Drivers of Forest Change in the Greater Mekong Subregion

Thailand Country Report

USAID Lowering Emissions in Asia's Forests (USAID LEAF)

Drivers of Deforestation in the Greater Mekong Subregion
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The USAID Lowering Emissions in Asia's Forests (USAID LEAF) Program is a five-year regional project (2011-2016) focused on achieving meaningful and sustainable reductions in greenhouse gas (GHG) emissions from the forest-land use sector across six target countries: Thailand, Laos, Vietnam, Cambodia, Malaysia and Papua New Guinea.

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Abstract

Forest policy and management practices in Thailand have evolved since the Royal Forest Department was founded in 1896 during the reign of Rama V. Since then, forest policy and management has lagged behind international standards. In particular, the national forest estate has been divided and similar management responsibilities have been allocated to different organizations, leading to gaps in the overall policy framework and also in forest management. Conflicts of interest and controversy regarding the use of forest resource have constrained land use change while driving further deforestation and forest degradation.

Global efforts are being put in place to halt deforestation and forest degradation, notably including Reducing Emissions from Deforestation and Forest Degradation (REDD+) and forest-related climate change adaptation initiatives. These have brought about pivotal changes in the perceived roles of forests and climate change mitigation and adaptation capacity are now widely seen as areas for increased attention. However, it appears that in Thailand many adjustments will be required to make REDD+ effective. In particular, the legislative and institutional frameworks need to be rearranged and a full REDD+ action plan must be properly designed and developed prior to implementation.

This paper has been developed to investigate drivers of change affecting forests - both positive and negative. Each driver and its causal factors influence forest change in Thailand to a different degree and an analysis of the different drivers and of current policies and management plans and associated documents, information, and discussion papers is used in this report to identify policy and management gaps. Finally, an action plan aimed at filling existing gaps while also fitting the Thai context is presented to guide efforts to address deforestation and forest degradation and contributing to global REDD+ and sustainable forest management efforts.

1 Introduction

Thailand is situated in Southeast Asia within the Greater Mekong Subregion (GMS). The country shares the borders with Laos and Myanmar to the North, Cambodia and the Gulf of Thailand to the East, Myanmar (former Burma) and Andaman Sea to the West, and Malaysia to the South. The total area of Thailand is 513,115 square kilometers (Figure 1). The weather of Thailand is influenced by Southwest monsoon from India Ocean and Northeast monsoon from South China Sea. The country has three seasons with a moderate temperature—winter (November- February), summer (March-June), and rainy season (July-October). Average temperature in summer is 28° - 32° Celsius and winter in January is 26° - 28° Celsius. The average rainfall is 1,100-1,500 millimeters per year. The southern part of Thailand along the eastern coast receives the heaviest rainfall with an average level of 2,000 mm/yr. Some areas in the south receive 4,000 mm/yr while the mountainous area of Central Thailand can experience drought with rainfall of less than 1,000 mm/yr.

There are two major types of forests in Thailand - evergreen and deciduous. A number of sub-types are present in different geographical locations including: tropical rainforest, dry evergreen forest, hill evergreen forest, coniferous forest, peat swamp and mangrove forest, beach forest, mixed deciduous forest, deciduous dipterocarp forest, and savanna forest.

An official RFD report in 2013 indicated that total forest area in Thailand amounted to 16.34 m ha, equivalent to 31.57% of the national area. The national forest area reported in 2013 can be classified by region as shown in Figure 2. To reach the 40% national forest cover target (~20.7 m ha) set in the 1985 National Forest Policy and reiterated in the 11th National Economic Social and Development Plan (NESDP: 2012-2016), an additional 4.36 m ha are needed. The Ministry of Natural Resources and Environment (MONRE) with support from the Internal Security Operations Command (ISOC) of MONRE and under authorization of the National Peace Keeping Council (NPKC) launched Master Plan for Forest Resources Protection and Sustainable Management in 2014. Under the Plan, a strategic road map has also been formulated and the national forest cover target is to be achieved by 2024 (MONRE, 2014).

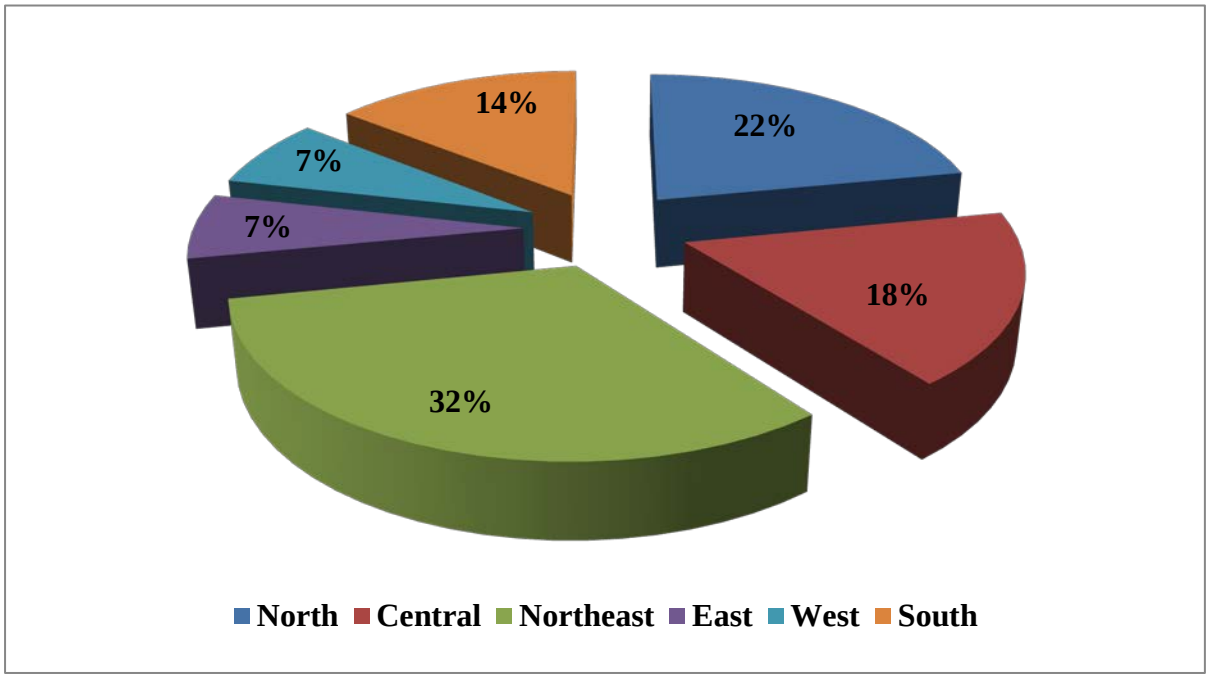

Figure 2: Forest area by region, 2012 - 2013

Source: Royal Forest Department (2014)

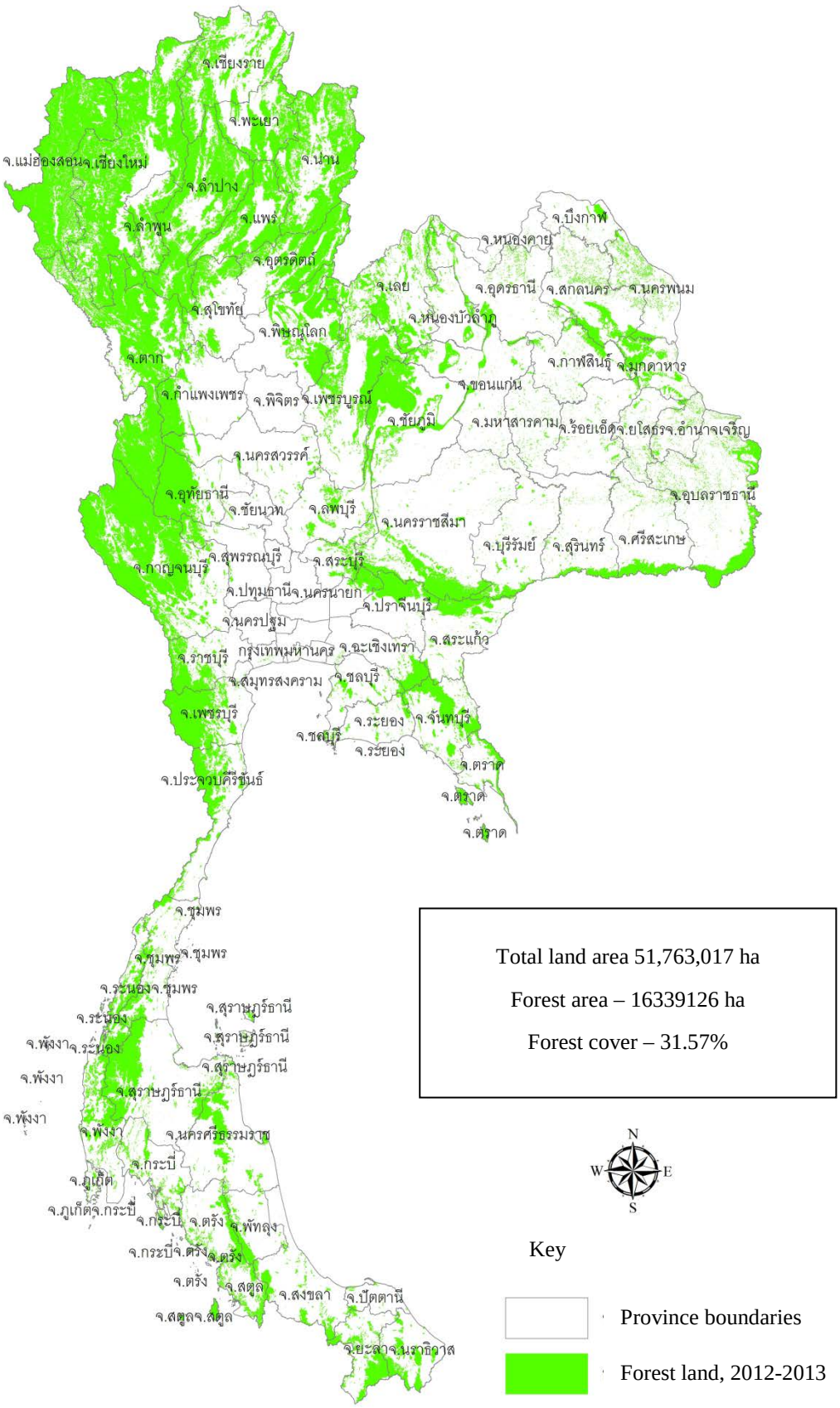

Figure 1: Forest areas of Thailand (2013)

Source: Forest Land Management Office, RFD (2014)

Thailand's population as of December 2014 was 65,124,716 with a growth rate of 0.5% between 2012 and 2014 while data from the National Economic and Social Development Board (NESDB) shows that Gross Domestic Product (GDP) over the past two decades has fluctuated. Data on national forest area and economic and population growth between 1992 and 2014 shown in Figure 3 demonstrates a relationship between deforestation and economic growth as discussed by Saenglimsuwan (2011). The forest cover change peak in 2000 resulted from changes in the method used to assess forest cover aimed at increasing accuracy and precision (Forest Land Management Office, 2014).

Net reduction in forest cover since announcement of the 40% forest target 30 years ago could be considered as visible evidence of forest management failure. Furthermore, population and economic growth as proxies for land-use and environmental change suggest there reversing the falling trend and achieving the 40% target within a decade as per the ISOC/NPKC announcement may be challenging. In connection, REDD+ can be seen as an opportunity to support the Forest Master Plan although in investigating the possibility of target achievement it is nevertheless necessary to identify drivers of forest change and drivers of deforestation and forest degradation in particular.

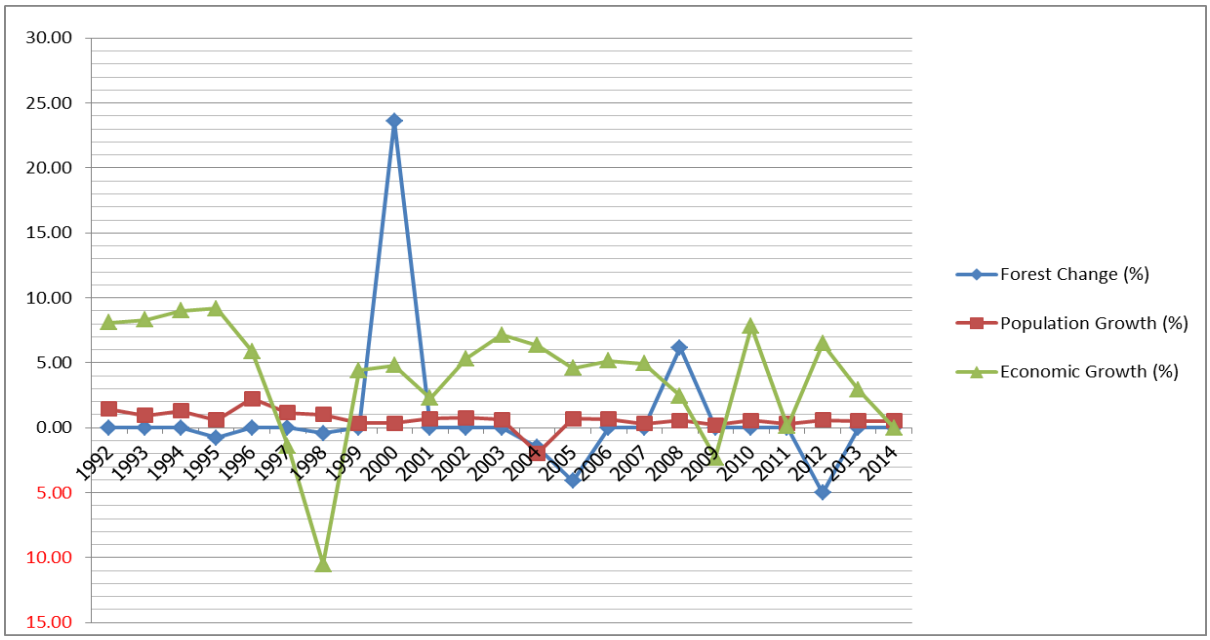

Figure 3: Comparative change in percentage of forest areas, population growth and economic development, 1992-2014

Sources: Forest Area – Royal Forest Department (2013); Population – National Statistical Office (2015); Economic Development – NESDB (2014)

2 Overview of Forest Management in Thailand

Forests in Thailand have been under pressure for many years and as reported by the RFD, national forest cover fell from 53.3% in 1961- the beginning of the first National Economic and Social Development Plan (NESDP) - to 25.3% in 1998. The greatest losses occurred in 1976-1978, when forest cover fell by 6.2% annually (Ongprasert, 2012). By 2013, however, forest cover had increased to 31.6%.

RFD data shows that national forest area increased by an average of 135,400 ha per year between 1992 and 2013 (Figure 4). Data from the Department of National Parks, Wildlife and Plant Conservation (DNP) shows that protected area increased from 6,888,900 ha in 1992 to 10,473,400 ha in 2013 (Office of Information Technology System and Planning, 2015). Despite these increases national forest cover still lags behind the targeted 40%. It is clear from the comparative ratio of loss of reserved and conserved forest that deforestation is disproportionately imposed in reserved areas under

responsibility of the RFD. In response to this, Chalermlap (2014) noted that some forest loss in Thailand has resulted from government policy focusing more on economic growth than environmental protection. This can be seen in national policy that incentivizes mono-crops and rubber plantations.

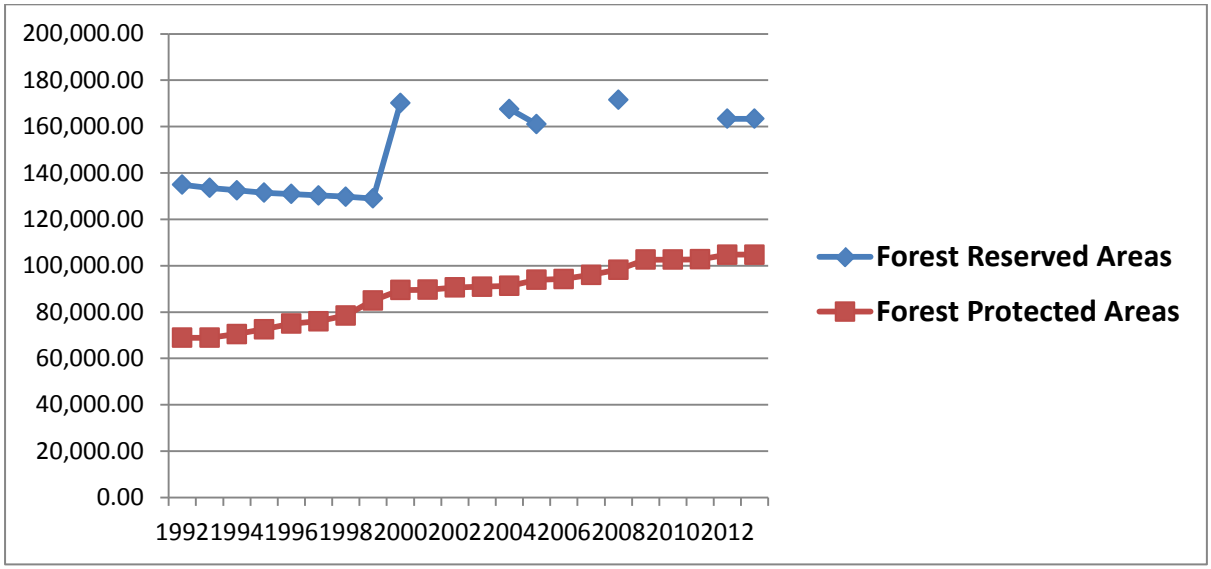

Figure 4: Area of reserved and protected areas in Thailand, 1992-2014 (ha)

Sources: Office of Information Technology System and Planning of DNP (2015) and Task Force for Forest Information Technology of RFD (2013)
Note: No data available for reserved areas for 2001-03, 2006-07, 2009-11 and 2014.

Forest management in Thailand has evolved over a long period and reforestation efforts date back to the beginning of the 20th century when foreign concessionaires introduced policy to support teak plantation establishment. Up until 1960 a total area of around 8,500 hectares were planted. Reforestation of degraded lands has been specified in Government policy since the first NESDP in 1961 and has gradually expanded up to the present day. Table 1 summarizes the national forest policy and significant changes between the first and the tenth NESDP. The strategies set out in each plan affected forest management practices and the forest area left to be managed under consecutive plans.

The Government has shown strong willingness to rehabilitate degraded forest areas and increase forest cover in the country during the past three decades. As such, many effective reforestation and tree planting campaigns have been launched. From the time of the first NESDP in 1965 until 2012, approximately 650,000 hectares were planted (Ongprasert, 2012). These reforestation efforts contributed significantly to forest cover increase from 25.3% in 1998 (the eight Plan) to 30.9% in 2006 (the ninth Plan). Planting rates during the 1981-1990 (fourth, fifth and sixth Plans) reached 40,000 hectares per year and rose to 160,000 hectares per year in 2006 during the ninth plan.

Since 1989, all natural forests in Thailand, which constitute 25% of the national area, have been protected by law from commercial exploitation and national forest management efforts have centered on natural forest conservation. While formerly a timber exporting country, Thailand is now a net importer. Domestically, timber and pulpwood are mainly produced from plantations of fast growing tree species and a limited area of teak, mainly planted by the Forest Industry Organization (FIO).

As shown in Table 1, the Government has adjusted the national forest cover target several times. For the first NESDP, the target was set at 50% but this was reduced to 37% in the fourth Plan. It was during the fifth plan that the 1985 National Forest Policy defined a national forest cover target of 40%, with 15% to be allocated as reserve forest and 25% as economic forest. For the seventh plan the allocation was switched such that 15% was to be allocated for economic objectives and 25% for reserve.

Table 1: Forest-related strategies included in National Economic and Social Development Plans, 1961-2011.

National Plans	Strategies	Significant Changes
1 (1961-1966)	(1) National forest cover target set at 50% (25.68 m ha) although with flexibility to reduce to 40% (20.48 m ha) to provide for needs related to population growth and requirements for human settlement. (2) Employ satellite technology for forest survey and investigate feasibility of forest reserved areas.	(1) Arrangement of matters associated with forest protection: • Land classification throughout the country • The 1960 Wildlife Preservation and Protection Act • The National Parks Act • The 1964 National Forest Reserve Act (2) Forest cover of 58% remained from the beginning of the 1st Plan and fell as follows: o 53.28% in 1961 o 48.88% in 1967 o 43.21% in 1972 o 38.63% in 1976
2 (1967-1971)	(1) Support economic growth by providing forest concessions for public companies. (2) Enhance forest resource survey and improve plantations throughout the country.	
3 (1972-1976)	(1) Increase forest patrol units to support forest and wildlife protection (forest areas were extensively degraded and land clearance resulting from shifting cultivation was widespread, particularly in the north)	
4 (1977-1981)	(1) Minimal forest cover target set at 37%. Forest encroachment should be reduced to 80,000 ha annually. Forest plantation development and watershed improvement were a focus.	(1) To effectively control forest encroachment, the National Forest Reserve Act 1979 and the Forest Act 1982 were amended to empower the RFD to allow people to temporarily dwell in forest reserved areas and restrict punishment for transgressors. (2) In 1976 forest cover stood at 38.63% and fell as follows: o 30.49% in 1982 o 28.58% in 1983 o 27.93% in 1989 o 26.62% in 1991
5 (1982-1986)	(1) Conduct a zoning survey to classify forest degradation areas and re-plant fast growing trees. (2) Establish standards for 25 watershed areas. (3) Set up the National Forest Policy 1985 indicating a national forest cover target of 40% (20.48 million hectares) with reserve forest 15% (7.68 m ha) and economic forest 25% (12.80 m ha).	
6 (1987-1991)	(1) As a consequence of floods in the south of the country, a Cabinet resolution on 17 January 1989 resulted in a ban timber harvesting in the country. (2) Activists began developing the Community Forest Act in 1988	

(continued)

National Plans	Strategies	Significant Changes
7 (1992-1996)	(1) National forest target remained at 40% but with 25% for reserve forest and 15% for economic forest.	(1) Enactment of two laws, the 1992 Reforestation Act and the 1992 Environmental Quality Act. (2) The Government endorsed the Long-term National Environmental Quality Promotion and Management Plan 1997-2016 following a Cabinet resolution on 26th November 1996. This long term policy indicated the management of natural resources associated with forest as follows: o Increase forest cover to 50% - 30% for reserve forest and 20% for economic forest. o Forest resource utilisation should be based on natural conservation. o Protection of natural forest. o Alleviation of conflict caused by resource use. (3) Forest cover of 26.62% in 1991, changed as follows: o 33.12% in 2002 and 2003 o 32.63% in 2004 o 30.89% in 2006
8 (1997-2001)	(1) Due to the continued forest degradation, the Community Forest Bill was formulated to increase the public role in the forest management and environmental protection.	
9 (2002-2006)	(1) Land reform with relevant organisations in accordance with real situation. (2) Adjust and correct tree boundary lines in accordance with forest geography and associated legislations. (3) Give priority to integrated management approach to public participation. • Increase public awareness on national natural resources and environment protection. • Emphasis on the enforcement of environmental law that allows public participation in the policy and plan management.	
10 (2007-2011)	(1) Adjust the forest cover target to no less than 33% with reserve forest no less than 18%. (2) Support and strengthen public participation in community forestry and sustainable forest management.	(1) Forest cover at 30.89% as of 2006.

Sources: Summarised from 1st-10th National Economic and Social Development Plans (NESDB, 2011) and Pongprom and Nakviboonwongs (2014).

3 Analysis of Drivers of Change Affecting Forests

Forests are an integral part of the natural resource base and provide a range of benefits to humankind. Physical factors and human activities can in turn drive either positive or negative impacts on forests. The achievement of sustainable forest management in Thailand largely depends upon these drivers.

3.1 Positive Drivers of Change

3.1.1 Demand for Income and Jobs

Those gaining benefits from forest tend to be more willing to protect them in a sustainable manner. Some forest types support ecotourism opportunities that create income and employment both within and outside the specific area. Additionally, RFD data shows that in 2012 revenue from timber and miscellaneous forest products totaled 54,159,000 Baht (~1,805,300 USD). Associated fees contributed significantly to the national economy.

3.1.2 Enactment of Legislation relating to Forest Management

The primary purpose for which RFD was founded in 1890 was to conserve forest and wildlife. To achieve this goal, a number of laws related to forest management have been formulated and enacted. Strengthened enforcement of forest related legislation could improve forest protection and prevent national forest losses resulting in positive feedback for forestry. In this connection, forest encroachers have been issued with lawsuits and following judgement, some forest areas could be legally retrieved for the national benefit.

Figures 5 and 6 present statistics on cases and forest areas recovered following judgement. Most forest encroachment cases between 2010 and 2012 were from the Northern region of Thailand. Areas retrieved were mostly from the North (7188 ha), followed by the South (4109 ha), Central (3673 ha) and the Northeast (2560 ha) respectively.

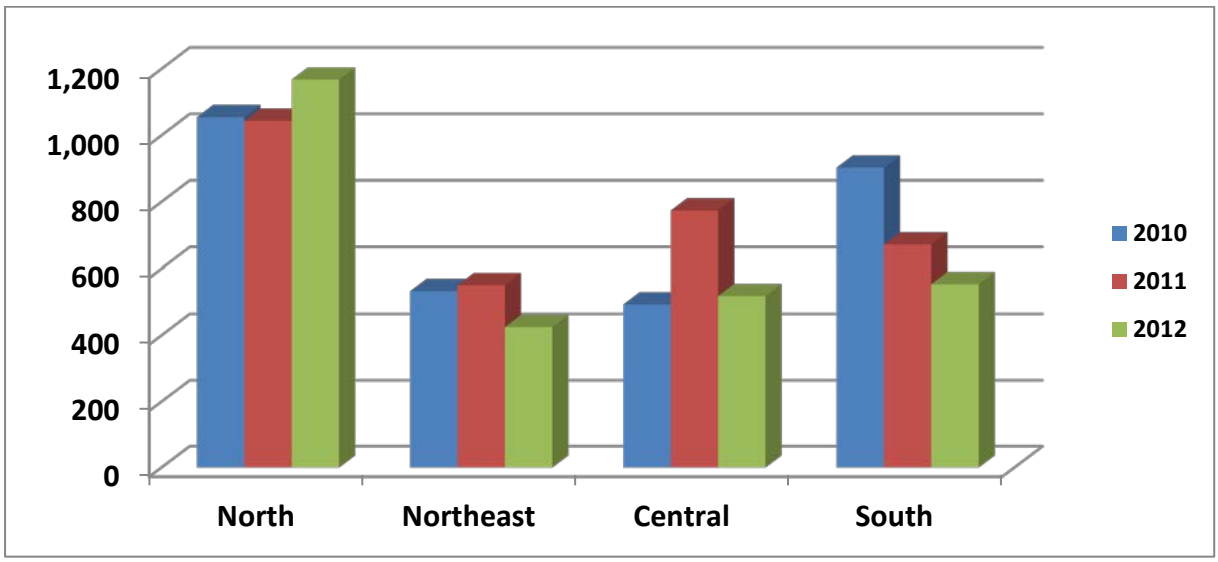

Figure 5: Number of legal cases concerning forest encroachment in national regions, 2010-2012

Source: Royal Forest Department (2012)

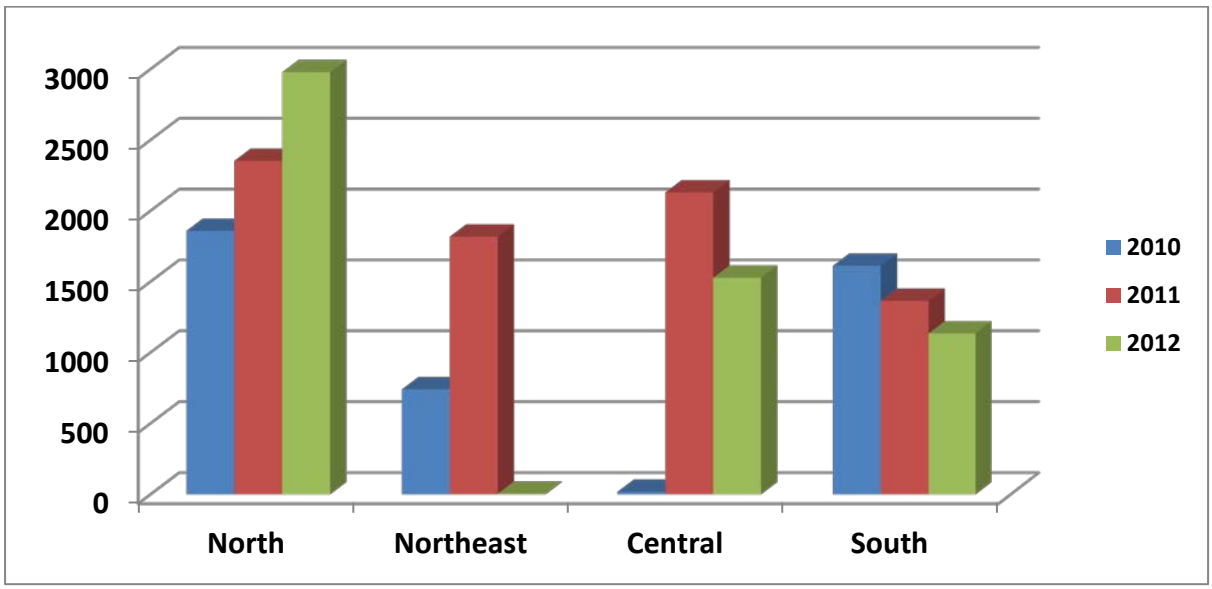

Figure 6: Forest area in hectare retrieved based on encroachment cases, 2010-2012

Source: Royal Forest Department (2012)

3.1.3 Community Forestry

To increase forest area and provide timber for domestic consumption, the RFD created the Community Forest Programme (CFP) in 2000 with overall support from the Thai Government. The main objective of the programme was initially to establish a timber source for household use but the programme evolved and in conforming to the concept of sustainable forest management, public participation has been more fully incorporated. Table 2 presents the progress of the CFP between 2000 and 2013. The success of the programme demonstrates the goodwill that existed between communities and the government.

Table 2: Results of the Community Forestry Programme between 2000 and 2013

Region	Number		Total area (ha)
	Villages	Programmes	
North	2,694	2,624	284,348
Northeast	4,200	3,768	171,768
Central	1,034	953	66,028
South	737	741	25,707
Total	**8,665**	**8,086**	**547,850**

Source: Royal Forest Department (2012)

3.1.4 Reducing Emissions from Deforestation and Forest Degradation (REDD+)

REDD+ intersects with the function, authority and mandate of the RFD to increase forest cover while maintaining existing areas. Thailand has the potential and capacity to carry out REDD+ projects in many parts of the country although some obstructions exist as a result of misconceptions, lack of technical knowledge and lack of clarity over benefit sharing and carbon rights. Table 3 shows forest areas under responsibility of the RFD that could be eligible for REDD+ project initiation. However, the number is still in need of analysis to detect duplication and double counting among organizations.

Table 3: Forest Areas under Responsibility of the Royal Forest Department

Status	Area (ha)
Forest Reserve Areas	23,028,100
127 National Parks	6,217,400
58 Wildlife Protection Areas	3,655,400
Duplicated areas among 1, 2 and 3	7,691,800
Handed over to Land Reform Office	5,215,200
Forest Reserved Areas under the RFD	9,961,000
Permanent forest areas (of the forest reserve areas)	1,682,800
Total	**57,451,700**

Source: Royal Forest Department (2013)

3.1.5 European Union—Forest Law Enforcement, Governance and Trade (EU-FLEGT)

The EU-FLEGT system aims to reduce illegal logging by strengthening sustainable and legal forest management, improving governance and promoting trade in legally produced timber. Thailand has begun negotiating a Voluntary Partnership Agreement under the EU FLEGT process to ensure that wood products can be exported to the EU while natural forests are protected. The EU-FLEGT scheme will not only support lawful timber product but is also likely to help promote reforestation and afforestation.

The RFD on behalf of the Thai Government and in collaboration with the European Forest Institute (EFI) has conducted research on illegal timber control as a contribution to the EU-FLEGT process. Although a Timber Legality Assurance System (TLAS) have not yet been established, trading of timber from plantations, farms and from rubber and eucalyptus trees has been endorsed by the EU. There are several additional steps for Thailand to meet EU requirements to issue FLEGT licenses, which will continue in the coming years.

3.1.6 Employment of Technology in Forest Management

Employment of appropriate technology can help government agencies achieve targets in an effective manner. Thailand has adopted satellite technology to support forest management since the beginning of First NESDP. Satellite images and aerial photos can be used to indicate forest areas and boundaries with high accuracy and cost effectiveness and can be combined with patrol techniques to help protect forests and safeguard communities. Surveys using helicopters, cameras and Geographical Information Systems (GIS) can also help counter illegal logging and forest encroachment.

3.2 Negative Drivers of Change

3.2.1 Illegal Logging and Forest Clearance

In Thailand, forest encroachment continues in many areas and results from both direct and indirect factors, including investment for hotel and resort development, land clearance for tourism activities, golf course development and agricultural expansion. Encroachment can also result purely from land speculation. Poverty, population increase, national development policy and logging contribute to the problem. Some government initiated mega projects have also led to massive forest disturbance through e.g. construction of roads, dams, power transmission lines and associated infrastructure.

Conflict between communities and the Government has continued over a long period, much of it connected with cold war struggles between democratic and communist ideologies. To dilute opposition in communism seized zone, the Government encouraged local people to settle and provided infrastructure and household-level support. The policy brought conflict and precipitated widespread slash and bum activities which continued for a decade before ending in 1985 (Ongprasert, 2012).

Following the cessation of conflict, illegal logging expanded and continued until 1989 when the Government imposed a ban on logging in terrestrial natural forest following devastating floods in the southern part of the country in 1988. Although logging has been banned since, deforestation and forest degradation still pose critical threats. In response, the 11th NESDP (2012-2016) reiterated the 40% national forest cover target and it has since been stressed by the Internal Security Operation Command of the Ministry of Natural Resources and Environment that it should be attained by 2024.

3.2.2 Forest Fires

Dry season fires are a significant direct cause of forest degradation in Thailand and many forest ecosystems are vulnerable. The average annual area of forest damaged by fire between 1992 and 1999 was greater than 480,000 ha. In 1992, one of the worst years in recent history, 1,920,000 ha were damaged by fire. In 2012, RFD reports show that 5475 ha of national forest were lost as a result of fire. The North of Thailand encountered the largest loss (2374 ha) followed by the Northeast (2206 ha), the South (608 ha) and the Central and East (287 ha).

In upland areas fire is the cheapest method for clearing land for farming and fire can also be used to stimulate fresh growth of vegetation for cattle rearing. In addition, hunters often burn the forest to aid capture of wild animals. Although small-scale forest fires involving just the ground vegetation may be applied to reduce fuel loads and prevent larger fires potentially detrimental to large trees, uncontrolled and unmanaged fires lead to large scale forests damage every year. Fire control activities undertaken with participation from local communities are implemented as one of the RFD's most important, and most costly, initiatives and have reduced losses of forest land. By contrast, burning activities conducted by rural people to prepare land for new crops has continued.

3.2.3 Lack of Technical Knowhow, Manpower and Insufficient Funding

The consequence of the Government policy in 2002 to restructure the former RFD into three departments according to the principle of area based management has intensified the structure of each organization. For example, the RFD now oversees a forest area of 57,451,727 ha with a staff of 10,017 made up of 1,884 Government officers, 1,906 permanent employees, and 6,227 Government

employees. The range of qualification among the government officers is varied. In 2013, 20% of Government officers had Master's Degree, 54% had a Bachelor's Degree and 17% had a Technical Certificate. Considering the wide range of forest management tasks and the number of RFD permanent staff, it is clear that extra support in terms of technology, funding, and technical capacity is necessary. Figure 7 presents the national budget allocated to various forest management programs.

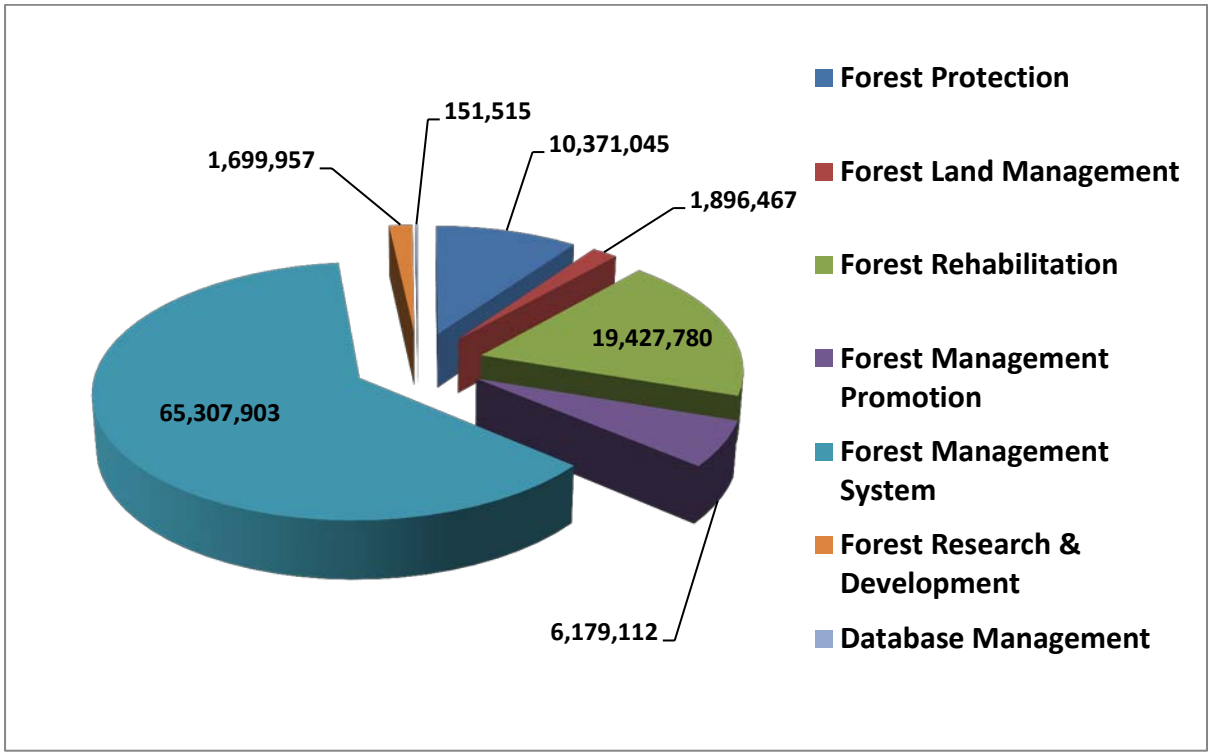

Figure 7: Budget allocation for 2012 Forest Management Programme (USD)

Source: The Royal Forest Department (2012)

3.2.4 Law Enforcement

Forest management in Thailand has been constrained by a lack of common understanding of forest conservation between the forest conservation authorities and forest dwellers. It is estimated that more than one million households are present in national parks, wildlife sanctuaries and national forest reserved lands. The law considers these inhabitants as illegal occupants in protected areas. The challenge of balancing forest resource protection with forests' social, cultural and economic functions is still at an early stage in Thailand and the misunderstanding over forest conservation has led to controversy and tense opposition. The situation has been exacerbated by overlapping and duplicative laws which challenge the implementation process and weaken law enforcement. In particular, due to the lack of legislative clarity, judgements given in favour of one party or another have been based on subjective legal interpretations influenced by conflicting interests. Such problems have frequently hampered community forest management in Thailand and the lack of trust between Government and communities has prevented implementation of the proposed Community Forestry Bill over many years.

4 Policies and Measures for Forest Management

4.1 Key Natural Resource Conservation and Forest Management Legislation

Major legislation related to natural resources conservation and forest management is outlined in the following sections.

4.1.1 The Thai Constitution Act 1997

Prior to the coup d'etat of May 2014, Thailand adhered to the Constitution Act, 1997. This Constitution recognized the rights of the people to manage natural resources, as follows:

> Article 46 - "Person so assembling as to be a traditional community shall have the right to conserve or restore and participate in the management, maintenance, preservation and exploitation of natural resources and the environment in a balanced fashion and persistently as provided by the law"
>
> Article 56 notes the right of persons to participate in the preservation and exploitation of natural resources.
>
> Article 79 indicates that "the state shall promote and encourage public participation in the preservation, maintenance and balanced exploitation of natural resources" (Shytov, 1997).

4.1.2 The 1941 Forest Act (amended in 1948, 1982 and 1989)

The 1941 Forest Act is the first national legislation dealing with forest management. At the time the function and activities of the RFD, which was founded in 1896, were mainly related to forest resource extraction and from the outset, the main purpose of the Act was to control harvested forest products. The 1941 Act expressed the need to conserve national forest while the country was still covered with abundant and vibrant forests. However, the success of the First National Plan (1961) in accelerating economic growth came with substantial declines in forest area and conservation of forest areas was thenceforth considered to be of high importance.

4.1.3 The 1960 Wildlife Preservation and Protection Act (amended in 1992)

The Act put promoted general provisions on wildlife conservation and associated affairs including establishment of wildlife conservation areas and rules governing possession and trade of wildlife including carcasses. This Act is under the authority of the Department of National Parks, Wildlife and Plant Conservation (DNP).

4.1.4 The 1961 National Parks Act

This Act, which is under the responsibility of the DNP, covers the determination of national park land, national park committees and protection and maintenance of national parks.

4.1.5 The 1964 National Forest Reserve Act

The Act covers the determination of National Reserve forests. The responsibility for control and maintenance is with the RFD.

4.1.6 The 1992 Reforestation Act

The 1992 Reforestation Act was developed for three reasons:

1) In response to forest overexploitation and in support of the NESDP;
2) To support the national forest policy target of increasing forest cover to 40%; and
3) To help supply timber in the face of the ban on logging in natural forests and the high volume of timber imports.

4.1.7 The 1994 Tambol Council and Tambol Administration Organization (TAO) Act

This legislation was developed with a view to decentralizing natural resource and environmental management to local government. It also expresses an attempt to strengthen the role of villages in governing themselves and local natural resources.

4.1.8 The 1998 Decentralization Act

The Act provides guideline for the election of community representatives to the Tambol Council.

4.1.9 The Community Forest Bill

Community forests have played a long-standing role in Thailand's rural areas. Following devastating floods in the southern part of Thailand in 1988, the government imposed a ban on logging in terrestrial natural forests and community forests came to be seen as essential. The Community Forest Bill has been formulated and revised several times. In 1991, the RFD began to develop the Bill as an attempt to include communities in managing local communal forests. During 1992-1995, the draft Bill was revised and reconsidered by an appointed committee with contributions via a public hearing process from academics and NGOs. However, the Bill did not progress and in 1993 local people from some groups showed willingness to draft their own Community Forest Bill. In 1994, these groups conducted a campaign for the Government to accept their 'people's' version of the Bill. In 1996, the Government assigned the National Economic and Social Development Board to organize and develop a new version of the Bill with participation of representatives from government, NGOs, academia and grassroots communities. The finalized version of the Bill provided criteria for locating community forests and activities permitted, and was officially approved by the Thai Government prior to public hearings in 1997. However, conflict over the content of the Bill arose between two distinct NGO wings and these disagreements have halted passage of the Bill up to the present day. There seem to have further attempts to change the draft Bill in favor of each side. Most recently, the Bill was approved by Parliament on 21st November 2007 and now awaits endorsement by HM the King before its enactment can be effective (Ongprasert, 2012).

4.2 National Forest Management Framework

4.2.1 The National Economic and Social Development Plan (NESDP)

The main objective of NESDP is to provide direction for, and co-ordination of, public expenditure for economic and social development. Thailand is currently under its Eleventh National Plan (2012-2016). The Plan is composed of 12 parts and forest management comes under sections covering environmental considerations and sustainable development. In addition, the Plan also has a separate chapter on people and community participation. It specifies that "opportunities must be given to citizens and communities to participate in the planning, decision making, and evaluation of government projects that could have an impact on natural resources and the environment". The Plan also emphasizes the rights of local people, including ethnic minority groups, to engage in managing natural resources and commits government authorities to involve such groups in participatory processes.

4.2.2 The Environment Plan

To promote environmental quality in accordance with the National Environmental Quality Enhancement Act of 1992 (EQA 1992), Thailand formulated its first Environmental Quality Management Plan in 1997 for the implementation between 1999 and 2006. This medium-term plan provides two major strategies for resolving natural resources and environmental problems as follows:

1) Conducting institutional reforms for effective management of community forests, water resources, biodiversity and protection of first class watersheds.
2) Encouraging participation of people and the community to reinforce people's sense of ownership of natural resources and the environment and help maintain them.

Thailand is now implementing the Environmental Quality Management Plan 2012-2016, which was developed and designed in line with the Eleventh NESDP (2012-2016).

4.2.3 Government Policy

Elected government is required to declare policy to parliament before implementation, including policy relating to natural resources and environmental management. Normally, such policy strongly

encourages rehabilitation and conservation of natural resources and stresses the need to decentralize authority to local organizations. Unfortunately, political conflict lead to coup d'états in 2006 and again in 2014. On both occasions the Constitution has been re-developed and re-designed to avert conflict and government instability and this has affected review and implementation of government policies.

4.2.4 The Eight National Research Policy and Strategy (2012-2016)

The Eighth National Research Policy and Strategy had been revised to encourage and support researchers in developing work that helps to resolve natural resources conflict by enhancing people's involvement in the management process.

5.3. Administrative Framework for Forest Resource Management

4.2.5 National Level

Forest management involves not only the legislative framework but many factors including administration and implementation by the Government. At present, awareness of forest conservation issues is much greater than in the past, partly as a result of controversy over environmental and social issues in the country. Regarding administration of forests, Thailand has recognized national institutions dealing with the environment and natural resources, while management processes have also decentralized to local authorities.

The RFD, founded in 1896, has a mandate to manage national forest resources in a sustainable manner. The principal objective behind establishment of RFD was to ensure that forests in Thailand were taken care of by a reliable organization. Particularly during the period of establishment of teak plantations by foreign companies, forest monitoring needed extra care. With a view to integrating and promoting more holistic forest management the Government reformed the institution framework for forest management in 2006. Under the Ministry of Natural Resources and Environment (MONRE), the Government restructured the former RFD by dividing it into three departments: (i) Royal Forest Department, (ii) Department of National Parks, Wildlife, and Plant Conservation (DNP), and (iii) Department of Marine and Coastal Resources (DMCR).

4.2.6 Local Level

Local authorities in Thailand can be classified into three levels: Provincial Administrative Organizations (PAO), District Administration Organizations (DAO), and Tambol[1] Administrative Organizations (TAOs). The history of local administration in Thailand can be traced back to 1994 when the TAO Act took effect.

The 1994 TAO Act and the 1998 Decentralization Act clearly state the mandate and duty of TAOs that are rooted in the protection and maintenance of natural resources and environment within their jurisdiction. It was estimated that by the end of 1999, there were around 6,800 TAOs established throughout the country. However, their authorities were found to have been little exercised. So far, TAOs have tended to concentrate on infrastructure development rather than natural resource management and conservation even though TAOs have potentials to initiate natural resources management projects. Other than TAOs, the role of local authorities in the management of natural resources and environment is not clearly specified in relevant laws.

[1] Tambol = 10-12 villages

5 Discussion

5.1 Policy Approach to National Development

Thailand is a middle-income country with a large agriculture-based economy. Most NESDPs have been formulated to reduce poverty and stimulate economic growth with the rate of Gross Domestic Product (GDP) seen as the indicator of success or otherwise of the plan. Implementation of the first five plans (1961-1986) created environmental problems and natural resources deterioration.

Land degradation caused by forest clearance, forest encroachment, and land-use change for agriculture can further drive climate change and mismanagement of land can also lead to the loss of biological diversity (MONRE, 2014).

5.2 Policy and Management Gaps and overlaps

Policy and management gaps detailed in this study are discussed in the following sections.

5.2.1 Management Gaps between Organisations with Forest-related Mandates

The reform policy that divided the RFD into three departments resulted in the separation of office buildings and reallocation of officers and facilities. The mandates proposed for each department were also fragmented and the functions of each agency are still unclear. The overlapping authorities and responsibilities have led to confusion in policy and plan formulation and in management of forest resources.

In short, management gaps have highlighted organizational weaknesses at all levels. At the policy and planning level, both NESDPs and the Environmental Quality Management Plan have overlapping mandates. At the management level, authorities under MONRE including RFD, DNP, and DMCR have day-to-day administrative control over forest resources and biodiversity conservation areas accounting for more than half the country's territory. Meanwhile, the Office of Natural Resource and Environmental Policy and Planning (ONEP), also under MONRE, is mandated with providing a national plan for conservation and protection of biodiversity. The multiplicity of departments and offices working in similar areas has resulted in confusion and ineffectiveness and it is evident that overlapping mandates do not concern only the function in question but the lack of an integrated national structure.

Policy implementation must be conducted by line ministries but the Environment Act falls under MONRE which does not have any direct forest management role. While responsibility for forest management is mainly with RFD and other MONRE agencies, the Environment Act cannot influence all ministries that have land-use responsibility (Ongprasert, 2012).

In practice, inter-ministerial policies are coordinated by MONRE through the National Environment Board, which is chaired by the Prime Minister. Conflict arising between responsible authorities due to overlapping mandates occurs frequently. Due to lack of effective cooperation among organizations during implementation, final decisions are often made by cabinet resolution. For example, land allocation for mining, road construction and infrastructure development are crucial issues requiring clear decisions and cooperation among responsible authorities is therefore essential. When overlapping mandates and policy gaps emerge, national steering committees or departmental committees, sub-committees and task forces often provide the final decision. However, revision and amendment of legislation related to natural resources and environmental management would provide a more satisfactory solution. In addition, agencies responsible for enforcing laws should be also re-structured.

5.2.2 Exclusion from Participation

The concept of public participation has been endorsed by many laws and policies in Thailand, but people continue to be excluded from policy and decision making processes. As noted above, the

National Economic and Social Development Board (NESDB) is a central governmental body responsible for formulation of the National Economic and Social Development Plan (NESDP), which is seen as a national umbrella policy. Each NESDP constitutes a top-down framework covering mandates to be acted upon by different organizations. As such environmental policies and plans must be in line with the national strategy for management of natural resources and the environment. Due to lack of public participation in the policy development process, however, the NESDB may fail to recognize critical issues affecting local livelihoods. Additionally, administration of forest-related mandates is influenced by the Natural Resources and Environmental Management Policy, which is determined by the National Environmental Board (NEB), another central governmental body. Only then are guidelines passed on to regional, provincial and then local agencies.

The Community Forest Bill provides a good example of the constraints imposed by this system. The objective of the Bill is to allocate forest land to local communities for management according to their needs, with products from each community forest being shared and any benefits returned to the locals. Nevertheless, the RFD capitalizes on its legal right to oversee protected areas because they are common property, the management of which requires a considerable amount of human and financial resources. In connection, the RFD has developed a variety of ways to support local communities in managing their forests, albeit only at a pilot level. However, forthcoming production from community forests is in doubt as the government cannot guarantee the long-term status of community forests.

Additionally the principle of participation is undermined by the fact that there were no public consultation processes in formulating forest-related laws such as the National Parks Act 1961, the National Forest Reserve Act 1964, and the Wildlife Preservation and Protection Act 1992, which established forest areas as reserved (Phromlah, 2011; Nalampoon, 2003). Consequently, a number of people who had previously settled and practiced agriculture within areas that became reserved were categorized as illegal forest encroachers and forced to relocate. If they continue living in the forests, these landless people become criminals and can suffer heavy fines or imprisonment.

5.2.3 Forest-related Mandates of National Agencies

The Ministry of Natural Resources and the Environment (MONRE) assesses national natural resources and develops plans to protect and sustain them. The RFD was initially under the Ministry of Agriculture and Cooperatives but is currently under MONRE. The RFD has authority to oversee the country‘s forests (excluding protected areas) and has primary responsibility for management of forest conservation; logging; forest product collection; utilization of forest land; and enhancement of public participation (Phromlah, 2011). The RFD is also responsible for community forest management programs within its authorized areas. The Department of National Parks, Wildlife and Plant Conservation (DNP) is responsible for conservation and management of flora and fauna, especially in protected forest areas. The Watershed Conservation Management Office (WCMO) is attached to the DNP and is responsible for watershed rehabilitation through reforestation, development of land-use plans to reduce the practice of shifting cultivation, and conflict management.

Despite the differing mandates there are a number of overlaps in administrative functions. For example both the RFD and the DNP are empowered to identify protected areas. Prior to announcing protected areas, the land titles in such areas have to be proven. This involves five departments: the RFD, the National Park, Wildlife and Plant Conservation Department (NWPD), the Department of Public Welfare (DPW), the Agricultural Land Reform Office (ARLO), the Department of Livestock Development (DLD), and the Department of Cooperative Promotion (DCP). To issue land titles, the work of these departments must be coordinated in a complex administrative process that is difficult for the average citizen to deal with. Furthermore, there exist contradictory responsibilities between these agencies whereby the RFD, the DNP and the ONEP have a role to conserve forest lands, while the DLD, the ARLO, the DPW, and the DCP are charged with allocating such land to people.

5.2.4 Capacity and Information Limitations in Timber Production and Trade

Information is a powerful tool in sector management but information collection in the forestry sector has been neglected and there is no overall information management strategy. Additionally, the purpose of data collection is unclear to middle-level staff, who tend to perceive it as an administrative burden rather than a management tool. The present statistical reporting system in the forestry sector in Thailand is thus far from satisfactory and needs to be reviewed (Sharma, Shivakoti, and Sakayarote, 2014).

The Forest Act 1941 discusses marketing and distribution of natural resources but in relation to long distance trade, transparency is limited and small producers often do not have a clear understanding of the value of timber and lack negotiating power as a result. For example, practices for the measurement of standing trees are beyond the control of sellers and open to misuse by dishonest buyers. Establishment of producer cooperatives or associations would help protect growers from such risks.

National capacity for forest-related technical and vocational training is extremely limited and concerned organizations and companies have therefore assumed responsibility for human resource development. However, there is a particular need to provide further training for supervisors and middle managers in the wood products and furniture industry to overcome one of the key constraints in industrial and commercial expansion.

Although MONRE has complete accountability for forest management, it appears to have no plan for developing a forestry extension program, which is unfortunate given that the management of forest resources and production of forest products is shifting to the private sector and to communities. As most of the RFD's funds go towards maintaining infrastructure and paying staff salaries, there is little left for training or outreach activities.

5.2.5 Overlaps in Law Enforcement

Law enforcement in the forest sector is often troublesome. Formal legislation governing the sector includes:

1) The Forest Act of 1941, which governs state forests, regulates logging and sets procedures for licenses and royalty payments (Thailand Law Forum, 2010b);
2) The National Parks Act of 1961, which governs the designation, management and protection of National Parks (Thailand law forum, 2010a);
3) The National Reserved Forests Act of 1964, which governs the designation, management and protection of National Reserved Forests (Pakorn and Nilpra 2005b);
4) The Commercial Forest Plantation Act of 1992, which requires the registration of commercial forests and regulates the cutting and sale of timber in commercial plantations;
5) The Forest Plantation Act of 1992, which facilitates the creation of private-sector plantations in degraded forest (Pakorn and Nilpra 2005a); and
6) The Community Forest Bill of 2007, which gives forest-dwelling communities who can prove they lived in the forest prior to 1997 rights to preserve and manage forest land under strict guidelines. Forest communities must be registered and must develop an approved forest management plan.

The above laws frequently overlap and are at times difficult to implement. For instance, according to the National Reserved Forest Act 1964, in order to declare reserved forest, public consultation and consent is voluntary but the 1997 Constitution Law of Thailand and the EQA of 1992 enables local people to participate in planning and decision making in forest control and management. Another such example is seen in the definition of forest itself. According to the Forest Act of 1941, forest means "land which has not been taken up or acquired by anyone under the Land Law" but the National Reserved Forest Act 1964 provides more detailed definition for forests indicating that forest means

"land which includes mountains, creeks, swamps, canals, marshes, basins, waterways, lakes, islands or seashore which has not been taken up or acquired by a person in accordance with the law."

Given the number of overlaps and conflicts in the legislative framework, implementation of new initiatives such as REDD+ are likely to create further confusion and chaos unless a major effort is undertaken to revise and integrate the forestry related legal framework.

5.2.6 Provisions associated with REDD+

(1) The Readiness Preparation Proposal (R-PP)

The Government of Thailand submitted an R-PP to the Forest Carbon Partnership Facility (FCPF) in October 2013. The DNP were given responsibility for finalizing the R-PP and identified national parks as the perfect site for REDD+ piloting. However, REDD+ under the UNFCCC operates at the national level and focusing on protected areas alone is unlikely to enhance overall forest carbon stocks and improve livelihoods. Therefore the RFD needs to be involved. Notwithstanding this observation, conflicts frequently occur in many national parks, making implementation of internationally driven initiatives problematic.

According to the Thai Climate Justice Working Group, "the R-PP has violated the principles of free, prior and informed consent; the R-PP has excluded participation of local people." The R-PP has also been unsympathetic to small holders, mentioning without any factual information that they are increasing global temperature though deforestation (Lang**,** 2013). Similarly, the issue of land rights, a central concern for forest communities, has not been mentioned in the R-PP and the R-PP has failed to highlight the true problems existing in the country's forestry sector. For example, the conflicts that have resulted from people living in forest areas that have been declared as conservation areas. Unless the procedures to avoid conflict are clear, REDD+ is unlikely to be successful.

Currently, the government is planning to implement REDD+ (Reducing Emissions Deforestation and Forest Degradation) without acknowledging the fact that forest management is a social-ecological interaction that involves institutions, political pressures and users' experiences and methodologies. Prior to implementing REDD+, it is important to understand existing laws and policies and their potential effectiveness in terms of benefit sharing and improving livelihoods. If existing laws and policies have no certain effect on people's livelihoods and practices, implementing REDD+ through current frameworks cannot be beneficial. Although the R-PP considers changes in laws and policies for REDD+ to achieve its objective, most of forest dependent people are unaware of this.

(2) Recognition of Land and Carbon Rights

Thailand's 1997 Constitution (Section 56) provides that communities have the right to protect their traditions and to participate in the management, maintenance, preservation and exploitation of natural resources, the environment, and biodiversity in a balanced and sustainable fashion. Notwithstanding these rights the state owns all forests in Thailand and details on how co-management is supposed to work and what resources local communities have the right to manage are subject to debate. There is no special policy in Thailand recognizing the rights of indigenous peoples, who live largely in the northern highlands and occupy traditional holdings within classified forests. Disputes with forestry officials are common and some observers believe that the land-titling program resulted in the loss of common property resources. Conflict also occurred as a result of RFD attempts to consolidate its authority by classifying more forest as protected areas or tree plantations as the pressure to grant farmers title to forestland increased. In addition to land tenure issues, carbon rights will need to be considered for implementation of REDD+ which may lead to further controversy.

(3) Adequacy, Predictability and Stability of Forest Agency Budgets and Organizational Resources

Financing climate change comes from various sources. Through the United Nations Framework Convention on Climate Change (UNFCCC), technical and financial support has been given to

Thailand in preparing the national communication and maintaining national capacity. Other support to enhance national capacity has come from bilateral and multilateral sources including the US Country Study Programmme, ADB's ALGAS project and World Bank National CDM Strategy Study. The national budget also contributes substantially to climate change actions in Thailand with support having been given for research and development, information dissemination and public awareness. The country has recently finalized the "structure of action plan to address education, training and public awareness under the Convention (Article 6 of the UNFCCC)" (National Reporting Guidelines for CDS, 2005). Despite the domestic and international support, there is still a wide range climate change related issues that need to be addressed and further support for technology transfer and capacity building are vital for Thailand.

5.2.7 Equity in the Distribution of Access to Forest Resources, Rights and Rents

Forest resource access rights in relation to both forest products and forest land can be seen in terms of benefit sharing. Regarding rights to forest products and recognizing that all forest in Thailand belongs to the state, the Forest Act 1941 establishes royalties to be paid to the government on harvest of teak and other timber species. Nowhere does the law mention that funds received are to be distributed in an equitable manner.

Regarding rights to forest land, according to the National Park Act 1961, Chapter 1 Section 6, the government can demarcate any land as national park without providing incentives or supporting resettlement for people depending on the forest. A Cabinet Resolution on 30th June 1998 indicated that communities settled after establishment of a protected area are to be moved to suitable areas. If, however, communities cannot be moved to suitable areas, they should stay in existing areas without expanding. Communities compelled to leave without incentives or suitable alternative options are bound to haphazardly destroy forest and resettle temporarily.

6 Conclusions and Findings

This report has assessed policies and measures associated with deforestation and forest degradation in Thailand. The results show that forest cover change in Thailand has taken place in the context of:

1) evolving natural resource and environmental management in Thailand over the past 30 years;
2) adoption of decision-making tools, including participatory methods in the forest management framework during the last 15 years;
3) rising prominence of the issue of climate change in national policy over just the past 10 years;
4) establishment of climate change related institutions, structures, procedures and regulations.

As such, the policy process concerning efforts to address drivers of deforestation and forest degradation is still new in Thailand. This revolution in the administration of forests poses significant challenges and needs investigation so that efforts to avoid deforestation and forest degradation in Thailand can contribute to global emissions reduction.

Forest change in Thailand has resulted from several causes, including positive drivers (community forestry, public participation, EU-FLEGT scheme, technological improvements, demand for income and jobs and REDD+), and negative drivers (infrastructure development, land clearance, forest fire, illegal logging, agricultural expansion). Otherwise, the major factors behind deforestation and forest degradation in Thailand are connected to policy gaps and a management approach that lags behind the international best practices. The institutional framework lacks internal harmonization and forest management practices are far from those outlined on paper. In relation, there has been no holistic view of forest management since the original RFD was divided into three separate departments (RFD, DNP and DMCR) in 2002 and transferred from the Ministry of Agriculture and Cooperatives to the

Ministry of Natural Resources and Environment. Since then, forests have been managed according to different underlying perspectives based on forest type and site. The tasks and responsibilities for which there are overlaps among the three departments can promote forest loss due to information inconsistencies and conflict between forest dwelling people and the government.

7 Proposed Action Plan

To fill gaps resulting in deforestation and forest degradation in forests under the mandate of the Royal Forest Department (RFD), three sets of initiatives are proposed at different implementing scales as follows:

7.1 Regional Level

Regional collaboration on forest fire protection: as Thailand is located between number of other countries, forest fires in the north of the country and in neighboring areas can have significant transboundary effects both in terms of haze and spread of fire. Myanmar, in particular, has forest areas which connect with areas in Thailand allowing fires to cross the border. In response to this problem, regional collaboration on forest fire protection should be strengthened with support from international organizations.

7.2 National Level

A synergistic program to manage forests can be initiated taking into account four significant characteristics of the RFD, as follows:

1) RFD is responsible for sustainable management of national forests.
2) RFD takes care of forest areas that have the potential in relation to implementation of REDD+.
3) RFD has succeeded in piloting a community forest program and with an effective participatory framework, community forestry can be feasible and implementable (Wongkijroongrueng, 2014).
4) RFD is in charge of timber verification under the EU-FLEGT trading system.

To optimize forest management under the RFD mandates, the EU-FLEGT scheme can be implemented in parallel with REDD+ and the Community Forest Programme. In relation, community forestry, which is under the responsibility of the RFD, is considered to be in line with the REDD+ framework.

The concordance in conceptual framework of community forestry and REDD+ in terms of participation can synergize the authority of the RFD to effectively enhance public rights in forest management and support the achievement of REDD+ objectives as a whole. Based on this concept, benefit sharing to the communities can be established in relation to timber trade and carbon emissions reduction and removals within a single unit of forest land. Although the idea is ambitious as many elements are involved, it is suggested that a demonstration project can be implemented within a community forest to test its feasibility.

To protect forest lands, the RFD has authority to patrol and monitor forests but forest patrolling in remote areas still relies on human observation. It is accepted that although Thailand banned logging in natural forests in 1989, illegal logging continues. Effective forest protection tools and technologies area therefore needed to allow real-time countering of illegal activities. However, with limited access to national budget and technical knowhow, funding sources are needed to support such initiatives as well as financial support to facilitate forest patrolling.

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