffee) to students from the Faculty of Fine Arts of Chiang Mai University. Other interviewees aside from Conservation Leader A (2019) did not indicate the size and number of participants. Rather, they emphasized the intensity of cooperation being more important to effective and less-argumentative procedures.

This intensity may be driven by the management and arrangement of actor schedules, as each group and individuals have different slots of time available for conservation. Despite having many participants, Conservation Leader A (2019) was able to delegate the schedules and roles between each participant that matches with their affinity. For instance, January to May consists of NGO and company participants that gather and distribute seedlings for replanting. June to August have NGO and local participants planting trees for fruits and bamboo produce use for later seasons. Since each actor has a different locale, communication and contacts are managed through telephones and social networks. While physical meetings and sessions for reforestation to patrol are done at an achievable pace.

While not involved in conservation, locals who aren't participants still appreciate or respect the activities to occur in their villages. These sentiments were highlighted by Villager B (2020) and C (2020), who also compared this to the negative perceptions made decades ago by the same individuals. Uncooperative and dismissive ideas on conservation were created from their initial stance on environmentalism. Activisms were considered as a campaign that brings no substantial changes to economic, political, and societal structures. What changed their minds is identical to the context portrayed in previous sections (e.g., resource accessibility). Strong non-member supporters of conservation instead can provide more benefits to the movement outside of non-intervention. Limiting fire-based cultivation methods and pesticides are some of the examples.

The change to positive attitudes may need to be examined at the possibility of its influence through local governance and its political empowerment. For instance, the recent 2019 Thai general election had more optimism for overhaul political systems in the manner of public demands. However, the result and its impacts are still uncertain even after a year had passed. Despite such a result, it is no exaggeration that more local supporters had appeared than ever. Buddhist Monk A (2019) and B (2019), both who are participants of Buddhist forest conservation movements, are also a firm activist who fought for ethnic and indigenous security. While their entrance to activism is more recent, their Buddhist monk masters and teachers had long appeared in these sceneries. While it may well be true that local activism had existed before, its impact on environments and social rights may substantially be recent.

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Furthermore, Buddhist Monk A (2019) explained that Buddhist monks undergo numerous religious missions is encouraging change in obstructive consciousness and actions. These missions also go far into governmental and academic territories, in the hope to gain their agreements to prevent certain destructive constructions or for policy transformation. Most, however, are more cooperative with the involvement of the temple foundation, a core Buddhist organization. It needs to be noted that the government cooperation is mostly from local departments, as indicated by Buddhist Monk A (2019):

"The local government and clergy have campaigned for growing trees that are sacred to various temples. One such is the Pikul tree, representing prosperity. The local government also gives financial support"

Though this may be due to the religious and cultural appreciation of Buddhism in the nation. Especially more so in Chiang Mai due to the wide range of touristic and traditional values that are profitable to the state's perception.

5.3.2. Conservation and cultural identity

Like Kanchanaburi, Chiang Mai also faced common forest violations. Especially in the 1970s, there was a large occurrence of local conflicts upon the access to bamboo shoots and timber. Buddhist Monk B (2019) emphasized the importance of attitudes on forestry through education and local coalitions. One mentioned coalition is the Thammasat Foundation, comprised of villagers, educators from research and academic institutes, and Buddhist monks that fought against central systems for local forest rights.

Their major success was the designation of Doi Suthep as a national park, in approval by Thailand's former King, Rama IX. Approximately 10,000 rai that surrounds Doi Suthep temples are for villagers' access alone, while the rest were left for wildlife and tourism. Since its formation in 1987, the forest is still considered a sustainability and resource treasure cove for villagers and conservation. Due to its condition, Buddhist Monk B (2019) exclaimed the gratitude expressed by cooperating village headmen and having an even stronger desire to preserve nature for appreciation.

The success of Doi Suthep conservation is one of many preservation managements achieved in Chiang Mai. It may well be possible for the large forest conservation pool in Chiang Mai is due to landscape and cultural values. Doi Suthep National Park has high recognition within and outside Thailand. When comparing to the community forests and parks presented in Kanchanaburi, Doi Suthep has larger arranges of park officers and tourism operators. Furthermore, there are numerous

learning centers in Wat Pha Lat (established with support from the Public Health Organization (SSO)) that attract tourists, hikers, and locals of the ecological, cultural, spiritual, and historic values of the park. Foreign visitors from Japan and United States participate in these learning centers and the park's conservation programs such as forest trekking and recycling. These may be the reasons why the current conservation in the park is more globalized and have favorable government support.

Figure 5.4. Examples of Buddhist temple with high tourist value (Chiang Mai)

Figure 5.5. Example of Buddhist temple with low tourist value (Kanchanaburi)

It is not to say that tourism alone suffices to conservation success alone. Based on collected words from Buddhist interviewees, most Thai citizens respect the said religion. It isn't an exaggeration to identify Thailand's Buddhism as a "nature religion" sorely due to its essence of harmony and coexistence values. It has also influenced how people live and regulate as well. For instance, Buddhist Monk A (2019) talked about how Hmong tribes have their traditional norms and rituals that connect with their

cattle and crop.

Not just the values in Hmong tribes, Buddhist values and ideas have also substantially influenced environmental management as well. Conservation Leader A (2020) indicated the idea of sharing and respect in Buddhist teachings have reached its management principle:

"Called Cooperation Management. The working principle is joint management, whether sharing resources, knowledge, experience, budget between the public and private sectors with sharing and cooperation, it will have the power to create change in our forests"

5.3.3. Connectivity in forest conservation

Apart from the Buddhist culture, conservationists determined of being crucial to find other methods for creating consensual conservation effects. For instance, Conservation Leader A (2019) had limited communication opportunities to connect with possible collaborators upon the start of conservation. The leader had relied on communication channels such as Facebook, online chats, and telecommunication to reach individuals outside of local territories. Large contributions from creating these connections include donations (approximately 300,000-400,000 baht per year) used to purchase tree and agricultural seedlings. Signatures from both national and international individuals for petitions were also founded to be a great negotiation asset to influence projects and policies, which is sent to the political leaders and government officers.

Conservation Leader A (2019) indicated achievements of some of the combined online and offline participation, which are as follow:

1. Cancellation of logging concession, he requested the cancellation of logging concessions from the government and private sectors because it was destroying natural resources and the environment.

2. Forest Conservation, there should be no road cutting through forest areas and dam construction that is destroying forests and the environment. Should not have government development projects that affect the destroying of forests or the projects that damage forest resources and the environment.

3. Requesting to enact laws to certify community forests of villagers Demanding that the villagers have legal rights upon the usage of their community forests such as picking vegetables, bamboo, fruits, firewood.

Furthermore, the same leader has its website that that updates on progress, activity status, and scheduled events. Though, from the observation of the villages and rural locations, some villagers did not own computers. It may be that the conservation leader (who owns a computer and communicative devices), possibly use email and other online communications to mainly connect companies, government officials, urban individuals, and international cooperators.

However, the validity of online and non-physical conservation supports is in dire need of further evaluation. Furthermore, there are possibilities of these communications not being all effective to negotiation nor conservation. As most rural communities lack technologies for long-distance communication, actors' visitation to the site is crucial. And if the conservation leaders and/or members rely on off-site managements, there may not necessarily be substantial progress on reforestation and wildlife preservation. Still, enabling distance communication is well needed to approach companies and governments, alongside creating stronger cooperation through common public view and cultural/religious values. Therefore, balance is crucial for success.

5.4. Considerations on forest and local conditions in Thailand

Providing a general evaluation of Thailand's forest conservation is difficult to conceive. Yet, based on the case locations and interviews, notable sustainability and local rights are exemplified. In the following sections, further details will be presented on the conditions of forest, locals, and land-use. As Arnold (2002) indicates, the forest conditions either enhance local livelihoods or create poverty.

5.4.1 General procedures for resolving forest use difference

Actor discourse and dialogue options were participants' main diplomatic solution to the land-use conflict. Government Official A (2020) stated that allowing villagers to be at the same stakeholder meetings and establishing fair speaking opportunities is optimal. Aside from passing each other's concerns and ideas for projects and land/resource distribution, other environmental information wasn't necessary to be informed. This information includes a list of resources, range of dry climate, forest fire management, to quantitative data on forest cover percentage. It can be safe to say that most of the villagers and locals (including the interviewees) already have extensive knowledge through experience of living and working in forestry for more than 20 years. Learning institutions and education centers emphasized in earlier sections are mainly for religious and spiritual learnings. While practical educations are largely attracting younger and foreign individuals.

Retracing back to the concerns on land registration, Government Official A (2020) mentioned some of the difficulties faced within the procedure. First, resolving conflicts and establishing separate land-use opportunities is slow due to a low number of officials in charge. Still, areas of Dan Makham Tia, Sai Yok, Phanom Thuan, Nong Prue, Laowwan, Si Sawat, Thongphaphum, and Sangkhla districts have several wildlife sanctuaries and community forestry with near a million acres registered. Also, the established Forest Act 1941 made sure for people who yet acquired land permits, to access forest land to a extend.

In response, Villager A (2020) mentioned that he has no problem with accessing the resource and his farming plot due to ALRO 4-01 farming permit. This permit is provided by Thailand's Agricultural Land Reform Office (ALRO) established in 1975. The main role of this office is to overturn the agricultural production declined by optimizing sustainable land practices (Agricultural Land Reform Office, 2005). They also have responsibility passed down by the Thai Cabinet to supervise agricultural plantations and plots in National Forest Reserve (Sang-Aram, 2012).

Illegal forest dwellers, who are characterized as forest encroachers, were one of the concerns of Villager A (2020). ALRO had been working to construct a buffer zone between areas for conservation agriculture to limit squatters' encroachment and to house them legally (Jiraphan, 2011; Sakolnakorn et al, 2016). Villager A (2020) attested that he and other villagers can find resources for daily living despite the continued existence of illegal settlers in nearby locations.

Figure 5.6. Basic structure of forest property and resource use in Southeast Asia
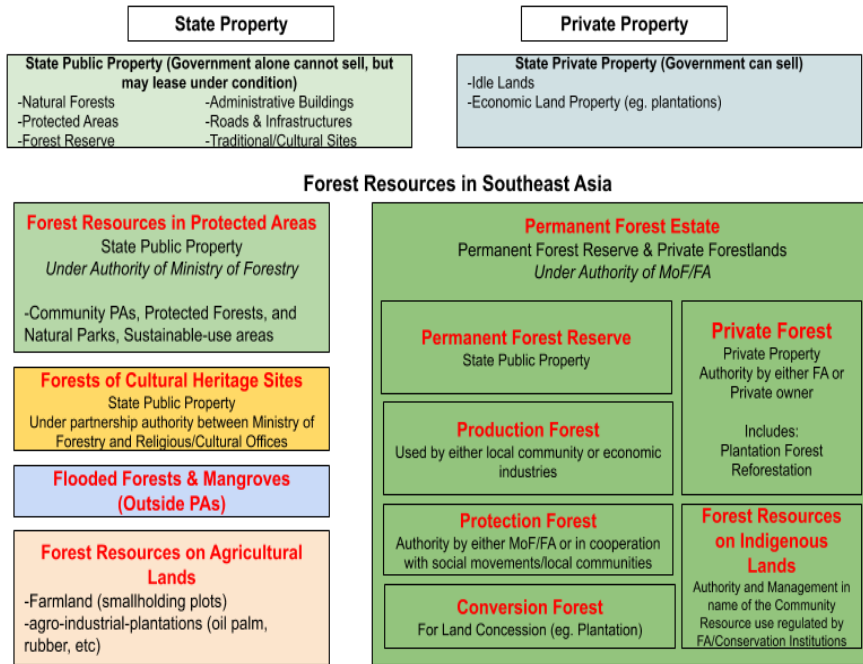
(Based on source: UN REDD+, 2010; Banks et al., 2014)

In terms of forest ownership, most forests are officially owned by the state. Figure 5.6. illustrates the proprietorship of forestry and natural resources in Southeast Asia. Governments have the authority to make decisions upon the use of forests under public interests and demands. It may well be used for public infrastructures to instigate economic zones. Or, due to the said location emitting touristic and historical values, it may be used for preservation, entertainment, to religious purposes.

Course, forests also consider its near 1.3 million rural households within protected forests (Lakanavichian, 2006). Numerous options were experimented with and created by the Thai government for the forest-dependent population. For instance, the STK certificate allows villagers of land rights that can also be passed down to their household heir (Poffenberger et al., 2005). This certificate cannot be sold, yet evidence exists of holders passing their certificate to non-family members (Lakanavichian, 1995). Revisions to the certificate and program were made with time but ultimately had dismissed the STK certificate. Also, policies on land-use started to develop stricter rules for rural populations (Lakanavichian, 2006). Interviewed villagers didn't

mention any experiences with eviction and other forest tenure issues, despite the portrayal from media and articles. It may well be due to the detail being sensitive or the possibility of proper regulations exist with villager's long settlement experiences. Television and radio broadcasts of conservation can create large supports from the younger generations as Conservation Leader B (2020) states. Especially if this media covers conservation awareness from the Royal Family of Thailand

Figure 5.7. Televised conservation group (picture censored for privacy purpose)
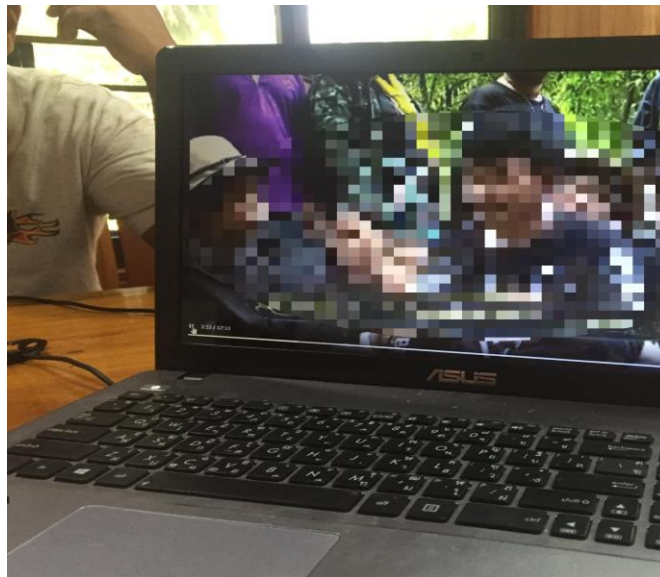
Conservation involvement of the Royal Family goes back to the leadership of the late king of Thailand, His Majesty Bhumibol Adulyadej (also known as *Rama IX*). His majesty has introduced a philosophy known as "Sufficiency Economy," which is influential to the change in Thailand's development approaches. The excerpt of his majesty's speech from 1974 further defined his philosophy:

"Economic development must be done step by step. It should begin with the strengthening of our economic foundation, by assuring that the majority of our population has enough to live on. Once reasonable progress has been achieved, we should then embark on the next steps, by pursuing more advanced levels of economic development. Here, if one focuses only on rapid economic expansion without making sure that such plan is appropriate for our people and the condition of our country, it will inevitably result in various imbalances and eventually end up as failure or crisis as found in other countries."

(Royal Speech, 1974; retrieved from Piboolsravut, 2004)

The philosophy was introduced in response to the 1997 economic crisis in Thailand (Piboolsravut, 2004). Mongsawad (2010) identify the three interchangeable, yet independent elements of the philosophy that promotes sustainability, which features:

- Moderation: how people should not act on greed and gather only the necessary number of needs. Also, people need to learn to take care of themselves without receiving too much favor.
- Reasonableness: people need to have more responsibilities for their actions, be aware of the following consequences to themselves and for others.
- Self-immunity: providing individuals with the power to protect themselves under ultimatum and uncontrollable circumstances

The Sufficiency Economy signifies responsibility towards nature and promotes citizens to gain more knowledge and understanding to act reasonably (Mongsawad, 2010). Not all interviewees had referred to nor follow the philosophy of sufficiency economy. Those who adapt to the principle had different comprehension and utilization approach. For instance, Government Official A (2020) understands the concept as the dual existence of conservation and economic activities. To achieve this, however, requires patience and understanding. Villagers in certain instances will be dissatisfied with the government's directions and demand swift response. The official informed that villagers are required to understand that management doesn't only cater to the villagers. Patience and cooperation by the villagers will ultimately bring forest revitalization, economic improvements, and stronger stakeholder cooperation to locals.

Conservation leaders also have their principles that semblance of the philosophy. If Government Official A's (2020) philosophy was more akin to self-sacrifice and patient for the greater good, Conservation Leader C (2020) emphasizes generosity. Conservation Leader C (2020) has collaborated with Buddhist Monk C (2020) in conservation. One of their collaborative projects in particular, "3 kinds of wood, 4 uses," emphasizes villagers who already own abundant resources and budget to allow others to access the forests for their needs. It idealizes responsibility, sharing, and return of the favor. Buddhist Monk A (2019) also similarly believes in philosophy. He stated that the philosophy requires to:

"Focus on managing one's actions. Because if we have good practices and precepts, everything will be spared. Good for the public and the environment too. Focus on self-control first if you can control yourself. And doing good will result in good results for people and the environment as well."

Conservation Leader D's (2020) take on the philosophy is different due to the lack of belief in equality in conservation. Sufficiency Economy isn't about generosity, but rather an opportunity to reach out and create cooperation of actors:

"Understanding, reaching and developing is what the group takes as the core is operating in every area by bringing knowledge to create understanding among the villagers Leading the lead-driven process to transform society into intelligence. Persuade together to act in the area according to the social context with practical wisdom."

All the above factors contribute to the general resolution of forest use differences. The philosophy of sufficiency economy is quite different from the rest as it's more akin to cultural appreciation. Nevertheless, it is due to this attitude that ideas for conservation are brought up to the national table more often than ever. Yet, it is difficult to ensure that most Thai policies are influenced by philosophy. Rather, the actual supportive words from social media and communication feed brought more chances for development changes. Interviewees who expressed these communication and acknowledgment factors showed the satisfaction of their hard work being rewarded with human and financial powers. These efforts are likely to result in the conditions of forestry examined in the next section.

5.4.2. Key results in conservation

The general conditions of the Sai Yok district of Kanchanaburi and Chiang Dao district (and Doi Suthep) of Chiang Mai around the roads, mountains, and river valleys were abundant with trees. Most interviewees attested to the condition and did not mention any recent removal of trees.

Figure 5.8. Pictures of the village area in Chiang Mai

Figure 5.9. Pictures of the village area and National Park in Kanchanaburi

It can be attested of Conservation Leader B (2020) also exclaimed the revitalization of wildlife. A variety of monkeys, birds, and fish types are said to be coexisting with rural inhabitants with little to no interference. Rather than of technological approach, wildlife is well preserved through due to local's attitudes and involvements. As listed previously, large participation had seen in tree planting, forest patrols, tree ceremonies, and protests to meetings for requesting the abolition of dams and mining developments. Villager B (2020) expressed the thoughts and effects of the conservation involvements:

"We are so proud and happy about our environmental conservation activities such as reclaiming the forest, calling for the capitalist group to stop cutting trees, protest against mine construction, building firebreaks and weirs, restoring and conserving the forest."

Also, Villager C (2020) informed of the conditions of forests:

"It has increased the amount of forestland, clean water, non-timber forest products as the villagers' source of food and income while decreasing forestland encroachment. We are also very proud of having the cleanest water resource in Thailand, the Khwae Noi River, which is a water supply for people in the Central. If there's a mine, it will pollute the water with sulfate which is a trouble for central water supply"

Both Villager B (2020) and Villager C (2020) works as a smallholder while harvesting wild resources of bamboo shoot, sweet leaf (*phak wan*), to termite mushrooms. Marinated bamboo shoots alone are quite high in the local and commercial market, fetching around 20,000 baht in batch. In addition to selling, they are well used for their daily cooking and meals. While some resources are lacking for better living conditions such as quantities of rice, they still have the necessities for daily living. The resource availability in the forestry is adaptive to the seasons as well as Villager B (2020) described:

"In the rainy season, I go pick bamboo shoots in the forest every day to marinate for sale. If not during the rainy season, I go pick termite mushrooms and phak-wan there every day as well for both cooking and selling."

Figure 5.10. Resources used and sold by Villager B & C (2020)

Termite Mushroom

Sweet Leaf (*Pak Wan*)

Bamboo Shoots (pickled)

*Used for cooking or sell to the local markets and connected companies

(Image Sources: phakhaolao.la, khiewchanta.com, pixen.wordpress.com)

Buddhist Monk B (2019) informed of the nature of the reservoir in Chiang Mai. Much of the announcement as national park areas and high Chiang Mai followers of sufficiency economy, created the general space with abundant forestry and water:

"There is a water reservoir in the mountains that never dries. Chiang Mai has created water to never run out, nor dry, which shows that the dignity and nature and sufficient."

Additionally, forest damage responses were stated to occur rapidly. Most interviewees, especially from Chiang Mai, indicated of reduction in forest fires and air pollutions. Chiang Mai is known to undergo peak dry season during January to March, where forest fires are a common occurrence. In 2018, a severe forest fire in Chiang Mai had released fine particles (PM 2.5) into the atmosphere, dropping the air quality to a hazardous level. Conservation Leader A (2019) exclaimed the efforts made by their group, other volunteers, forest officials, and villagers in reducing both the fire and air quality. Containment of forest fires was said to have been possible by the cooperative forest patrols firefighters, villagers, and volunteers to remove potentially flammable substances. Only when their efforts completely removed the fire is when they planted trees and plant seedlings for air-purification. The latest efforts of

Conservation Leader A (2019) to contain forest fires took nearly 3 months before the efforts can safely be identified as complete and successful.

Despite the efforts on forest fire and air pollution management, there is uncertainty on the level presented in this recent year. As of 28th of March 2020, data from the Geo-Informatics and Space Technology Development Agency (GISTDA) indicated that Thailand had 3,809 fire hotspots as of 28, March 2020 (Bangkok Post, 2020). Roughly 10 percent (398 hotspots) of these hotspots are in Chiang Mai province, with Doi Suthep areas had largely been affected by the fire. The Thai government declared to the public that the primary culprit of these fires are the locals who practice slash-and-burn techniques, with recent droughts and prevailing winds being the second and third causes (Earth.org, 2020). There is some skepticism to the government's claims considering the existence of burning practices of mining and agro-industries. Yet, the state had emphasized limiting activities of northern Thai villagers than sending more aerial firefighting helicopters on the scene (Bangkok Post, 2020). Realistically, it can be suggested that the level of government and local cooperation isn't exceptionally coordinated nor is it oppressive.

5.4.3. Current issues and future implications of conservation

Few issues and challenges were raised by the participants despite the positive-sounding forest conservation. All participants apart from Government Official A (2020) articulated existing corruptive agreements that interfere with conservation progress. The underground land barters between government officials, organizations, and institutional and/or community leaders more often require court involvement. It is a long and arduous process with vulnerability for further complication (e.g., elite vs poor power disparities, "corruptive" relationship with the judge). Not just protests but submitting reports to humanitarian entities may further be needed for local empowerments to the cases.

Nevertheless, it is unreasonable to determine that the source of the issue is the government. Government Official A (2020) informed that they as the local government officials were required to report back to the higher department (Ministry of Natural Resources and Environment). While they aren't giving any favoritism towards capitalism, local agencies must allow developments to occur upon orders from the higher up. Yet, the interviewee followed up with the statements that local departments do try to contribute more to its rural inhabitants through monthly funding, tree seedlings (e.g., *Madu Makha*, which has a long-term life and growth period of 3 to 5 years), and routinely check-up on site.

Nevertheless, both government and the villagers have some disagreements. In some instances, it connects to "collision within conservation efforts". Government Official A (2020) emphasized the development of private resorts due to land permit trade by poor villagers. Furthermore, trust and cooperation with a poor population can easily deteriorate if demands are not met, which can even escalate to violence.

Despite these actor-related concerns, each party still relies upon the other to achieve compromising objectives. Despite detesting the government's directions, Conservation Leader D (2020) still acknowledges the need for the government's power to provide locals with forest accessibility. The "forest reclamation policy" that evoked eviction, seizure, and punishment of poor and landless people, was re-emphasized through the large backlash. The new governmental agencies that Conservation Leader D (2020) mentioned, had carried out a fair investigation on forest encroachments by elites. Their actions also allowed for:

"Provincial level of arable land of 20% in Forest Reserve with Forest Reserve Act, in accordance with the Sombat Sombat Act and the Royal Decree of 1938, operating under the Cabinet Resolution on 3 Aug. 2010"

From the synthesis of participants' narratives, the conservation and utilization of natural areas don't seem to be a problem anymore. Apart from the concerns made by Villager A (2020) on the weir and wanting more government's site visitations, tree planting was also needed some improvements:

"If I had to suggest one, it would be an improvement on reforestation. Alien tree species must not be planted in the area because they won't survive if they aren't original species of mixed deciduous forest. To revive the forest, we should just improve land, not trespassing the forest by planting new trees unless they are native to the area like Senna Siamea. Eventually, the forest will revive on its own."

And for final suggestions made by the villagers, Villager C (2020) addressed how there is a dire need for larger conservation funding:

"A lack of funds is another limitation. Our environmental group has no medical funding. Although lacking money, we have to carry the burden of medical care on our own. It would be great to have a volunteer group to help out."

Numerous villages mostly comprised of middle to elderly aged populations, with the Villager B & C (2020) being in their sixties. With the lack of convenient transportation and medical centers are far out of reach, it can be difficult to maintain routine health checkups. With the lack of a younger population in villages, active participation in

conservation can be stressful when adding their already strenuous jobs on the farms. Ultimately, the health and aging population can become a problem to the forest conservation when considering its length of the active period. Time will tell whether the future of rural forest conservation will incur change in village stakeholders or its activities.

Despite the oddities, it is astonishing to find that most of the interviewees seemed positive about conservation. Historically speaking, both Kanchanaburi and Chiang Mai had a multitude of conflicts over land-use and development projects. For instance, Nam Chaon dam projects in Kanchanaburi were initiated by the Electricity Generating Authority of Thailand (EGAT) prominent in the 1980s, estimating to create heavy flood risk and damage on wildlife species. Eventually, the project was stopped because of the large protests of locals, urban petitioners, NGO pleas, to Buddhist monks (Rigg, 1991). This may seem as if larger-scaled conflicts were prevalent during the 1980s and 1990s than recently. There may be some truth to recent positivity, or the interviewees only focused on sharing success experiences than challenges. In either case, Thai's consciousness for protection and respect for forestry is shown some intensity, which may be the reasons for diplomatic opportunities. In near future, the further examination should be placed on the purpose of modern technologies and communications in Thailand's forest conservation.

Chapter 6. Conclusion

6.1. Key findings and contributing factors

This study had examined forest conservation efforts in Southeast Asia. Upon focusing on three case locations, each area had witnessed a varying degree of rural policies. Development of regulations started to appear to the public around the 60s and 70s when the governments and related institutions started to notice deforestation impacts. The early management systems by state leaders had little to no room for outside opinions, raising bias on the control of forest land-use. Over the period, regulations were revised due to the ineffectiveness of deforestation control, and to experiment with new options. These experiments led to the cooperation with NGOs and further with local communities. Cambodia, Indonesia, and Thailand all started with government-only management and were later characterized by open involvements through conservation.

These are numerous researches on forest conservation in developing worlds, with cases specifically made for Southeast Asian countries. Yet, there is a modest range of studies that link forest conservation efforts with political and economic agents for cooperation and intervention. Furthermore, a comparison outlook on forest conservation through a geographical and political lens is quite rare as well. With the study based on Cambodia, Indonesia, and Thailand, both positive and negative effects of conservation efforts are expected to contribute to rural sustainable developments and its possibility to experiment on successful conservation cases.

Not all cases were successful, however, as Cambodia and Indonesia still undeniably have large concessions that sabotage community access. Chapter 4 revealed Kampong Thom and West Kalimantan only to some extent, succeeded in designating protected areas and winning the dispute on excessive logging concessions. Conservation values weren't only consisted of forest preservation and job opportunities, but also decentralized forest management. Less control by the government and more local engagement sounded favorable to communities. However, decentralization is far from perfect with a poor coordination system between the different levels of government and with locals. These common disadvantages in Cambodia and Indonesia address the main research question on political disparities in forest control.

Decentralization challenges are characterized by the growing disagreements between powerful and marginalized stakeholders. These disputes are defined by the unclear responsibilities of stakeholders. Each has their perceptions of the control on

forest and its conservation direction, and no proper efforts are seen to solve the misunderstandings. Rather, most forest management is still conducted centralized by the powerful political stakeholders, which lines up with the hypothesis made in section 1.6. The complex relationship between international governments and companies with national government on trades and markets pose difficulties in recalling economic practices. As a result, oil palm plantations, timber, charcoal, and cash crop markets exceed local controls. Reported cases on the uneven allocation of benefits and land-rights were also known to exist within conservation cooperation as created by economic and social inequalities.

Cambodia's and Indonesia's disadvantages in forest conservations can also be found to a degree in the developments of Thailand. Chapter 5 consists of the narratives provided by a total of 11 key informants in Thailand, which reveal an interesting, yet different outlook on forest conservation compared to the prior two cases. Communities face relative financial constraints and poor human support by Thailand's government. The supposed disadvantages are created from limited government officials in charge of the field and top-down developments on forestry. As a developing nation, economic development is highly favored by political leaders and commonly allows mining and other urban infrastructures to exist. Though, these expansions alone don't only contribute to Thailand's struggle through deforestation. With the poor economic capabilities of local communities, villagers are often seen to sell their forest permits and/or lands, which are like Cambodia's case. This act especially in villages with strong conservation efforts often impedes progress.

Yet, the interviews with conservation actors reflected favorable conditions. Local benefits lined up to fair forest accessibility, along with an abundance of NTFPs for food and profit. Their story of success is directed to the second and last research question regarding established negotiation strategies. Cases in Cambodia and Indonesia dismissed negotiations, and local outcries were built upon street protests. In Thailand, communications were actively conducted between the government officials, NGOs, third party individuals and organizations, and locals and their leaders. Chairmen of the NGOs to head monks from Buddhist temples had been acting as a representative for rural communities and use their leadership skills for plausible negotiations. The success and rate for discourse are made through public awareness and petitions from social networking. The conservation coverage on media and recognition through influential individuals also attest to the change in government performance. Some of the speculations on unequal conservation collaboratives are reduced for the Thai participants. Though, Cambodia and Indonesia (along with Thailand based on articles) still have several locals who rely on protests that escalate

into actor violence.

All the details on conservation and deforestation coincide with the framework of political ecology. The concept emphasizes the nexus of socio-economic dynamics and environmental transformation. These networks show that its connecting institutions determine how ecological knowledge is used for policy decisions. The inter-actor relations not only ensure the success of rehabilitation projects but also can result in rapid deforestation decisions. Both are heightened by top-down environmental initiatives (Thompson, 2018). Top-down discourse is still prominent in national and international negotiations on forest land-use with risks seen in the findings (Lye et al., 2003). Yet, these flawed institutions had managed to display a hybrid sense of responsibility as portrayed by the findings (Armitage et al., 2012; Thompson, 2018).

The past Figure 2.2. on Section 2.3. presented the basic research framework to illustrate conservation management. From planning to implementation, each step was taken by the conservation efforts ultimately were to lead to some sort of a result. With the findings from Chapters 4 and 5, the framework could benefit from some improvements. Figure 6.1. below propose simplicity and clear categorization of conservation factors.

Figure 6.1. Redrawn framework on conservation management
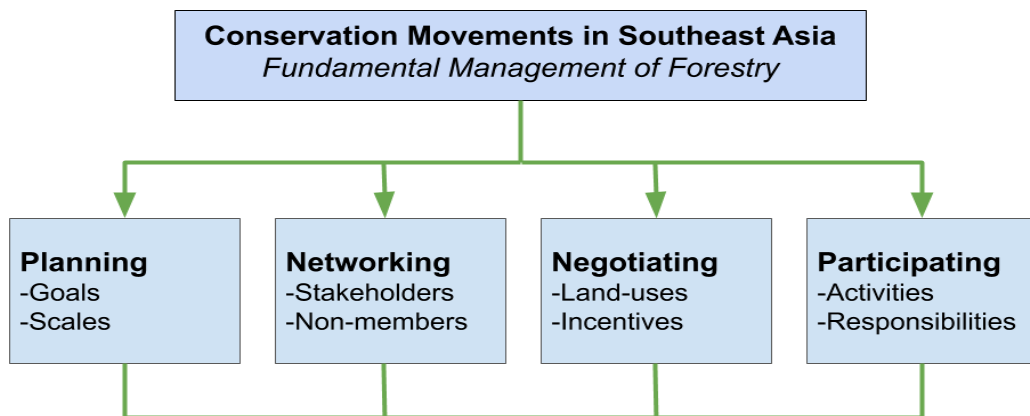
(Source: Author)

Based on Figure 2.2. 4 major directions are derived from the action's

conservation movements take. These are planning, networking, negotiating, and participating. Each direction carries 3 defining characteristics. For planning, reducing deforestation is the key goal presented in all conservation movements. Yet, each had some differences regards to said goal. For instance, REDD+ in Cambodia and Indonesia on Chapter 4 set a goal to limit set deforestation hectares till a certain year. Whereas most conservation leaders in Chapter 5 indicated limiting concessions that affect their communities. All of which also determines whether the projects are supervising at the provincial or village level.

To obtain strong actor networks, conservation needs to provide substantial, yet realistic goals and possible benefits. In Chapter 5, most conservation participants made an appropriate approach to connect with other actors. To gather possible conservation participants for donations, conservation leaders needed to promote their cause and detailed background on both conservation and problematic situations. In most large-scale projects introduced by the government and large NGO institutions, goals are already established with a network of stakeholders.

Managements in Cambodia and Indonesia however are unclear due to the conflicting agreements between government levels and locals. Local participants, however, were more involved in conservation feats and were cooperative. Things were quite different in Thailand as stakeholder cooperation had varying national and international participants with few governmental and local interferences.

Table 6.1. Summary table

Strength	Weakness
-Consideration on local's dependence on forests -Preservation of tradition to cultural values tied to forestry -Local participation in physical activities and influence of program decisions -Room for negotiation on economic concessions (locals-state-industrial power)	-Existing conflicts over land and resources (local vs. local, local vs. state-industrial) -Conservation in general is quite limited in appeal to central government -Decentralization issues (conflicting land permit authority between central and local) -Existing power disparities (elites over locals on land/resource accessibility)
Opportunities	**Threats**
-Financial and voluntarism supports come from different scales (nation, foreign) -Substantial concession issues requiring state's address -Public awareness to situations in forestry lead to degree on political influence (potentially lead to leaders negotiating with forest concessionaires)	-The government does not have adequate regulations on foreign trades and companies -Existence of corruption on all types of stakeholders

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While it is difficult to judge the result of conservation, the findings rather provide an opportunity to list its values and ineffectiveness. Table 6.1. summarizes conservation findings based on its strength, weaknesses, opportunities it brings, and its current/possible threats. The strength of conservation is tied to preserving local cultures and values, while its weakness brings the locals to be susceptible to authoritarianism. From Chapter 5's findings, communities can well involve in corruption just as elite and industrial administrations. On top of that, governments had weak sovereignty over the extensive actions of foreign companies. Despite the problems, conservation is a solid option for achieving environmental conferences. When rural and natural damage is substantial, political actors will initiate talks and involve in preservation to relieve public concerns. Although, there is no fixed approach in forest conservation that is determined successful and will require experimentalism to be adaptable to geographical, social, and political situations.

6.2. Further discussions and future researches

At the time this study began to be finalized, the COVID-19 pandemic has become an interest to environmental researchers. One of the intriguing aspects of the pandemic is its effect on nature revitalization. A preliminary case is being studied in Thailand's Khao Yai National Park. It is one of the UNESCO World Heritage Site that covers approximately 155m² of land and habitats the highest population of wild elephants. With the pandemic, the park's tourist attractions were closed off. The lack of tourists and vehicles in the forests had allowed more mobility and freedom for elephants (The New York Times, 2020).

While wildlife may be regenerating, concerns are directing towards administrations and livelihoods. "Wet markets" (aka. the farmer's markets in the west), are local bazaars that open trades for fish, meat, plants, and other produce. These other businesses and human activities have been halted indefinitely for an uncertain period. The poor and rural population has become far more vulnerable with less access to financial, health, and social safety nets. Yet, industries with considerable government guarantees can continue their activities. One of the concerns raised by researchers is the possibility of conservation restriction. Not only of its activities but participations are susceptible to limitation and restriction. It can provide dangerous situations to conservation as the government will place more focus on stabilizing the economy than on the environment. Also, the inclusion of restricted livelihoods Furthermore, restricted livelihoods can promote overconsumption of natural resources (United Nations, 2020).

The problem of policies and laws in COVID-19 is its quick implementation

period with little to no room for discussions. Some of which have contradictory priorities to uneven targets for supports, aggravating the public. For instance, the Indonesian parliament recently implemented an "economic stimulus plan" to create new jobs and economic opportunities within the COVID-19 environment. The aftereffect was different from the state's expectation as thousands of Indonesian citizens protested against the stimulus plan. Not only did this plan was implemented without consulting the public, but it removes the legal protections place in forests which loosen the assessments on industries' environmental impacts. Locals aren't the only actors against this plan as international firms of McDonald's to Nestlé provided their voice to encourage anti-deforestation measures by reinstating legal and illegal forest government systems (The Diplomat, 2020).

Nevertheless, the instances of low government trust lead to the public encouraging for decentralization. However, as decentralization has seen its share of challenges presented in the case studies, efforts to changes are necessary. A suggestion would be to consider the welfare characteristics presented in foreign central systems such as one presented in South Korea. This nation is known for its accomplishment in its transition from its past developing identity to a near developed nation. During its transformation phase, however, deforestation was at its highest during and after the Korean War (1950 to 1953). More than half of its forests were degraded from high timber and fuelwood demands and in return caused pressure on food security (FAO, 2016). Poverty and famine soon struct the Republic of Korea and had them listed as one of the poorest countries in the world (Statistics Korea, 2015).

To stabilize society and forestry, the past president of the Republic of Korea, Park Chung Hee (1963-1979), help established new forest laws and practices. By president Park's lead, the government had full attention on revitalizing forests, establishing Forest Law in 1961 and new provincial Forest Departments in 1973 (Lee et al., 2018). 1973 also was the initialization of The Forest Rehabilitation Projects, to which the government officials fully prevented a total of 41,932 ha of erosions within ten years. Furthermore, the government had officially declared the 21st of March to 20th of April as the Nationwide Tree Planting period to encourage public participation. Out of all the benefits, increased revenue and profit from increasing food security was highly favorable to rural communities (Park & Lee, 2014). Planting fruits, pine, and nut trees were for nutrients and to make Korean porridge and rice cake. Agricultural production of rice was also promoted, and due to its increased income returns provided by the government, more than half of Korean citizens had participated in rehabilitation (FAO, 2016).

The reforestation plan however had incurred issues upon its implementation.

Low financial capacity and poverty restricted requirements for service and human mobilization. Years of relief supports soon allowed the nation to enable administrative focus on reforestation (Oh et al., 2020). At the end of the project's second phase in the late 1980s, Korea had achieved 970,000 ha of reforestation. Separated from the protected areas, an additional 320,000 ha of forestry was prepared for economic uses by companies and agricultural populations (Oh et al., 2020; Korea Forest Service, n/a). To sum up Southern Korea's conservation effect, not only were there balanced segregation of economic and conservation land-use stayed the same through the years, but it was also made possible because of the proper direction relayed by the nation's central powers.

It may be difficult to implement South Korea's forest transition to Indonesia, Cambodia, and even Thailand. South Korea had its success possible with its government was under a common lead and cause. Also, the nation changed its imperfect governance with patrimonialism and the military regime, to which the three case nations still undergo. Neither a highly decentralized nor a highly centralized forest administration is an ideal structure. Rather, central, provincial, and district governments need to operate more closely amongst each other. Most of the problems founded in decentralization was a limited guideline and close functions between government levels to which could be solved through designating clear rights and responsibilities for all actors. This is a combination of changing working culture and developing holistic conventions of forest administration. To which the central level needs to increase their communication and support downwards in the management structure. This may allow stakeholders to follow the objectives set out by the central powers and allow a greater degree of consultation between levels.

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Abstract in Korean

삼림 벌채 효과는 라틴 아메리카, 사하라 사막 이남 아프리카 및 동남아시아 지역에서 발판을 발견하면서 글로벌 사회에서 점점 더 분명해졌습니다. 환경 학술 문헌은 산림 양보를 줄이기위한 전략에 대한 수많은 토론을 제공했습니다. 그들은 삼림 벌채 문제를 해결하기위한 정책 중심의 대응을 위해 정부 관리 및 이해 관계자의 역량을 지시합니다.

이 연구는 동남아시아에서 실행된 보존 전략을 탐구합니다. 정치 생태학의 개념적 틀에서 산림은 지역 공동체의 귀중한 자산이며 국영 산업의 발전 잠재력이다. 각 요구에 부응하기 위해 보전 노력은 산림 사용에 대한 책임과 규정을 공유하기 위해 행위자 네트워킹을 장려합니다.

질적 방법론은 대규모 산림 보존 노력을 기울이고 있는 동남아시아 3 개 주요 국가를 조사하는 데 사용됩니다. 캄보디아와 인도네시아의 데이터는 보존 프로젝트에 대한 기존 기록 문서 사례에서 가져온 것입니다. 태국의 데이터는 2019 년과 2020 년 인터뷰의 이해 관계자 이야기를 기반으로 합니다. 보존 노력을 통해 직접 관여하거나 영향을 받은 행위자들과 총 11 건의 핵심 정보 인터뷰가 수행되었습니다.

보전 노력의 보편성에는 모든 유형의 행위자의 직간접 적 참여가 포함됩니다. 지역 사회를 위한 지속 가능하고 사회 경제적 역량을 구축하기 위해 많은 보존 프로젝트가 수립되었습니다. 이러한 업적을 달성하기 위해 보존 운동은 정부 기관, 경제 개발자, 비정부기구들 (NGOs) 및 지역 가정 간의 정치적 권력 차이를 해결합니다. 보존 접근법의 유형은 지리적 및 보존 설정에 따라 다릅니다.

이해 관계자가 다양한 수준의 재무 및 관리 능력을 보유하고 있기 때문에 이러한 차이는 종종 "관여자 대 행위자" 충돌의 여지가 됩니다. 보존 노력이 문제에 어떻게 적응하는지 이해하면 동남아시아의 정치 환경을 개선하는 데 잠재력이 높아집니다.

Appendixes

Appendix 1

INTERVIEW QUESTIONS FOR CONSERVATION LEADER (CHIANG MAI-2019)

A. INTRODUCTORY QUESTIONS

-In which province are you from?

A-1 -If not from Northern Thailand, why did you migrate to this part of Thailand?

B. IN ACCORDANCE TO ENVIRONMENTAL MOVEMENTS

-What is your position in the group/movement and what are your main activities and responsibilities?

-When and why did you start working as an environmentalist? Is there a certain issue or event that provoked you to take action?

-Are there any environmental events that were known well to the public?

-Any other environmental activities or movements in part or support the group?

-What are the racial/ethnic and socio-economic demographics?

B-1 -of the group's target villages?

-Do you think that these demographics play a role in environmental justice issues faced by your community?

-How large is your group?

-How do the government officials and posts see your participation in environmental movements?

-Do you feel that these environmental movements allow villagers more control over the environment than the government and/or corporations?

C. FINAL REMARKS

-In what ways does the movement(s) change your perspectives/behaviors in managing the environment?

-How do you feel about environmental movements in general?

C-1 -Positive? (in what they do, what they('ve) accomplished so far)

C-2 -If negative, why? What might need to be done to improve the movements to change your opinion?

-Any philosophy you use for the environmental movement?

Appendix 2

INTERVIEW QUESTIONS FOR BUDDHIST MONK (CHIANG MAI-2019)

A. INTRODUCTORY QUESTIONS

-In which province are you from?

A-1 -If not from Northern Thailand, why did you migrate to this part of Thailand?

-Why did you decide to become a Monk?

-What is your position in the group/movement and what are your main activities and responsibilities?

B. WORKING IN AN ENVIRONMENTAL MOVEMENT

-How does your group/movement define the word "environmental"?

-What are the main goals of your group/movement?

-When and why did you start working as an environmentalist? Is there a certain issue or event that provoked you to take action?

-How does one being a Buddhist monk fit with the idea of environmentalism? (relate to Buddha's teachings? traditions?)

-Is your activism purely based upon Buddhist culture/teachings? Please elaborate why yes, or why no.

-Has there been cases of success in protecting the environment by your group or your action?

-Have there been any disappointments/failures in protecting the environment?

-How frequently does your movement work towards environmental issues?

-In the last 10 years, has your movement increased the success rate of protecting the environment?

B-1 -Why yes or no?

C. CONTACTS BETWEEN MINISTRY, GOVERNMENT, INDUSTRIES, AND/LOCAL

-Who are the people/ groups that you are helping?

-Are there any other groups/movements/NGOs from within Thailand or outside the border that supports your group?

C-1 -How? (finance/donation? being part as a member?)

- Are there any specific individuals that support your group? If so, how?

-Does your movement collaborate with any government agency? If yes, please specify and elaborate

-Does your movement collaborate with any company? If yes, please specify and elaborate

-Are there any organizations that disagree with your activities and ideals? If yes, why do they disagree and how do you deal with them?

D. FINAL REMARKS

-Do you perhaps see that environmental movement is an ongoing trend in Thailand?

-Do you think this type of movement (or Buddhist monk activism) will become big or small in near future (More recruitment? More Awareness?)

D-1 Why bigger or smaller?

-What are the main limitations at present to protect the environment in Northern Thailand? Economic (the need for development), political (lack of political will, corruption, etc.), social (ethnic conflicts, lack awareness), something else?

-What steps should be taken to reduce environmental degradation? And should religion/Buddhism play a larger role in bringing about environmental conservation? Why yes, no?

-From a Buddhist perspective, is it possible to achieve simultaneously economic growth and environmental conservation (green growth)? Why yes, no?

Appendix 3

INTERVIEW QUESTIONS FOR CONSERVATION LEADERS
(KANCHANABURI-2020)

A. INTRODUCTORY QUESTIONS

-In which province are you from?

A-1 -If not from Kanchanaburi, why did you migrate to this part of Thailand?

-What is your position within the movement/group?

-How many years have you worked in this movement?

B. IN ACCORDANCE TO ENVIRONMENTAL MOVEMENTS

-In what ways does the movement/group change your perspectives/behaviors in managing the environment?

-How frequently does your movement work? (Daily? Weekly? Monthly?)

-Do you believe that the environmental movements allow villagers more control over the forest than the government and/or corporation?

-How do the government officials and posts see your participation in environmental movements?

-What are the racial/ethnic and socio-economic demographics of your villages?

-Do you believe that these demographics play a role in environmental justice issues faced by your community?

-Do villagers agree with your ideas? Please explain your answer

-Has there been any case of success in protecting the environment by your group?

-Have there been any disappointments/failures in protecting the environment?

-In the last 10 years, has your movement increased the success rate of protecting the environment?

B-1 -Why yes or no?

C. CONTACTS BETWEEN MINISTRY, GOV., INDUSTRIES, AND/OR LOCAL

-Are there any other groups/movements/NGOs within Thailand or outside of the border that supports your group? How? (Donation? or being part of a member?)

-Are there any specific individuals that support your group?

C-1 -If so, how?

-Does your movement collaborate with any government agency?

C-2 -If yes, please specify and elaborate

-Does your movement collaborate with any company?

C-3 -If yes, please specify and elaborate

-Are there any disputes and/or conflicts based on forest ownership and resource usage?

-How does your group negotiate for the forest?

-Do you perhaps form an agreement and/cooperation for equal forest use or work for sustainable development?

D. FINAL REMARKS

-What are the main limitations at present in terms of protecting the environment in Kanchanaburi? Economic (development), political (lack of political will), Social (Ethnic conflicts)?

-Apparently, there has been an idea of a "Sufficiency Economy "brought by the former King of Thailand. Has your group/movement followed this philosophy and if so, how does it integrate into your group's ideas?

-What new activities are you planning to do in the next years?

-Do you think that Kanchanaburi will be a greener and cleaner province in the future?

INTERVIEW QUESTIONS FOR BUDDHIST MONK (KANCHANABURI-2020)

A. INTRODUCTORY QUESTIONS

-Which province are you from?

A-1 -If not from Kanchanaburi Province, what made you come to this area of Thailand?

-Why did you decide to become a Monk?

-What is your position in the group/movement and what are your main activities and responsibilities?

B. WORKING IN THE ENVIRONMENTAL MOVEMENT

-How would you assess the overall environmental situation in Kanchanaburi?

-What are the major challenges in terms of environmental degradation?

-What are the main goals and motives of your group/movement?

-What are the main activities and responsibilities you hold as someone who works for conservation?

-When and why did you start working as an environmentalist? Is there a certain issue or event that provoked you to take action?

B-1 -And in which villages do you work these days?

-How does being a Buddhist monk fit with the idea of environmentalism? (Related to Buddha's teachings? traditions?)

-Is your activism purely based upon Buddhist culture/teachings? Please elaborate why yes or no

-Have there been cases of success in protecting the environment by your group or your action?

-How frequently does your movement work? Daily? Weekly? Monthly?

-In the last 10 years, have there been significant changes made in the forests you protect?

(for example, improved lives of the locals or animal protection)

-Do villagers agree with your ideas? Please explain your answer

C.CONTACTS BETWEEN MINISTRY, GOV./INDUSTRIES/OR LOCAL

-Who are the people/groups that you are helping?

-Are there any other groups/movements/NGOs from within Thailand or outside the border that supports your group?

C-1 -How? (finance/donation? being part as a member?)

-Are there any specific individuals that support your group?

C-2 -If so, how?

-Does your movement collaborate with any government agency?

C-3 -If yes, please specify and elaborate

-Does your movement collaborate with any company?

C-4 -If yes, please specify and elaborate

-Are there any organizations that disagree with your activities and ideals? If yes, why do they disagree and how do you deal with them?

D.FINAL REMARKS

-What might be the main limitations/problems in your conservation movement in the future?

-What steps should be taken to reduce environmental degradation?

D-1 -And should religion/Buddhism play a larger role in bringing about environmental conservation?

-Do you think that Kanchanaburi will be a greener and cleaner province in the future?

-Do you think that a stronger focus on the "Sufficiency economy," will be beneficial for Kanchanaburi?

INTERVIEW QUESTIONS FOR
SMALLHOLDERS/GARDENERS/VILLAGERS (KANCHANABURI-2020)

A. INTRODUCTORY QUESTIONS

-Where were you born? If not in Kanchanaburi, when and why did you migrate to this province?

-Please list your main occupations (and if applicable, of your wife/husband)

-Does your occupation require you to take resources or lands from the forests?

-If you do, how frequently do you visit and cultivate resources from the forests?

-Are there any negative consequences or barriers that limit your movements in the forests?

-Do you believe that there are not enough rights and fair use for entering/using forest properties?

-Are you participating in environmental movements?

B. IN ACCORDANCE TO ENVIRONMENTAL MOVEMENTS

-How do you feel about the environmental movements in general?

B-1 -If positive? In terms of what they do or what they've accomplished so far

B-2 -If you have some negatives, why? What might need to be done to improve the movements to change your opinion?

-Do the environmental movements/groups get in contact with you or the community frequently?

B-3 -If participating in environmental movements, how frequently do you or your group participate?

 -In what ways does the movement change your perspectives/behaviors upon forest and land use?

-Do the environmental movements pose any interruptions to your livelihoods/living conditions?

B-4 -Is it for better or for worse?

C. FINAL REMARKS

-What do you suggest the government and other environmental groups do for the community?

-Do you think that Kanchanaburi will be a greener and cleaner province in the future?

-Are there any Buddhist or other teachings that should be used to reduce environmental degradation and reduce deforestation? If yes, how can policymakers use them in practical realistic policies?

-At the moment, do you worry more about your financial and job situation, or about environmental issues?

-Do you believe that forestry conservation will ultimately benefit your life? why not?

INTERVIEW QUESTIONS FOR GOVERNMENT OFFICIAL (KANCHANABURI-2020)

A. INTRODUCTORY QUESTION

-Which province are you from?

A-1 -If not from Kanchanaburi Province, what made you come to this area of Thailand?

-What are your responsibilities and roles? What do you work on regarding forestry issues?

-How many years have you worked in this department?

B. QUESTIONS REGARDING THE FORESTRY

- What kinds of programs are initiated for forest protection?

-How does the department balance forest conservation and economic development?

-Is there any training or enhancements provided to the forestry communities?

-What are the main success and limitations of the department's work in the last ten years?

-What might be the main limitations/problems in the future? How are you planning to stop deforestation?

-Have you already implemented specific reforestation policies in the province? If yes, please elaborate?

-Do you consider specific reforestation policies in the future?

C. CONTACTS WITH COMPANIES/NGO/LOCAL

-Are any other groups outside of your department involved in forest conservation programs?

-Does the department also manage contacts with every other individual/group involved in the development or economic-use of the forestry?

-Do villagers agree with government ideas? Please explain your answer

-How does the department maintain a stable relationship with these groups?

D. FINAL REMARKS

-Do you think that Kanchanaburi will be a greener and cleaner province in the future?

-Do you think that a stronger focus on the "Sufficiency economy," will be beneficial for Kanchanaburi?

-Are there any Buddhist teachings that should be used to reduce environmental degradation and reduce deforestation?

D-1 -If yes, how can policymakers use them in practical realistic policies?

Appendix 7

LIST OF INTERVIEWEES

Interviewee	Date	Place
Conservation Leader A	15/08/2019	Chiang Mai, Thailand
Buddhist Monk A	15/08/2019	Chiang Mai, Thailand
Buddhist Monk B	16/08/2019	Chiang Mai, Thailand
Conservation Leader B	19/02/2020	Kanchanaburi, Thailand
Government Official A	20/02/2020	Kanchanaburi, Thailand
Villager A	20/02/2020	Kanchanaburi, Thailand
Buddhist Monk C	20/02/2020	Kanchanaburi, Thailand
Conservation Leader C	21/02/2020	Kanchanaburi, Thailand
Villager B	21/02/2020	Kanchanaburi, Thailand
Villager C	21/02/2020	Kanchanaburi, Thailand
Conservation Leader D	23/02/2020	Kanchanaburi, Thailand (interviewed through email)