

Can REDD+ deliver forest protection in Malaysia?

Dayang Nor Izan Abang Halil

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Supervisor: Torsten Krause, LUCSUS, Lund University

Abstract

The Intergovernmental Panel on Climate Change identified deforestation as the main cause of anthropogenic emissions of greenhouse gases in developing countries and since then the mechanism on Reducing Emissions from Deforestation and Forest Degradation; and the role of conservation, sustainable management of forests and enhancement of forest carbon stocks in developing countries (REDD+) has been developed and discussed at the international level. In Malaysia, deforestation is prevailing. The forested areas of all three main regions in Malaysia continue to decrease each year and the fragmentation of forests is threatening the survival of terrestrial flora and fauna as well as the livelihood of indigenous people. The forest conservation strategies undertaken can reduce the impacts of deforestation in the country, but are not fully effective in addressing its driving forces. This is due to the complex and multiple factors governing deforestation in the country like local political structure and national economic development policies. This thesis aims to find out whether REDD+ can be a feasible instrument for Malaysia to preserve its forests, and whether it can be implemented within the Malaysia federal-state system. This study highlights and discusses three issues of implementing REDD+ in the country: i) financial resources to fund REDD+ activities; ii) setting-up REDD+ legal framework within the federal-state system; and iii) capability of REDD+ to address drivers of deforestation. This study also explores how the theory of incentives could be applied in the national context in gaining the support of state governments to implement REDD+. The findings of this study suggested that REDD+ mechanism has some potentials to address the drivers of deforestation. Furthermore, it was found that setting-up REDD+ within the existing federal-state system of Malaysia was not a straightforward process. For example, setting up legal framework like REDD+ laws to enable implementation of REDD+ activities may receive resistance from the state governments. Therefore, it is necessary to further strengthen the federal-state system and forest governance in Malaysia to enable better coordination on matters related to forests and natural resources management.

Keyword: Economic development, Federal-state system, Forest conservation, Theory of incentives, Tropical deforestation

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List of Abbreviations

ADB	– Asian Development Bank
COP	– Conference of the Parties
DPSIR	– Driver-Pressure-State-Impact-Response
FAO	– Food and Agriculture Organization of the United Nations
FC	– Federal Constitution
GDP	– Gross Domestic Products
GHG	– Greenhouse gas
GOM	– Government of Malaysia
IPCC	– Intergovernmental Panel on Climate Change
IP	– Indigenous Peoples
Km ²	– Kilometre square
LC	– Local Communities
Mil. ha.	– Million hectares
MRV	– Monitoring, Reporting and Verification
MTC	– Malaysian Timber Council
MTIB	– Malaysian Timber Industry Board
NAP	– National Agricultural Policy 1984 (Revised 1992, 1998)
NC2	– Malaysia Second National Communication to the United Nations Framework Convention on Climate Change
NDP	– New Development Policy 1991-2000
NFA	– National Forestry Act 1984 (Amended 1993)
NEP	– New Economic Policy 1971-1990
NFP	– National Forestry Policy 1978 (Revised 1992)
NGO	– Non-Governmental Organisation
NRC	– National Research Council
PAs	– Protected Areas
PRF	– Permanent Reserved Forests
RED	– Reducing Emissions from Deforestation
REDD	– Reduced Deforestation and Forest Degradation

REDD+	– Reducing Emissions from Deforestation and Forest Degradation; and the role of conservation, sustainable management of forests and enhancement of forest carbon stocks in developing countries
RIL	– Reduced Impact Logging
SFM	– Sustainable Forest Management
UK	– United Kingdom
UN-REDD	– The United Nations Collaborative Programme on Reducing Emissions from Deforestation and Forest Degradation in Developing Countries
UNCBD	– United Nations Convention on Biological Diversity
UNDP	– United Nations Development Programme
UNFCCC	– United Nations Framework Convention on Climate Change
WB-FCPF	– World Bank Forest Carbon Partnership Facility
WWF	– World Wild Fund

1. INTRODUCTION

“Half of the Asian nations have already experienced severe (>70%) forest loss, and forest-rich countries, such as Indonesia and Malaysia, are experiencing rapid forest destruction” (Laurance, 2007, p.1).

It has been recognised that large-scale agricultural expansions, timber extractions and infrastructure developments, driven by a country’s necessity to grow, lead to a variety of environmental, social and economic impacts. Examples of these impacts include global warming, the loss of natural resources and biodiversity, degraded ecosystem services, and the loss of income for forest-dependent communities (i.e., indigenous peoples (IP) and local communities (LC)) (Angelsen et al., 2012; Food and Agriculture Organization of the United Nations (FAO), 2010a; Abdullah & Hezri, 2008; Laurance, 2007; Jomo et al., 2004). Then again, it has also been acknowledged that there is no consensus among policy makers, economists and biologists on the specific factors that drive deforestation in each tropical country. Thus, these factors cannot be generalised as they are also influenced by local elements like the political and economic structure between federal government and state governments (Minang & van Noordwijk, 2013; Irawan & Tacconi, 2009; Laurance, 2007; Jomo et al., 2004; Geist & Lambin, 2001).

The Intergovernmental Panel on Climate Change (IPCC) pointed out that deforestation accounts for 17% of global greenhouse gas (GHG) emissions, which is often also the main source of GHG emissions in developing countries (Cerbu et al., 2011). Therefore, in the effort to mitigate climate change from deforestation and forest degradation, the United Nations Framework Convention on Climate Change (UNFCCC) has developed the REDD+ mechanism, which stands for *“reducing emissions from deforestation and forest degradation; and the role of conservation, sustainable management of forests and enhancement of forest carbon stocks in developing countries”* (Cerbu et al., 2011, p.2; Visseren-Hamakers et al., 2012). REDD+ is regarded as one of the fundamental international mitigation strategies to reduce GHG emissions and presented as a cost-effective way to reduce large amounts of carbon emission in a short period (UNFCCC, 2013; Angelsen et al., 2012; Venter & Koh, 2012; Corbera & Schroeder, 2011). The main idea behind REDD+ is to provide performance-based financial incentives or payments for developing countries to protect, better manage and wisely utilise their forest resources (Visseren-Hamakers et al., 2012; Corbera & Schroeder, 2011). Karsenty and Ongolo (2012) referred to the theory of incentives as one of the many theories surrounding REDD+. This is due to the nature of

REDD+ activities that involves agreement between two parties, where one party, the funder, would delegate certain tasks to be carried out by the other party, which is the REDD+ host country. When the agreed results are achieved, then the funder would deliver payments to the REDD+ host country based on the verified emission reduction (Karsenty & Ongolo, 2012; Streck, 2012).

Based on the multiple co-benefits of REDD+, together with the performance-based incentives that it offers, I aimed to find out whether REDD+ could be a feasible tool to preserve the forests in Malaysia. Additionally, I also wanted to learn whether REDD+ could be implemented within the federal-state system in Malaysia, because of the concerns that the implementation of REDD+ may lead to recentralisation of forest management (Phelps et al., 2010). I based my research on a comparative analysis between the current conservation strategies being practiced in Malaysia and REDD+, as the future mechanism. In the analysis, I discussed the challenges of both strategies and identified their limitations in protecting the forests and addressing deforestation. I started with setting the background for the study, describing the past and current deforestation in Malaysia, followed by methodological considerations, and subsequently by an overview of the development of REDD+. The section after focused upon and discussed in detail the results and analysis of the study. Finally, I concluded by discussing some recommendations that could be considered by Malaysia in the effort to preserve its forests.

Through this study, it was shown that the current forest conservation strategies undertaken in Malaysia have been able to reduce the pressures and impacts of deforestation to some extent, but they appeared to be disconnected from the drivers of deforestation. In contrast, I found that REDD+ has the potential to address the drivers of deforestation. Furthermore, I found that setting-up REDD+ mechanism within the existing federal-state system in Malaysia is possible. In general, legal framework and financing mechanism were among the key challenges that need to be addressed by both the federal government and the state governments of Malaysia.

2. THE CASE - MALAYSIA

2.1 Background

Malaysia, formed in 1963, is a federation of 13 states – the states of Sabah and Sarawak in the Borneo Island, and 11 states in the Peninsular Malaysia; and three federal territories – Kuala Lumpur, Putrajaya and Labuan. These states were once the British colonies in the Southeast Asia region. Even after the federation, the respective Malay rulers of each state still retain their powers for specific state matters¹, for instance land, forests and native² laws (Elagupillay, 2005). Malaysia's total land area is 330,433 kilometre square (km²), of which Sabah accounts for 73,620 km² and Sarawak accounts for 123,985 km², making it the biggest state in Malaysia, almost the size of Peninsular Malaysia (Government of Malaysia (GOM), 2011; Jomo et al., 2004).

2.2 History of deforestation in Malaysia

Commercial plantations were introduced to Peninsular Malaysia during British colonial times at the end of the 18th century. Large-scale agricultural expansion, especially for rubber plantations during the early 20th century, marked the first wave of extensive deforestation in Malaysia (*Appendix 1*) (Jomo et al., 2004). The second wave started in 1958 in Peninsular Malaysia, driven mainly by national policies aimed at land development schemes designed to provide land to the landless poor as a measure to alleviate rural poverty. It extended into the 1980s, converting a greater part of forests areas into rubber and oil palm plantations, and other agricultural use. It was also at this time that the federal government extended large-scale plantations to Sabah and Sarawak due to scarcity of arable land in Peninsular Malaysia. Apart from agricultural expansions, commercial logging was one of the main driver for

¹ In the Legislative List of the Federal Constitution, elements such as agriculture, forest and land were regarded as state matters due to the fact that they have been managed by the state governments prior to colonisation. Elements such as defence, education, international relationship and treaties were put under the purview of the federal government as they were considered as new. Elements listed in the concurrent list were put under the jurisdiction of both the federal and the state governments (Abas, 1986 [cited in Elagupillay, 2005]).

² According to Article 161A of the Federal Constitution, "native" means –

- a) in relation to Sarawak, a person who is a citizen and either belongs to one of the races specified in Clause (7) as indigenous to the State or is of mixed blood deriving exclusively from those races; and
- b) in relation to Sabah, a person who is a citizen, is the child or grandchild of a person of a race indigenous to Sabah, and was born (whether on or after Malaysia Day or not) either in Sabah or to a father domiciled in Sabah at the time of the birth.

deforestation from the 1970s to the 1990s (Laurance, 2007; Butler, 2005; Jomo et al., 2004; Geist & Lambin, 2001). The lowland forests of Malaysia are mostly dominated by trees from the *Dipterocarpaceae* family (WWF-Malaysia, 2013; Laurance, 2007). Classified as the Dipterocarp forests, they offered a variety of tree species that are of high commercial value such as *damar*, *balau*, *keruing*, *meranti* and *resak* (*Appendix 2*), thus, the forests were heavily logged for timber export (Malaysian Timber Industry Board, 2013; Laurance, 2007).

2.3 Drivers of deforestation in Malaysia

Deforestation in Peninsular Malaysia was driven by British colonisation and subsequently by national development policies that aims to expand plantation areas (Laurance, 2007; Jomo et al., 2004; Geist & Lambin, 2001). The agricultural expansion was extended to Sabah and Sarawak after 1963. Therefore, the pace of and the drivers for deforestation in Peninsular Malaysia, Sabah and Sarawak differed substantially (Jomo et al., 2004). *Figure 1* gives the overview of the relationship between drivers and impacts of deforestation in Malaysia. For the case of Sabah and Sarawak, the exploitation of forest resources was mostly due to their efforts to generate revenue for the states. This was to make up for the foregone petroleum revenue following the enforcement of Petroleum Development Act 1974 where both states were only given 5% of the petroleum and gas royalties, despite the fact that most petroleum and gas came from their offshore. Though Sabah and Sarawak have large land-areas, in general the land was not suitable for agriculture, thus rendering commercial logging as the main income generating activity (Jomo et al., 2004). It was reported that extensive logging activities had taken place in both Sabah and Sarawak in the 1980s and resulted in heavily degraded forests (Butler, 2005). *Figure 2* illustrates the fragmentation of natural forest cover in Peninsular Malaysia between 1954 and 2000, whereas *Figure 3* illustrates the extent of deforestation in Sabah and Sarawak between 1950 and 2005, and projections from 2005 until 2020.

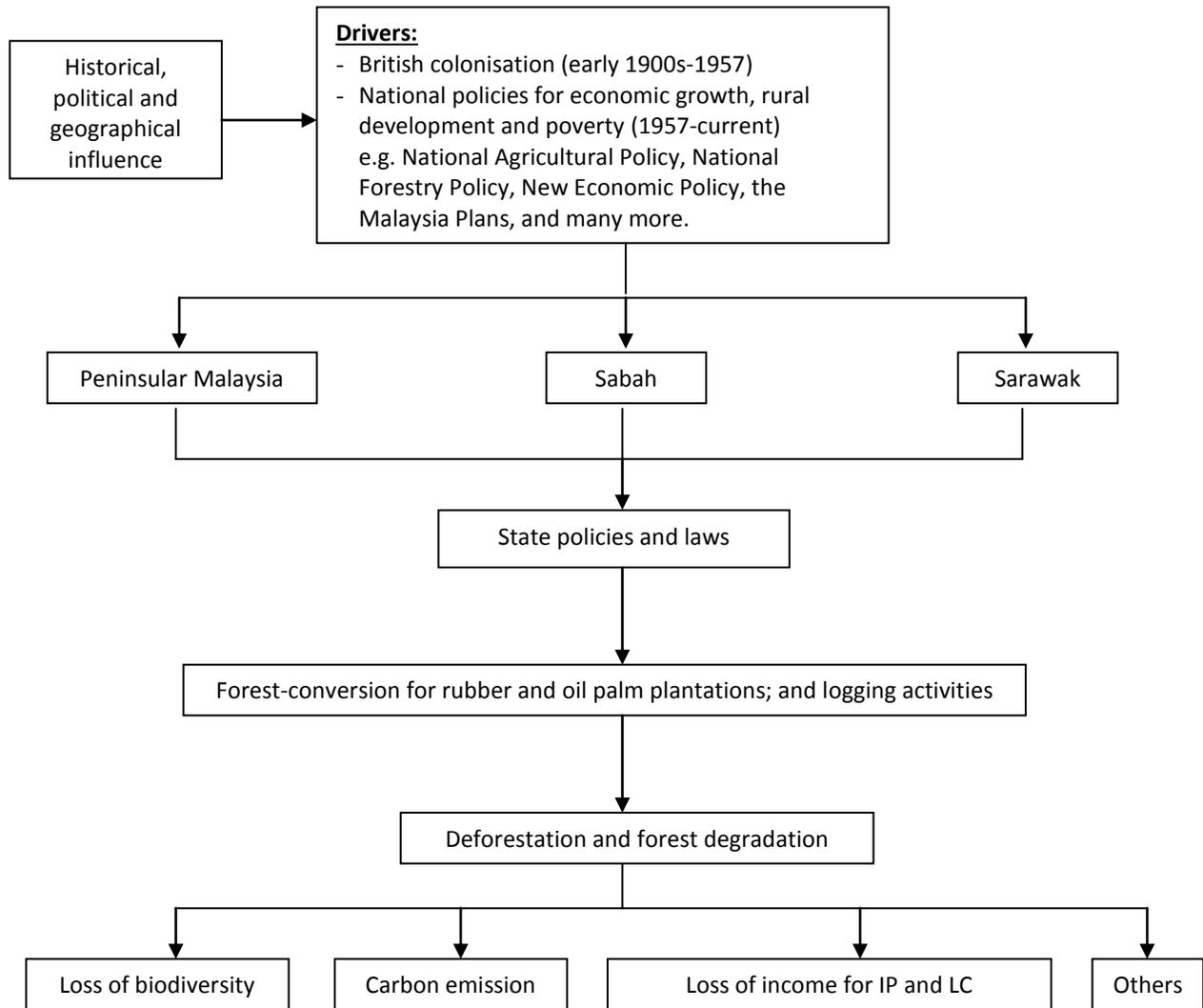


Figure 1. Overview of the relationship between drivers and impacts of deforestation in Malaysia

The Malaysian government's long-term policies formulated in the 1970s until the 1990s significantly contributed toward the large-scale agriculture expansion, development schemes and logging activities in the country (e.g. National Agricultural Policy (NAP) 1984-2000 (Revised 1992, 1998), National Forestry Policy (NFP) 1978 (Revised 1992), New Economic Policy (NEP) 1971-1990, New Development Policy (NDP) 1991-2000 and the Malaysia's five-year development plans). These policies clearly specified strategies that brought the country's economy and development up to the level that was desired by the government. However, these policies were not well-synchronized (Abdullah & Hezri, 2008; Jomo et al., 2004; Geist & Lambin, 2001). For example, the 4th Malaysia Plan 1981-1985 recognised the scarcity of

available land for agriculture, and accordingly promoted optimisation of yield through *in situ* development and other technologies. Yet, the NAP that was formulated in 1984, aimed to “*maximise income from agriculture through efficient utilisation of the country’s resources*”. The NAP 1984 was revised in 1992 and its revised objectives include “*increased palm oil output by increasing the area under cultivation*” (Jomo et al., 2004, p.32-33). This illustrated that production of plantations as one of the main objective of the NAP.



Figure 2. Fragmentation of natural forest cover in Peninsular Malaysia, 1954, 1969, 1972, 1990 and 2000 (Source: Greenwood International, 2013)

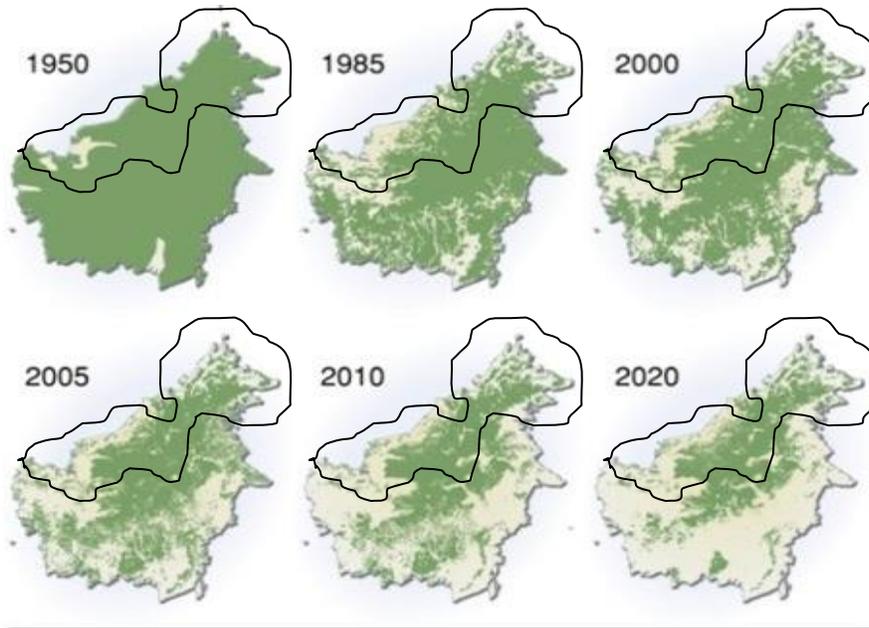


Figure 3. Extent of forest cover in Sabah and Sarawak (highlighted areas) for the years 1950-2005, and projection towards 2020 (Source: GRID-Arendal, 2013)

2.4 The problem setting

Malaysia has been identified as one of the mega-diverse countries in the world (GOM, 2011) and its complex tropical ecosystem, apart from being home to rich species of terrestrial flora and fauna and IP, also provides a great variety of ecosystem services (Laurance, 2007; Jomo et al., 2004). As in other forest-rich countries, the rapid deforestation in Malaysia has brought much attention and criticism to its land-use practices (The Economist, 2012; Abdullah & Hezri, 2008; Laurance, 2007; Jomo et al., 2004; Geist & Lambin, 2001). This situation is worrisome because tropical forests are seen as *“the most ancient, the most diverse, and the most ecologically complex of all land communities”* (Laurance, 2007, p.1). Destruction of these forests meant losing the forests’ biodiversity and its natural ecosystem services as well as displacements or even worse, extinctions of IP’s cultures and traditions like what has happened to the native people of Sarawak, where many Dayak communities were overrun by extensive logging activities in the state (Venter & Koh, 2012; Laurance, 2007).

Currently, Malaysia claims to have approximately 55% (18.3 million hectares (mil. ha)) out of the total forest cover intact. In the Rio Summit, Malaysia has pledged to maintain at least 50% of its total forest covers (GOM, 2011). Although the current forest cover is still within the country’s pledge, the concern was whether this promise can be upheld for long-term periods in the future to come as the projection for deforestation in Malaysia for the years 2008-2020 based on a business-as-usual scenario indicates that the total forest cover will decrease to approximately 51.5% (17.0 mil. ha.) (GOM, 2011). In addition, it was reported that vast deforestation took place in Sarawak and resulted in only 10-5% of pristine forest left standing (Mongabay.com, 2013; Sarawak Report, 2013). Moreover, despite the alarming rate of the country’s deforestation, the 10th Malaysian Plan 2011-2015 identified oil palm and agriculture, among other sectors, to drive Malaysia’s economic growth. Therefore, how can Malaysia maintain at least 50% of its total forest covers for decades to come when the country is depending on forest resources to sustain the economy? Can the current conservation strategies help to conserve the forests or does Malaysia need to embark on new strategies like REDD+? To what extent can REDD+ be a feasible tool in ensuring the forests in Malaysia are conserved?

3. RESEARCH METHODOLOGY

My main objective was to find out the feasibility of REDD+ as a tool in protecting tropical forests from further deforestation. To understand the potential role of REDD+ in this matter, I opted to undertake a case study in Malaysia. Malaysia was known to have one of the best forest-related policies in developing Asia. However, at the same time Malaysia has also been identified as a country with a high deforestation rate (Asian Development Bank, 2010). I found this situation interesting because it triggered my curiosity to how and why a country that has one of the best forest management policies cannot curb the deforestation that is occurring within the country. For that reason, I was drawn to find out how Malaysia plans to preserve at least 50% of its total forest cover, as pledged in the 1992 Rio Summit, while utilising the forests for economic activities (GOM, 2010). The fact that Malaysia has undertaken groundwork to embark on REDD+ activities motivated me to further explore the likelihood of REDD+ as a tool to protect the forests in Malaysia. Another characteristic that I found unique to Malaysia was the federal-state system practiced in the country, which is similar to a decentralised system. Thus, I am interested to know whether REDD+ can be implemented within this federal-state system, because it has been highlighted that implementation of REDD+ may lead to recentralisation of forest management (Phelps et al., 2010).

3.1 Case study design

Since I had selected to focus specifically on the feasibility of REDD+ as a tool to protect the forests in Malaysia and the setting-up of REDD+ within the federal-state system, I considered my study to be contemporary and exclusive to time, place and interest (Bryman, 2012). Therefore, I chose to conduct a qualitative case study to pursue my aims. This was due to the reason that a case study design allowed exploration of a current phenomenon that was beyond my control to be undertaken (Yin, 2003). In addition, case study design facilitated understanding of a complex social phenomena and the overall idea of the phenomenon; for example, the institutional processes and international relations involved (Yin, 2003). In my case, these complex social phenomena would be the multiple economic and political drivers of deforestation in Malaysia coupled with the federal-state system being practiced, as well as the complexity of REDD+ mechanism itself. Considering the complexity of the case that I intended to address, I needed the flexibility of structuring and discussing my case study holistically and presenting the findings in a manner that allows easy understanding. Thus, I opted to apply qualitative approach

by international organisations like UNFCCC, FAO and the United Nations Collaborative Programme on reducing emissions from deforestation and forest degradation in developing countries (UN-REDD). I also utilised peer reviewed articles as well as online information on deforestation, REDD+, conservation strategies and much more. For the analysis and for answering my research questions, I relied mostly on peer-reviewed articles, published reports of the Malaysian government and international organisations. However, in certain cases, I found different figures were reported for the forest extent or deforestation rate in Malaysia. For example, the forest areas reported in the Malaysia Second National Communication to the UNFCCC 2011 (NC2) differs from the one reported in the FAO Global Forest Resource Assessment 2010. This could be due to the use of different definition for forest by the country and the FAO.

ii. *Semi-structured interview*

Key information for my study was attained through semi-structured interviews. This approach was important in acquiring organisations and personal insights as well as information specific to Malaysia that has not been published (Yin, 2003). The respondents were selected based on their direct involvement in forest management and knowledge on deforestation in Malaysia, REDD+ mechanism and the structure of federal-state system being practiced in Malaysia. The respondents include senior government officials from several ministries as well as representatives from international organisations, private sectors, institute of higher learning and non-governmental organisations (NGO) (*Appendix 3*). I initially planned for 18 interviews but only managed to conduct 9 interviews (i.e. five face-to-face interviews; and four interviews via email) due to unavailability of the other selected respondents.

Although most of the respondents were representing the government, their professional portfolios were different. The focus on government agencies was due to the nature of my thesis in finding out the rationale behind the country's plan to embark on REDD+ activities, how the country plans to manage its forests, as well as to understand the federal-state system being practiced. The questions varied for each of the respondents but there were key questions that were addressed to all respondents. It was purposely designed in such a way to get their insights on specific matters. Since the interviews were semi-structured, I had written, predetermined

interview questions to guide me through the entire process (*Appendix 4*). Some of the interviews were recorded, whereas in communication via email, the answers were written down by the respondents. Apart from being the key source of information for my study, I also used the interviews to assist me in structuring the themes for presenting my findings and discussion, as well as, identifying the theory that best-suited my study (Bryman, 2012; Yin, 2003).

The types of information collected as well as the pros and cons of the methods selected are summarised in *Table 1* below:

Table 1. Methods for data collection and its pros and cons

Method	Type of information	Pros and Cons
Literature review	Qualitative information on: <ul style="list-style-type: none"> - REDD+ mechanism - Theory and analysis framework - Forest conservation strategies - Deforestation in Malaysia - Malaysia's forest management 	Pros: <ul style="list-style-type: none"> - Published governmental reports - Peer reviewed academic articles
		Cons: <ul style="list-style-type: none"> - Bias towards a country's or organisation's interest
Semi-structured interview	Qualitative knowledge on: <ul style="list-style-type: none"> - Vision - Perspective - Planning - Opinion 	Pros: <ul style="list-style-type: none"> - Inside information - Official standpoint - Personal opinion - Latest information
		Cons: <ul style="list-style-type: none"> - Biased towards personal interest or employer's interest

3.3 Presentation of the results

Considering that this was a qualitative case study, most of the results generated were textual. Therefore, to facilitate the understanding of my audience, which includes LUMES professors, fellow students and the Malaysian Government, the findings of the study were presented according to themes (Yin, 2003).

3.4 Criteria for analysis

The analysis was based on the Driver-Pressure-State-Impact-Response (DPSIR) framework (*Figure 4*) where comparative analysis for forest conservation strategies and the REDD+ mechanism were undertaken. The framework is normally used for analysing the cause and effect relationship of

environmental and natural resource management problems, taking into consideration the economic, social and environmental aspects in its analysis (Tscherning et al., 2012; Ness et al., 2010). The framework is also used to fill the communication gap between policy makers and scientists with regards to environmental issues. The outcomes of the DPSIR analysis usually lead to policy recommendations (Tscherning et al., 2012). However, the simplicity of DPSIR has been criticised for excluding normative perspectives and participation of various stakeholders, since it suggests single and unidirectional causalities, rather than addressing the complex interrelationships, which makes it difficult to identify the multitude of levels that could affect the situation (Tscherning et al., 2012; Ness et al., 2010). Nevertheless, its weaknesses can be addressed in several ways, for example, i) merging it into the system of nested spatial domain (Atkins et al., 2011; Ness et al., 2010); ii) linking it with external drivers, pressures and impacts (Haberl et al., 2009); and iii) enhancing its framework to make it more holistic (Tscherning et al., 2012). Despite its disadvantages, I chose DPSIR because of several reasons: i) it is able to present policy-related research in a simple way; ii) its capability to illustrate environmental impacts caused by socio-economic drivers; and iii) the audience of my thesis includes the Malaysian policy makers. Therefore, it was advantageous to present the analysis in a manner that is direct and easy to understand.

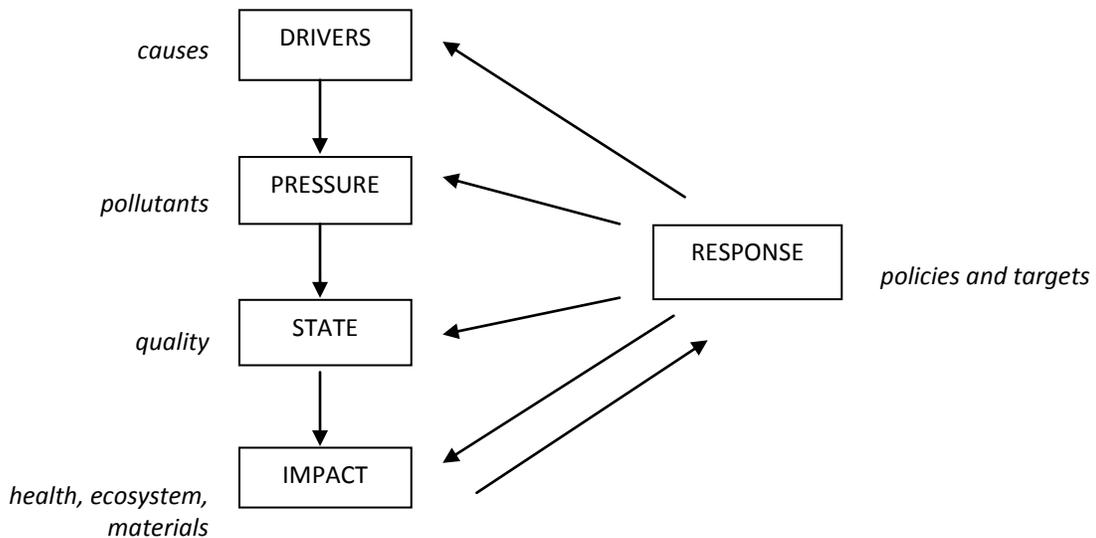


Figure 4. DPSIR Framework (Source: Kristensen, 2004)

3.5 Boundaries and limitations

In order to be focused with the case study, I established several boundaries and identified some limitations as follows:

Table 2. Boundaries and limitations of the case study

Boundaries	Limitations
<ul style="list-style-type: none">i. Focusing on deforestation in Malaysia;ii. Considering specific drivers of deforestation (i.e. national policies that promote economic growth and rural development);iii. Thematic discussionsiv. Information from secondary sources;v. Selective groups of respondents for the interviews; andvi. Single case-study approach.	<ul style="list-style-type: none">i. Limited data for agricultural land-use as well as forest use and management especially for Sabah and Sarawak; andii. Limited time to conduct extensive on the ground interviews and include other countries as cases in the study.

4. WHAT IS REDD+?

Reducing emission from deforestation (RED) in developing countries was initiated at the 11th COP to the UNFCCC in 2005 and as a result of further deliberations, RED evolved into REDD where the element of forest degradation ('D') was proposed during the 13th COP to the UNFCCC in 2007. With advanced discussions undertaken between 13th COP and 15th COP, the negotiation process went beyond REDD by adding the '+' element (Cerbu et al., 2011) which incorporated the role of conservation, sustainable management of forests and enhancement of forest carbon stocks (Visseren-Hamakers et al., 2012; Venter & Koh, 2012). REDD+ was created to provide performance-based incentives for developing countries that managed to reduce carbon emission through avoided deforestation, and thus contributed to global climate change mitigation efforts (Venter & Koh, 2012; Corbera & Schroeder, 2011). Currently, the deliberations on methodological guidance for activities relating to REDD+ is still on-going at the UNFCCC platform (UNFCCC, 2013). However, the promised long-term international funding mechanism is yet to be established (Angelsen et al., 2012). Nevertheless, the on-going process does not preclude non-Annex I Parties to the UNFCCC especially in the Africa, Asia and Latin America region from embarking on REDD+ demonstration projects (Cerbu et al., 2011).

Although the initial aim of REDD+ was to reduce carbon emissions, it has evolved and has embraced a wider scope, specified as the ‘+’ element, which caters to the different circumstances of non-Annex I Parties to the UNFCCC (Visseren-Hamakers et al., 2012). REDD+ also promised multiple co-benefits for the environment, society and economy such as reducing deforestation, protecting biodiversity, alleviating poverty and strengthening indigenous people’s rights (Angelsen et al., 2012; Barr & Sayer, 2012; Mahanty et al., 2013). These co-benefits, together with the creation of international performance-based incentives, and provisions of the fast-track finance from multilateral agencies and several Annex I countries for readiness activities and demonstration projects (Venter & Koh, 2012; Streck, 2012; Corbera & Schroeder, 2011), has attracted the interest of many forest-rich developing countries to undertake REDD+ activities (Minang & van Noordwijk, 2013; Visseren-Hamakers et al., 2012; Cerbu et al., 2011).

The Cancun Agreement of the UNFCCC defined the scope of REDD+ by the activities listed in *Table 3*. The broader scopes permit participating countries to implement appropriate activities according to their respective capabilities, capacities and national circumstances (UNFCCC, 2011), as it was acknowledged by the UNFCCC that *“social and economic development and poverty eradication are the first and overriding priorities of developing country Parties”* (UNFCCC, 2011, p.9)

Table 3. Scope of REDD+ activities (Source: UNFCCC, 2011)

Scope of REDD+	
i)	Reducing emission from deforestation
ii)	Reducing emission from forest degradation
iii)	Conservation of forest carbon stocks
iv)	Sustainable management of forest
v)	Enhancement of forest carbon stocks

4.1 Theoretical framework – The Theory of Incentives

REDD+ has multiple objectives and involves a wide range of stakeholders, which makes it a complex mechanism (Minang & van Noordwijk, 2013). Many theories can be applied to REDD+, for example political economy, cultural theory and the theory of incentives (Barr & Sayer, 2012; Karsenty & Ongolo, 2012; Vatn & Vedeld, 2012). The main characteristic of REDD+ that distinguished it from other earlier conservation strategies was the performance-based incentives offered to developing forest-rich countries if they forego forest conversion for forest conservation (Angelsen et al., 2012). This idea of

payments for REDD+ activities fits well into the theory of incentives that applies the principal-agent model, as it involves payments to forest owners in developing countries for the avoided deforestation and the reduced carbon emission (Karsenty & Ongolo, 2012).

The principal-agent model functions in a way that an agreement is made between two parties, the principal and the agent (Laffont & Martimort, 2002). In the case of REDD+, the principal, which is the funder for REDD+ activities, delegates the tasks of REDD+ to an agent, which is the REDD+ host country, who will be paid for the results achieved (Karsenty & Ongolo, 2012). This model takes into account the different circumstances and interests of economic agents involved while aiming for the same outcome. For example, the principal may be concerned about the problem of deforestation, whereas the agent may be attracted to receiving incentives for keeping their forests intact. Despite the divergence of interests, the outcome would be the reduced carbon emission and avoided deforestation and forest degradation (Karsenty & Ongolo, 2012; Pettenella & Brotto, 2012). Although appearing to be straightforward, this concept is tricky. For instance, if the principal has no detailed information on the exact opportunity costs incurred by the agent, then it would be difficult to decide on the appropriate amount to be paid to the agent. In this case, the principal may be paying more or less than the actual opportunity cost (Karsenty & Ongolo, 2012; Laffont & Martimort, 2002).

This model can also be applied at the national level within a country. In the case of Malaysia, the federal government can play the role of the principal in managing the financial incentives, delegating REDD+ tasks to the interested state governments, and taking the responsibility to disburse the incentives when performance were achieved. In this set-up, the state governments act as the agent that undertakes the REDD+ activities at the local level (Karsenty & Ongolo, 2012; Irawan & Tacconi, 2009).

4.2 The challenges of REDD+

“REDD+ - as an idea - is a success story. REDD+ has been perceived as a quick and cheap option for taking early action toward limiting global warming to 2°C” (Angelsen et al., 2012, p.xiii). However, it has been argued that although the co-benefits of REDD+ are deemed to be attractive, they may be difficult to achieve (Minang & van Noordwijk, 2013). There is also indication that in order to achieve multiple objectives with just a single policy instrument, the objectives need to be aligned and connected at every scale. REDD+ has other additional issues, for example i) methodological challenges such as provision of

the international long-term incentives, legality and accountability of REDD+, benefit distribution mechanism, safeguards and the issue of ownership of REDD+ policy process (Angelsen et al., 2012; Pettenella & Brotto, 2012; UN-REDD, 2011); and ii) implementation challenges due to its complexity which involves multiple drivers and stakeholders, as well as the forest governance of the REDD+ countries (Angelsen et al., 2012; Pettenella & Brotto, 2012).

5. RESULTS AND ANALYSIS

5.1 Literature findings

5.1.1 Malaysia's federal-state system and forest management system

In Malaysia, the management of land and forest matters is exclusively under the jurisdiction of the respective state governments as constituted under Article 74(2) of the Federal Constitution (FC). The federal government's intervention in these matters is restricted, as it is specified in the FC that they cannot make any policies and laws regarding state matters. However, the federal government may provide advice and technical assistance to the states. Nevertheless, there are some exceptions, for example Article 76(1) (c) allows the Parliament to make laws for the state if it is requested by the states (GOM, 2012b). The distribution of power between the federal and state government was based on the power of each state prior to formation of Malaysia (Elagupillay, 2005). The differentiated federal-state relationship in Malaysia existed since before independence due to the colonisation of the Malay states. According to Abas (1986 [cited in Elagupillay, 2005]):

“The Malaysian constitution is not the product of overnight thought but represents the end result of a century of British colonial administration which transformed the country from being a number of separate Malay States and colonies of Britain into a single Federation with a modern constitution”.

This is reflected through a clear distribution of powers between the federal and state governments as specified in the FC, which prescribes Federal, State and Concurrent Legislative Lists (*Appendix 5*) detailing the respective powers of the federal and state governments (Elagupillay, 2005). In terms of power to legislate laws, Article 74(1) of the FC, specifies that the *“Parliament may make laws with respect to any of the matters enumerated in the Federal List and the Concurrent List”*, while Article 74(2)

states that “the Legislature of a State may make laws with respect to any of the matters enumerated in the State List or the Concurrent List” (GOM, 2012b, p.64). Conversely, for other matters that are not specified in these lists, the Legislature of a State will have the authority to make laws as specified in Article 77. Although the federal government has the power to make laws for matters in the Federal List and the Concurrent List, and promote common legislations throughout the Federation, the federal government cannot enforce it at the state level immediately. The law has to be adopted by the state governments prior to implementation (Abas, 1986 [cited in Elagupillay, 2005]). In terms of forest and land matters, Peninsular Malaysia, Sabah and Sarawak have their own policies and laws (*Appendix 6*), which provide the basis for management, development and conservation of forests and its resources. Nevertheless, the 11 states in Peninsular Malaysia adhere to the National Forestry Policy (NFP) 1978 (Revised 1992) and National Forestry Act (NFA) 1984 (Amended 1993) (Jomo et al, 2004).

Under the legislative schemes of the National Land Code, land in Peninsular Malaysia, Sabah and Sarawak consists of either ‘*alienated land*’, which has been privatised for certain uses like agriculture, industries and building; or ‘*State land*’, which is put under the jurisdiction of state governments. However, forest reserves are excluded from the definition of State land (FAO, 2010b; Jomo et al., 2004). The forestry legislations provided that relevant state authorities (i.e. the state forest departments) and state governments may i) gazette certain areas of State land as Permanent Reserved Forests (PRF); ii) lease out forest areas for certain activities, through use permits; and iii) give rights of entry to the local communities and the *orang asli*³ in Peninsular Malaysia and the natives of Sabah and Sarawak. Simultaneously, the state authorities also hold the power to degazette PRF and take away the rights of entry when deemed necessary due to their status as the legal guardian for the land and forests. For example, PRF can be degazetted when the forest areas are no longer required as PRF or if conversion value is higher than preserving the forests (Commissioner of Law Revision, 2006; Sarawak Chief Minister’s Office, 1998). *Appendix 7* lists the classification and definition of forest and land in Malaysia, whereas *Appendix 8* illustrates the power structure in the forest management system.

³ Indigenous people in Peninsular Malaysia are known as *orang asli* (literally meaning ‘original people’) (Jomo et al., 2004)

5.1.2 Deforestation in Malaysia

In 1990, the forest extent⁴ in Malaysia was approximately 67.8%, which was 22.38 mil. ha. out of the total land area of 33 mil. ha. The forested areas decreased to 21.59 mil. ha. in 2000 and continued to decrease to 20.89 mil. ha. and 20.46 mil. ha. in 2005 and 2010 respectively as shown in Table 4 (see also *Appendix 9*) (FAO, 2010a). At present, Malaysia has approximately 55% of its forest cover intact due to several reasons: i) enforcement of forest-related policies and laws which has put aside 43% (approximately 14 mil. ha.) of forested areas as PRF through gazettement of forests by the state governments, which is in addition to the 1.94 mil. ha. national parks and wildlife sanctuaries as shown in *Table 5*; ii) implementation of forest conservation projects like the Central Forest Spine and the Heart of Borneo, which aims to connect fragmented forests and conserve forests' biodiversity; and iii) implementation of forest management practices such as SFM, selective management system, and Malayan Uniform System together with other approaches like reforestation programmes and forest certification system (*Appendix 10*) (GOM, 2011).

Table 4. Trend in the extent of forest in Malaysia, 1990-2010 (Source: FAO, 2010a)

Forest Area ('000 ha)				Annual Change Rate					
1990	2000	2005	2010	1990 - 2000		2000 - 2005		2005 - 2010	
				('000 ha/yr)	%	('000 ha/yr)	%	('000 ha/yr)	%
22376	21591	20890	20456	-79	-0.36	-140	-0.66	-87	-0.42

Efforts to conserve the forests in Malaysia were also due to international pressures put forth by developed countries, international agencies and NGOs in the form of: i) international commitments under various multilateral environmental agreements (e.g. United Nations Convention on Biological Diversity, United Nations World Summit on Sustainable Development, and the Convention on International Trade in Endangered Species of Wild Fauna and Flora); ii) bilateral technical and financial assistance focusing on conservation projects and designation of wildlife protected areas (e.g. Colombo Plan, and Danish Cooperation for Environment and Development); and iii) pressure over unsustainable logging which pushes for forests protection and conservation (e.g. the European Union, the Netherlands and environmental NGOs) (Elagupillay, 2005).

⁴ Area of rubber plantations has been added to forest areas only for reporting to FAO Global Forest Resource Assessment. Malaysia wishes to exclude rubber plantations from its definition of forests (FAO, 2010b)

Table 5. Extent of forest and other wooded land, (Source: FAO, 2010b)

National 2010 Categories	Area (1000 Hectares)				
	1990	2000	2005	2006	2007
(a) Permanent Reserved Forest (PRF)					
- Peninsular Malaysia	4750	4800	4800	4726	4696
- Sabah	3350	3600	3600	3600	3605
- Sarawak	4500	6000	6000	6000	6000
Total PRF	12600	14400	14400	14326	14301
(b) Stateland Forest	6820	4640	4141	3529	3416
(c) National Parks and Wildlife & Bird Sanctuary	1120	1120	1120	1946	1946
Total Forested Area (a+b+c)	20540	20160	19661	19801	19663
(d) Rubber plantation	1836	1431	1229	1232	1207
Total Rubber Plantation (d)	1836	1431	1229	1232	1207
(e) Other land:					
- Oil palm	2029	3377	3802	4165	4238
- Agriculture Crops	1461	1007	959	851	844
- Urban dan Other uses	6989	6880	7204	6806	6903
Total Other Land (e)	10479	11264	11266	11822	11985
Inland water bodies	119	119	119	119	119
Total area for country	32974	32974	32974	32974	32974

Based on *Table 4*, the annual deforestation rate of for Malaysia was 0.36% for the years 1990-2000. It increased to 0.66% in 2000-2005. However, the country managed to decrease its deforestation rate to 0.42% for the years 2005-2010 (FAO, 2010a). The trend in agriculture land-use in Peninsular Malaysia for the years 1896 – 1986 was illustrated in *Figure 5 (see also Appendix 11)*. From the early 1900s to mid-1950s, the focus of land conversion was for rubber plantations, but from mid-1950s to the present, the focus shifted to oil palm plantations. This indicated a change in the commodity sector, shifting from rubber to oil palm cultivation, which was due to higher financial and economic rates for oil palm during that time (NRC, 1993). The areas for oil palm plantations expanded to 4.23 mil. ha. in 2007 from 2.03 mil. ha. in 1990, as indicated in *Table 5* (FAO, 2010b).

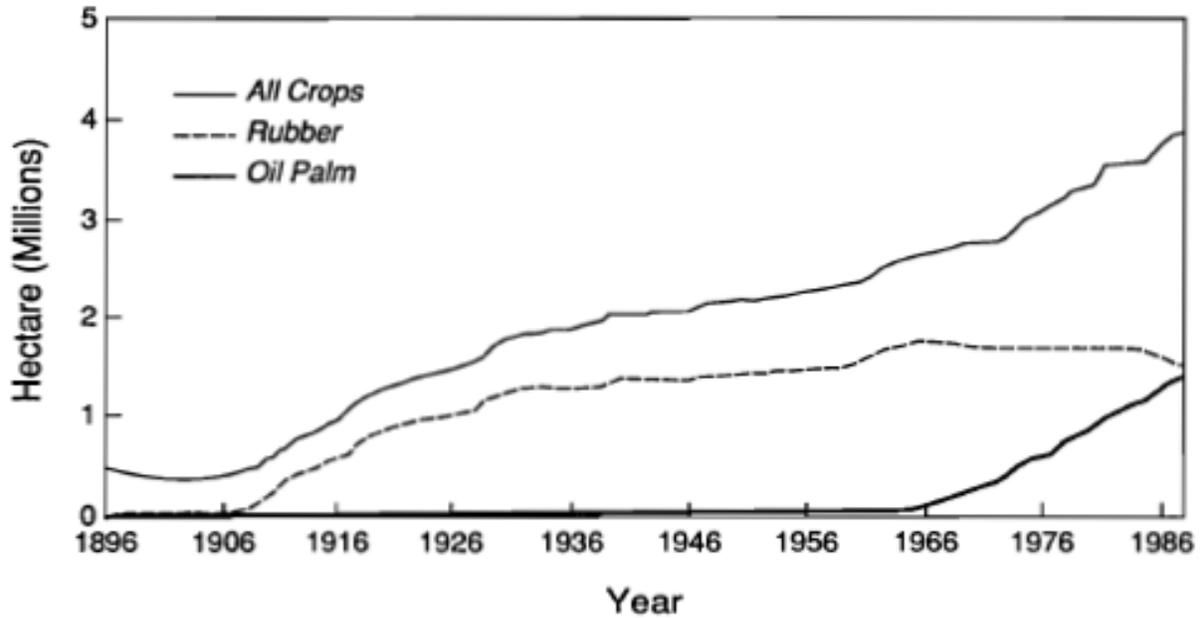


Figure 5. Trend in agriculture land-use for Peninsular Malaysia, 1896 – 1986 (Source: NRC, 1993)

The actual rate of deforestation in the region of Peninsular Malaysia, Sabah and Sarawak for the years 1980-2007 is illustrated in *Figure 6*. In general, all three regions experienced deforestation, but it appeared to be more serious in Sarawak (GOM, 2011). This could be contributed by the extensive unsustainable logging activities and clearing of peat-swamp forests for oil palm plantations happening in the state (Mongabay.com, 2013; The Economist, 2012). Jomo et al. (2004) indicated that Sarawak has lost 50% of its forest cover between 1971 and 1989. In 2012, it was reported that Sarawak has lost 90% of its primary forest and only 5% of its remaining forests can be regarded as pristine (The Economist, 2012). *Figure 6* shows that deforestation in Peninsular Malaysia and Sabah appeared to be less critical, this could be due to the scarcity of forested areas in both regions as they were heavily logged earlier (Mongabay.com, 2013; Interview, Respondent 8). Jomo et al. (2004) indicated that between 1971 and 1989 the extent of forest in Peninsular Malaysia shrunk to about half of its original amount. In the case of Sabah, Osman et al. (2012) indicated that more than 1.85 mil. ha. of its forests were lost (approximately 50% of Sabah’s total forest cover) between 1990 and 2008 due to the expansion of commercial plantations, especially oil palm.

From the interviews, all respondents acknowledged that deforestation is a problem in Malaysia even though they had different opinions regarding the level of deforestation. I quoted some as saying,

“although the rate is low at 0.7% but if it continues, we will eventually lose the forests. It is our aspiration to keep at least 50% of our forest cover” (Interview, Respondent 1). This reflected that there were concerns about the need to conserve the remaining forests in the country. However, there was one respondent that said “deforestation rate in Malaysia is not a big problem at the moment. The rate is low mainly because there is not much forest area to work on anymore” (Interview, Respondent 8). From this response, one could argue that deforestation in Malaysia was severe that there are not much forests left to be cleared, thus leading to a decline in the rate of deforestation.

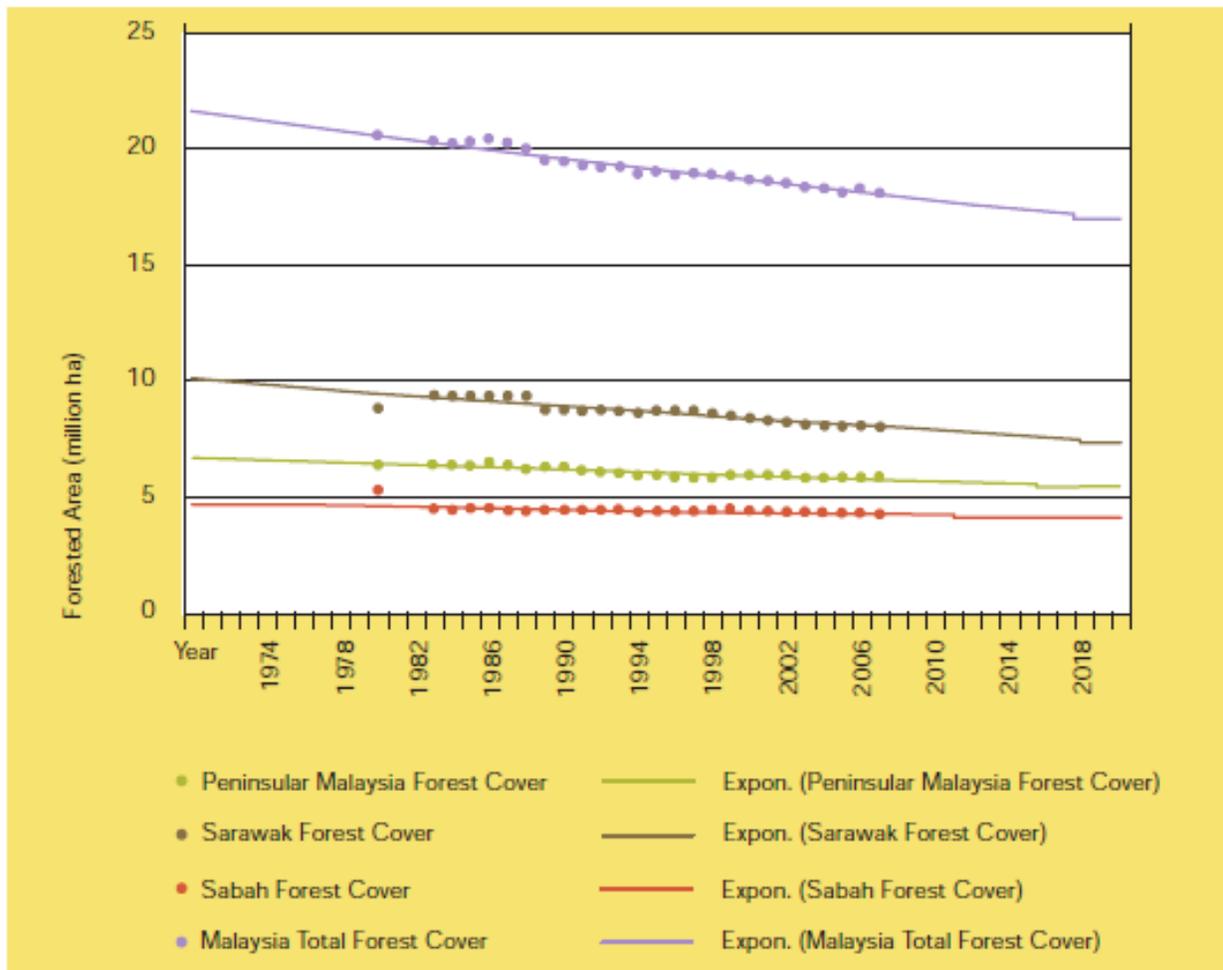


Figure 6. Actual and Projected Forest Cover for Peninsular Malaysia, Sabah and Sarawak (1980-2020)
 (Source: GOM, 2011)

5.2 Analysis based on DPSIR framework

The analysis in this section was based on *Figure 7* below. As discussed in *Section 2*, there were several drivers behind deforestation in Malaysia, some of them can be generalised but some were unique to a specific region. In the study, I focused on national development policies as the drivers of deforestation in Malaysia. The implementation of agriculture-related economic development policies has directly put negative pressure on the forests and their surrounding environment including soil, water and the atmosphere. In this situation, trade-offs between economic development and environmental quality appeared to be inevitable (Jomo et al., 2004). For example, the National Agricultural Policy 1984 that promoted agriculture and timber industries required extraction of high-value trees and land-clearing activities. These actions put pressure on the forests and its ecosystem services such as nutrient dispersal and cycling, provision of food, climate regulation and water purification. Rapid and unsustainable forest-conversion led to a state where the extent of forest cover decreased and the quality of surrounding forest areas was degraded (Laurance, 2007; Geist & Lambin, 2001).

The impacts from all these pressures (*as listed in Figure 7*) were also felt by the society and the economy. For example, loss of forests can threaten the life of the *orang asli* of Peninsular Malaysia and the natives of Sabah and Sarawak who lives far in the rural areas. These communities rely heavily on forest produce like rattan, bamboo, wood, fruits and other vegetation as the source of their income as well as for their own consumption, cooking, building shelters and for medical purposes. There were cases in Sarawak where the natives were forced to leave their homes in the forests because of logging and land clearing activities (Mongabay.com, 2013; Osman et al., 2012; Laurance, 2007). Responding to these impacts, the government of Malaysia claimed that various conservation and forest management measures including Sustainable Forest Management (SFM) have been undertaken. One of the respondents highlighted that SFM has been implemented for more than a hundred years in the country (Interview, Respondent 6). Malaysia was known for having good forest management strategies and was also frequently cited as having one of the best rainforest protection policies in developing Asia (Jomo et al., 2004). However, the country did not fully implement those strategies and unsustainable loggings were practiced even though the strategies for forest conservation and SFM were specified in the NFP 1978 and NFA 1984. It was also said that the action of declaring to have practiced sustainable forest management to the public has become a trendy thing to do (Jomo et al., 2004). One of the respondents had similar concerns about the forest management in Malaysia. He highlighted that the conservation

efforts promoted by the government of Malaysia looked ideal on paper but were weak in terms of enforcement, which is also a common problem in many countries like Brazil, Indonesia and Philippines (Interview, Respondent 5; de Figueiredo, 2007).

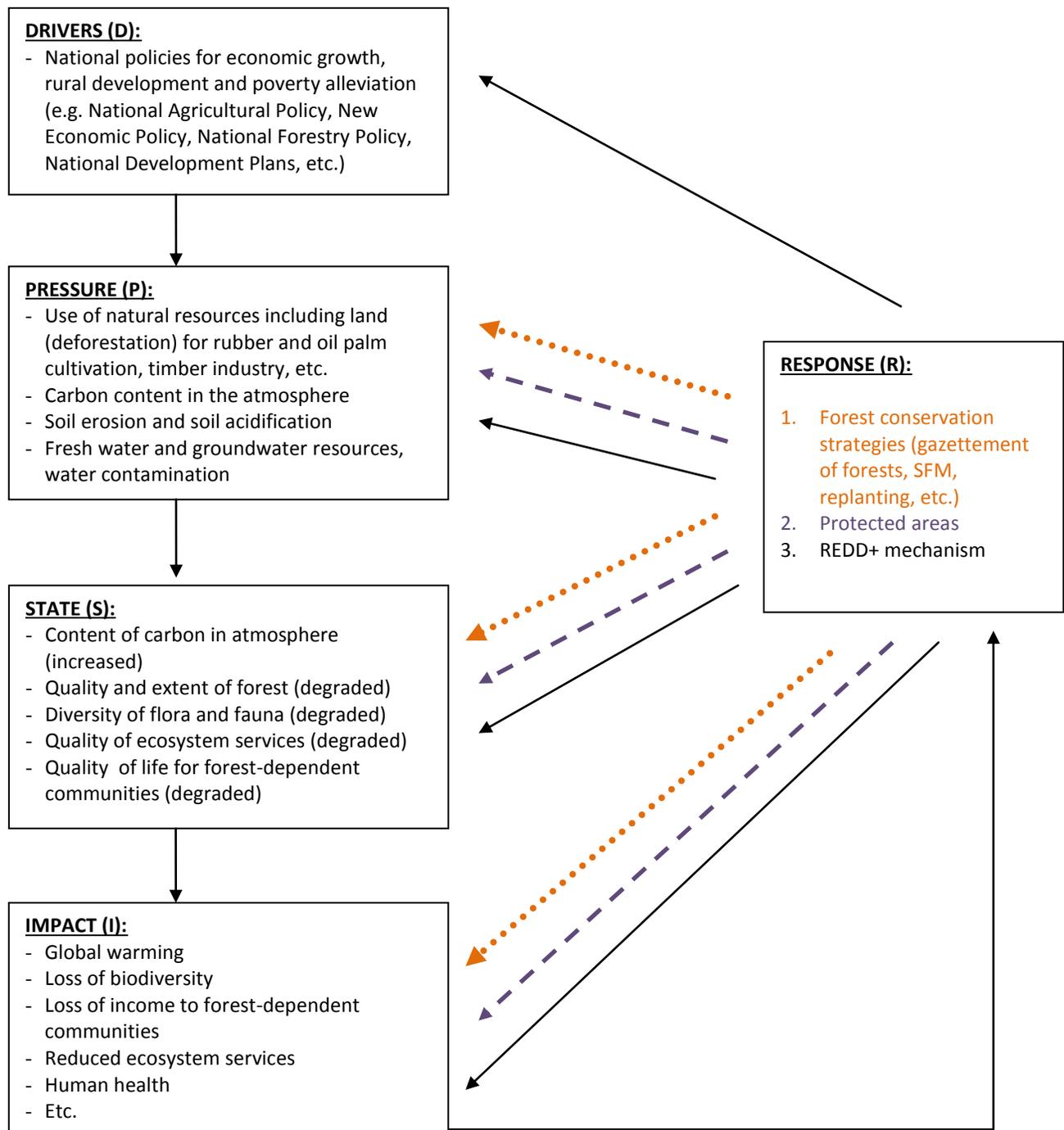


Figure 7. Adaptation of the DPSIR Framework for the case study

I listed forest conservation strategies, protected areas and REDD+ as the response strategies in *Figure 7*. The first two, which were forest conservation strategies and protected areas, are the current approaches being practiced in Malaysia, whereas REDD+ is the potential mechanism to be implemented by Malaysia in the near future. From this point onwards, I analysed how these current approaches addresses the deforestation issue and later explore whether REDD+ is a feasible mechanism to be implemented in Malaysia. The relationship of the DPSIR elements for forest conservation strategies and protected areas were illustrated in *Figure 7* by the dotted-arrows and dashed-arrows respectively.

5.2.1 Forest conservation strategies and protected areas (PAs) in Malaysia

The Malaysian Timber Council (MTC) (2007) claimed that forests have been properly managed by the state governments since the early 1900s and the various enactments and ordinances used earlier were consolidated to formulate the National Forestry Policy in 1978. The NFP's two main objectives are: i) to conserve and manage the nation's forests based on the principles of sustainable management; and ii) to protect the environment, conserve biodiversity and genetic resources, and to enhance research and education. The NFP was revised to include more requirements for SFM, which also contained recognition of the role of local communities in forest management and the establishment of forest plantations (MTC, 2007).

The overarching strategies for forest conservation are specified in the country's five-year development plan known as the Malaysia Plan as well as other relevant policies like the NFP and National Climate Change Policy. Having a dedicated chapter for the management of environment and natural resources in the Malaysia Plan indicated the importance of the environment and natural resources to the country (GOM, 2010). However, there were also disadvantages; for example, it was unlikely for those who were more interested in the economic and infrastructure development strategies to refer to the environmental management strategies. Therefore, integration of environmental-related strategies into the economic and infrastructure development planning were needed for it to be considered holistically. Mongabay.com (2013) reported that *"despite the government's pro-environment overtones, the heavy-handed Malaysian government tends to side with development more than conservation"*. For example, the 10th Malaysia Plan 2011-2015 was supposed to have streamlined climate change considerations and sustainable practices into other sectors, but this was done implicitly, while the important environmental management and climate change mitigation strategies were still being outlined in the dedicated section.

This indirectly reflected the practices in the country where sectors were considered independently and not interlinked (Interview, Respondent 5).

Besides forest conservation measures, protected areas also played important roles in fulfilling various conservation objectives and were supposed to be effective in protecting tropical biodiversity. This was due to the total protection of the forests and its inhabitants once they were designated as PAs (Minang & van Noordwijk, 2013; Elagupillay, 2005). It was also indicated that PAs can prevent land clearing and curtail logging, hunting and grazing activities in Malaysia (Elagupillay, 2005). Comparing this approach to forest conservation strategies, it appeared that designating certain areas for full protection deemed to be more effective as it is able to maintain or even increase the forest cover in the area, and took away the pressures totally, as it prohibited all extractive activities within the area (Elagupillay, 2005; Bruner et al., 2001). In that sense, PAs are able to preserve and rehabilitate the condition of the forests and its biodiversity and prevent negative impacts on the forest in the future. However, the livelihood of indigenous people and local communities who depend on the forests will be threatened because they lost access to the source of their income, as they are not granted entree into the forests (Minang & van Noordwijk, 2013). Nevertheless, this was not regarded as a critical issue because the indigenous people and local communities still have access to the surrounding forest areas and sometimes was provided with alternative options like job opportunities (Minang & van Noordwijk, 2013). So, total protection of forests is considered to be a better option than losing the forests entirely to deforestation.

However, there were evidences that PAs were not as effective as they might have seemed. Putz and Romero (2012), Minang and van Noordwijk (2013), Gaveau et al. (2007) and Laurance (2007) brought up the issue of leakage within PAs. Although they recognised that national parks and wildlife sanctuaries can slow down the rate of deforestation, they also agreed that designating forests as PAs cannot totally curb deforestation. Additionally, there were also possibilities that the establishment of PAs in one area be the cause of deforestation in other areas (Minang & van Noordwijk, 2013). Such a situation can be observed in Malaysia as well. For example, the state of Johor designated the Endau-Rompin area as a PA in 1993. However, it was found that between 1961 and 1996, the state had allocated approximately 90,000 hectares of old PAs, which were designated prior to formation of Malaysia in 1963, for logging activities and agricultural expansion (Elagupillay, 2005). This indicated that opening up forest areas for economic development was considered as more lucrative than keeping the forest intact.

Although all of the respondents recognised deforestation as a problem in the country, they also acknowledged the importance of forest and its resources to the country's economy. Most agreed that forests and their resources are still relevant in generating revenue for the country. They appeared to be optimistic with the current forests management system practiced in the country and said that Malaysia can still maintain at least 50% of its forest covers while utilising the forests' resources if the country continues to sustainably manage its forests and mainstream its importance into other sectors especially the economic sector. The importance of putting monetary value on standing forests and their ecosystem services was also emphasised by the respondents (Interview, Respondent 2/3/4/6/8/9).

However, one respondent shared his concern regarding the effectiveness of current efforts to curb deforestation. He argued that the problem of leakage happened because of the power that state government has on their forests (Interview, Respondent 5). On one hand state governments hold the power to decide whether or not they want to gazette an area as PAs or as forest reserves. And on the other hand, the state governments also hold the power to degazette any area deemed necessary for the purpose of economic development. Currently, degazettement procedures do not involve public consultation, but only relevant government agencies. Thus, it was suggested that degazettement of PAs and other forest reserves should be done in a more transparent manner and be made a public process to give opportunity to all stakeholders, especially the public, to submit their views as to whether or not a permanent reserved forest or PAs should be degazetted (Interview, Respondent 5). He added that if Malaysia aims to preserve its forests, then the country should not continue to utilise the forests extensively. At the same time, he emphasised that in order to address the drivers of deforestation, the Malaysian government needs to revamp its policies and shift away from agriculture and timber exports as a means to generate income, as there are many other sectors that can contribute to economic growth (Interview, Respondent 5). Nevertheless, another respondent had slightly different views on the forces that were driving deforestation in the country. He said that as an exporting country, Malaysia's economic and development policies were also influenced by the global economy. Thus, to stop or reduce deforestation, international market mechanisms need to be put in place and implemented. This view was also highlighted by Venter and Koh (2012) who recognised that global market demand leads to deforestation in countries that are depending on export markets.

5.3 The prospects of REDD+ to preserve the forests in Malaysia

5.3.1 *REDD+ in Malaysia*

At the national level, REDD+ in Malaysia is still at the infant stage. At present, the Ministry of Natural Resources and Environment in collaboration with the United Nations Development Programme (UNDP) is undertaking the National REDD+ Readiness project with the aim to develop a national REDD+ framework for Malaysia (UNDP, 2013). A number of stakeholder workshops have been conducted to disseminate information on REDD+ and to discuss ways for Malaysia to prepare itself in order to enable implementation of REDD+ activities in the near future (UNDP, 2013). In terms of implementation, it is anticipated that REDD+ activities will be carried-out by the respective state forestry departments based on the current best practices, for example through the gazettement of forest reserves, reforestation activities, reduced impact logging and sustainable forest management (GOM, 2012a). At the sub-national level, the state of Sabah is the only state in Malaysia that has taken its own initiative on REDD+. The main motivation for Sabah in undertaking the mechanism was due to the financial incentives for preserving the forests. Currently, Sabah has developed its REDD+ roadmap and is now developing the implementation framework for REDD+. Sabah's strategies were formulated to be in line with the national strategies to enable harmonisation of policies in the future. For setting up the readiness phase, Sabah has received funding from WWF-Malaysia and the European Union (Kugan & William, 2012).

As the mechanism is being widely discussed at the international arena, many stakeholders including Malaysia, especially the policy makers, are hopeful about the promises of REDD+. This is mainly due to the long-term consideration for forest protection and the co-benefits it brings to local communities and the environment, apart from the international long-term financing (Interview, Respondent 2). However, all respondents have their concerns about the over-ambitious aims of REDD+. How will it work in the case of Malaysia? This will be discussed further in the following sections.

5.3.2 *The challenges of REDD+ in Malaysia*

Most of the interview respondents were optimistic about the multiple co-benefits of REDD+ although they were aware of the challenges it may bring. Quoted below are some of the many responses that I received regarding REDD+ (Interview, Respondent 1/2/5/6):

“the most obvious difference between REDD+ and the current approaches is the creation of incentives.

This could be the impetus for state governments to not deforest”

“we need to improve our forest management system to be more holistic. REDD+ will help the country to improve the current system”

“REDD+ may be able to address some drivers but quite difficult when it is politically-driven”

“REDD+ is not the only tool to protect the Malaysian forests”

However, in the analysis that follows, I only focused on three main issues: i) financial resources for REDD+ activities; ii) setting-up REDD+ within the federal-state system in Malaysia; and iii) the capability of REDD+ to address drivers of deforestation.

5.3.2.1 Financial resources for REDD+ activities

Provision of international long-term financing for cutting emission from deforestation and forest degradation as well as enhancing carbon stocks, was the key feature of REDD+ that differentiated it from other earlier conservation strategies (Angelsen et al., 2012, Visseren-Hamakers et al., 2012). This has attracted not only forest-rich developing countries, but also other developing countries to embark on REDD+ activities (Minang & van Noordwijk, 2013; Cerbu et al., 2011). Was this also the case for Malaysia? It was pointed out that the performance-based incentive was the main factor that attracted Malaysia’s interest (Interview, Respondent 1/2/4/5/6/8). In Malaysia, the costs to manage forests were currently borne by the state governments as they hold full jurisdiction over forest and land matters. However, the administrative and operational costs were expensive (Interview, Respondent 2/6). For example, the operating and development expenditure for forests in Peninsular Malaysia in 2010 was *Ringgit Malaysia* RM220,866,722 (approximately US\$73,622,240), for an area of 4.92 mil. ha. (GOM, 2010b). Thus, it put the state governments in a tight spot when allocating their financial resources, whether the resources should be spent on forest management or for other expenditures (Interview, Respondent 1/2). Since forests are one of the key economic resources for the states, the state governments are more inclined to utilise it for other economic activities, rather than leaving the forests in its natural state (Interview, Respondent 1/2/3/5/6; Streck, 2012; Vatn & Vedeld, 2012). This is the

situation where the respondents see REDD+ payments as significant because it could be used as the impetus to motivate the state governments to value the standing forests (Interview, Respondent 1/2/3/5/6). However, it is important for the incentives to be higher than the market price of timber, oil palm and other forest-related produce, in order for it to be considered an attractive option (Streck, 2012).

Therefore, the federal government of Malaysia is looking at the REDD+ performance-based payments as a *'carrot'* that can be used to incentivise the state governments in keeping their forests intact (Interview, Respondent 1/2). Nevertheless, despite the explicit benefits of the performance-based payments, the Malaysian government needs to also bear several things in mind. First of all, the international long-term financing mechanism for REDD+ has yet to be established and the available fast-start finance which focused on REDD+ readiness and demonstration activities is not sufficient to support the long-term implementation of REDD+ (Minang & van Noordwijk, 2013; Angelsen et al., 2012; Pettenella & Brotto, 2012; Streck, 2012). So, if Malaysia is going to undertake REDD+ in the near future, then the country has to tap into the existing fast-start finance. However, Streck (2012) highlighted that for emerging and middle-income economies, national financing was substantial because it is likely for it to exceed the international financing for REDD+. If this were the case, then it is challenging for Malaysia to tap into the fast-start financing due to its status as an upper middle-income economy with gross domestic products (GDP) per capita of US\$9,977 for 2011, which was higher than its neighbouring countries like Indonesia (US\$3,495), Thailand (US\$4,972) and Vietnam (US\$1,407) for the same year (World Bank, 2013). Although Malaysia has been receiving financial and technical assistance from several multilateral funds like Global Environment Facility, UNDP and Association of Southeast Asian Nations, these assistances was normally dedicated for other specific projects.

Therefore, it is likely that Malaysia will have to co-finance its REDD+ activities using internal public and private sector funding or through partnership with other international or national organisations as well as bilateral assistance (Interview, Respondent 5). For example, currently Malaysia is collaborating with the UNDP-Malaysia to develop the national REDD+ framework for the country (UNDP, 2013). There are several options available for Malaysia to finance its REDD+ activities, for example through: i) public sector finance from both international (e.g. public funding, multilateral and bilateral assistance, and market-linked finance) and national (e.g. annual development budget and tax revenues); and ii) private

sector finance (e.g. private sector investment and carbon market) (Streck, 2012). Then again, if Malaysia is getting bilateral financing assistance from donor countries, Malaysia has to take full ownership and ensure that the terms and conditions put up by the funders are not interwoven with the funders' personal interests or in any way weakens the country's sovereignty. This is due to the fact that current financial assistance tend to follow the structure of official development assistance (ODA)-type financing where recipient countries are expected to adhere to certain modalities and rules set up by the funder (Streck, 2012).

Apart from the concern on the long-term international financing, there was another issue on shifting responsibility of funding from the North to South, to a '*shared responsibility*' concept, where REDD+ host countries will have to share a part of the costs incurred for REDD+ activities (Angelsen et al., 2012). This was due to: i) the inability of international financing to completely compensate REDD+ activities; ii) the fact that some developing countries have a higher GDP per-capita than some developed countries; and iii) many developing countries have made voluntary pledges to reduce their GHG emission (Angelsen et al., 2012). In this case, reasons number ii) and iii) were applicable to Malaysia since Malaysia has a higher GDP per capita (US\$9,977) than two Annex I countries namely Belarus (US\$5,820) and Romania (US\$8,874) for the year 2011 (World Bank, 2013), and the fact that Malaysia has made a voluntary pledge during the 15th COP in 2009. Based on these reasons, it is likely that Malaysia will have to take up the responsibility to co-finance REDD+ activities as well. Therefore, in reality it makes not much difference whether forests are protected with or without REDD+ because either way, Malaysia may have to co-finance their initiatives (Interview, Respondent 5). At the same time, the difficulties to secure enough funding to implement REDD+ activities at the national level will be a challenge for the country (Interview, Respondent 8).

Secondly, REDD+ performance-based payments will only be delivered to the host country after results were achieved. This was the concern raised by some of the interview respondents. If the payments were delivered at a later stage, then who will bear the high initial and transaction costs involved, especially when financial resources of the states are limited (Interview, Respondent 5). This may be one of the risks that Malaysia has to bear. Apart from that, the state governments may expect to receive a portion of payments in advance, at least for the foregone opportunity costs that they incur (Interview, Respondent 9). The delivery of payments are essential, taking into consideration the time horizon of

REDD+ projects, which is 20-30 years; and the high preparation costs involved prior to implementation of REDD+ activities like forest economic evaluations, establishment of information systems and capacity building (Streck, 2012; Venter & Koh, 2012). However, as REDD+ evolved, this is not much of a concern any longer. There are opportunities where host countries can negotiate with their respective funders for advance payments or progress payments based on the reduced amount of emissions at certain milestones (Streck, 2012).

Thirdly, the performance-based incentives have to be higher than, or at least the same with, the financial benefits gained from forest conversion or the market price for timber and oil palm in order to make it attractive (Venter & Koh, 2012). This is because it is generally more profitable to convert forests for economic uses other than preserving it in its natural state (Streck, 2012). Malaysia needs to calculate the opportunity costs for each state and evaluate all of its forests, together with its biodiversity's worth and ecosystem services, in order to see the real value of standing forests. However, undertaking these studies requires more time and financial resources. Nevertheless, even if this information was made available, uncertainties in terms of expected payments will still exist especially if it relies on market-based mechanisms. This is due to the fluctuation in carbon pricing which usually depends on the supply and demand of carbon credits in the market and also on the amount of carbon emission reduced at the end (Streck, 2012; Venter & Koh, 2012).

Fourthly, the Malaysian government has to bear in mind that REDD+ payments were not meant for conservation activities, but is for the reduced carbon emission that would not happen if not for REDD+ (Angelsen et al., 2012, Vatn & Vedeld, 2012). Streck (2012) indicated that there may be problems concerning payments if the REDD+ incentives were targeted for conservation activities because the reduced carbon emissions may not be seen as additionality from avoided deforestation. Although indirectly the payments or the '*carrot*' will support conservation of forests, but it has to be accompanied with a bunch of '*sticks*', which is the prerequisites specified in the Cancun Agreement or in the agreement between the funder and host country (Interview, Respondent 3/5).

5.3.2.2 Challenges in setting-up REDD+ within the Federal-State system

The key challenges to set-up REDD+ in Malaysia will be discussed in two parts: i) legal framework; and ii) power sharing.

5.3.2.2.1 Legal framework

Prior to the implementation of REDD+ activities, Malaysia needs to develop national REDD+ strategies and fulfil the prerequisites specified in the Cancun Agreement. “*National ownership of the REDD+ policy process*” together with clear regulatory framework, law enforcement and good forest governance are very important in ensuring the success of REDD+ as well as bringing transformational changes to a country (Angelsen et al., 2012, p.xiv; Pettenella & Brotto, 2012). However, for a federal-state country like Malaysia, this will be a challenge because it involves the power of the state governments and participation of local institutions (Interview, Respondent 5). The attempt to set-up the national policy or law for REDD+ will create vertical tensions between the federal government and the state governments (Interview, Respondent 1/2/3/5/6/9). Although the federal-state system in Malaysia seems to be similar to the concept of decentralisation, it is different in the way that it is instituted under the Federal Constitution and the distribution of powers are based on the power of each state prior to formation of Malaysia (Elagupillay, 2005). So, when it comes to the jurisdiction over forest and land matters, the state governments hold exclusive power including legislating and enforcing related policies and laws (GOM, 2012b).

The current laws of Malaysia neither contain explicit provisions related to REDD+ nor prohibit such activities. However, to enable implementation of REDD+ activities and market transactions in Malaysia, a National REDD+ Policy or a specific REDD+ law or amendments to relevant laws are needed (Interview, Respondent 1/2/3). But, the question is, who holds the responsibility to make the law. On one hand, if REDD+ is link to land and forest matters, or even if it is considered as a new matter of its own, where it is not specified in any of the Legislative List (*see Appendix 3*), then the respective state governments hold the responsibility to make and enforce REDD+ law (Article 74(2) of the FC), unless they requests the Parliament’s intervention (Article 76(1) (c) of the FC). On the other hand, if REDD+ is taken as a matter of international obligation under specific treaties, agreements and conventions where Malaysia is a party, as specified in Article 76(1) (a) of the FC, or taken as national development matters, as specified in Article 92, then the federal government through the Parliament can intervene and have the power to

make and enforce the REDD+ law. Nevertheless, Article 74(1) and 74(2) gives the power to the Parliament and the State Legislature respectively, to make laws for matters specified in the Concurrent List of the FC (GOM, 2012b). Even if the federal government intervene based on Article 76(1) (a), Article 92 or article 74(2), there will still be some kind of political resistance from the state governments (Interview, Respondent 2). This is due to several reasons: i) forests and land matters are exclusively under state jurisdiction; ii) it could be seen as a threat to the states because forests are their economic assets; and iii) the state governments will need to revise their development priorities and planning in order to give way for REDD+ activities (Interview, Respondent 1/2/3/5; Elagupillay, 2005; Jomo et al., 2004).

5.3.2.2.2 *Sharing of power*

The state governments may also resist the federal government's intervention because they do not want to share their power with the federal government (Elagupillay, 2005). For example, the Protection of Wildlife Act 1972 and the National Parks Act 1980 were legislated by the federal government based on Article 74(2) of the Federal Constitution, where the matters of wildlife and national parks are listed under the Concurrent List. However, both laws did not get much support from state governments due to several reasons (Elagupillay, 2005). Firstly, the state governments were reluctant to cooperate and share their powers with the federal government. Secondly, designating protected areas under the federal law means that the state government would have to give up certain areas of forested land to the federal government (Elagupillay, 2005). These were great concerns for the states because they view land and forests as their economic resources and creators of job opportunities for their citizens. Thus, if the state governments hand-over a certain amount of forested areas to be totally protected under the federal law, this would mean that they lose a portion of their revenue (Jomo et al., 2004). If resistance from state governments happened in the case of REDD+, the implementation of REDD+ in Malaysia could be delayed and the effort to make transformational change in forest governance could be hampered as well because the state governments may resist changing their current practices due to their worries of socio-economic impacts and losing control over forest matters (Elagupillay, 2005).

Allocating certain areas for REDD+ activity affects not just the economy of the REDD+ areas and their local communities, but also downstream economic sectors and the livelihood of citizens in general (Venter & Koh, 2012). This is because forests as economic resources form the livelihood of many people

who depend on forest-related sectors. Take the oil palm industry in Malaysia as a bigger example of this situation, the industry has created 1.4 million employment opportunities in the upstream and downstream activities and contributed to about 5-6% of the Malaysian GDP. Whereas the revenue earned from oil palm exports were estimated at US\$10 billion annually (Venter and Koh, 2012). Revenue from the oil palm sector plus other agriculture sectors and timber industries are then channelled for development activities such as provision of utilities, infrastructures, education, health, and safety, which benefits the Malaysian citizens in general (GOM, 2010).

Nevertheless, the situations discussed above do not imply that REDD+ cannot be implemented within the existing federal-state system. Although vertical tensions will surface, but when the matters are eventually resolved, the implementation of REDD+ within this type of system also has its strengths (Interview, Respondent 1/2/4/6/8/9). For example, the federal-state system is important in promoting wider acceptance for REDD+ activities at the state level and simultaneously motivates state governments to be more competitive among themselves in achieving the emission reduction target and complying to the terms and conditions of REDD+ activities because they would want their efforts to be eligible for the REDD+ payments (Interview, Respondent 1; Streck, 2012; Irawan and Tacconi, 2009). The federal-state system is also seen to work in both ways. The state governments can play the role of a catalyst and put pressure on the federal government to take quick actions on REDD+ matters, whereas the federal government can play their role of a principal to monitor the compliance of REDD+ activities and coordinates at the national level (Interview, Respondent 1).

5.3.2.3 Capability to address the drivers of deforestation

In terms of the capability to address the drivers of deforestation, most respondents thought that, to some extent, REDD+ could do so (Interview, Respondent 1/2/3/4/6/7/8/9). However, one respondent appeared to be pessimistic. He said *“although it is a prerequisite for REDD+ countries to address driving forces prior to implementation, but that would be only on paper. In terms of implementation later on, we are uncertain how it will be”* (Interview, Respondent 5). He was concern on the possibility of just having a list of strategies to address the drivers of deforestation but insufficient in terms of enforcement. He added that, some drivers can be addressed, but if the deforestation is politically-driven, then it will be a big challenge for the country to address it. Such difficulties were also acknowledged by another respondent, who said that long-term measures are needed in order to address the drivers of

deforestation in Malaysia (Interview, Respondent 6). Angelsen et al. (2012) also highlighted the challenge in designing and implementing REDD+ policies that addresses the drivers of deforestation.

Venter and Koh (2012) argued that even if REDD+ could deliver its promises, it does not mean that REDD+ is able to address all the drivers of deforestation or totally stop deforestation. Countries need to be aware that deforestation is driven not only by a single force but a web of forces. Some of these drivers may be addressed and some may shift their focus to other forested areas within the country or other countries that are not tied to REDD+ terms and conditions. In this situation, it was suggested that the problem of leakage could be addressed if all developing countries participate in REDD+ (Venter & Koh, 2012). Although this idea sounds like a potential solution but it is challenging as well due to several reasons. Firstly, REDD+ is voluntary. For the case of Malaysia, the state governments have the final say whether or not they want to adopt the mechanism (Visseren-Hamakers et al., 2012; UNFCCC, 2011). Secondly, uncertainties in carbon pricing may make REDD+ appear as an unattractive option, compared to forest conversion for other economic activities (Venter & Koh, 2012). Thirdly, REDD+ can also cause socio-economic losses such as loss of economic opportunities and loss of employment in relevant downstream industries (Venter & Koh, 2012). Last but not least, initial or transaction costs for REDD+ are very high, and the promised international long-term finance is yet to be established and the current fast-start finance is not sufficient (Angelsen et al., 2012; Streck, 2012; Venter & Koh, 2012).

5.4 Forest protection without REDD+

Some of the respondents believed that REDD+ was not the only tool available that can be used to protect forests (Interview, Respondent 3/4/5/6/9). One respondent said that forests can be preserved even without REDD+, especially when the forests have been managed by the state governments through their annual development budget all these while. He added that the problem of limited financial resources could be addressed through higher distribution of tax revenues from the federal government to the state governments. The percentage of distribution to the state governments should be reasonable and realistic, taking into account factors such as the size of land areas and population (Interview, Respondent 5). Currently, the federal government has a greater advantage on the overall tax and revenue of the country as it accrues all major taxes like income and sales taxes, road taxes as well as import and export taxes. Whereas the state governments are only collecting land and municipal taxes and getting some royalties from the federal government for their timber, oil and other natural resources

(Jomo et al., 2004). Thus, with a higher income from tax revenues, the state government may not need to rely highly on forest revenue and subsequently deforestation could be avoided (Interview, Respondent 5). He also argued that if Malaysia really wants to preserve its forests, a transformational change of the forest governance is needed and the economy needs to shift away from timber industries and agriculture sector to other economic sectors.

Another respondent emphasised that *“REDD+ is not an option to protect the forests. Political will is one of the solution to conserve and protect the forests, together with strong financial and technological support from the government”*. He said that even without REDD+, the tropical forests of the country and its biodiversity will still exist because Malaysia has taken various measures to manage its forests. What is needed now, to further protect the forests and the ecosystem services it provided, is full and stringent enforcement of existing laws and regulations because the sustainable forest management strategies are already specified in these policies and laws (Interview, Respondent 6). Strong political will to change can also make the shift from forest-based economy to other economic sectors possible. This was the reason for emphasising that national ownership of REDD+ policy process was a significant factor for the success of REDD+, because without national ownership or political will, transformational change will be difficult to achieve. Without the willingness to make a change, the complex driving forces behind deforestation will not be addressed (Angelsen et al., 2012; Pettenella & Brotto, 2012; Visseren-Hamakers et al., 2012; Corbera & Schroeder, 2011; Thompson et al. 2011). Apart from that, Malaysia could also learn from countries like China, India, Republic of Korea and Vietnam that have graduated from being *“net deforesters to forest-gaining countries”* without any REDD+ incentives (Venter & Koh, 2012). However, their successes may depend on various factors and the outcome may not be the one to protect forests and their biodiversity as well as the ecosystem services, and may not be effective for mitigating climate change.

6. DISCUSSION

6.1 Can REDD+ be a feasible tool to preserve the forests in Malaysia?

The analysis indicated that the implementation of forest conservation strategies and protected areas in Malaysia were able to reduce the pressures and impacts from deforestation, however the link of these

strategies to address the drivers of deforestation was not shown. For example, the 10th Malaysia Plan for the years 2011-2015 that is driving the country's development efforts had specifically listed oil palm and agriculture, among other sectors to generate its economic growth (GOM, 2010). This may lead to expansion of existing plantation areas. Although it was also mentioned in the 10th Malaysia Plan that the economy should move away from utilisation of natural resources to an economy that is driven by productivity and innovation, but this was only mentioned briefly (GOM, 2010). Thus, it appears that the need to implement conservation policies and measures minimally influence the economic development strategies in Malaysia.

In terms of the capability of REDD+ to address the driving forces of deforestation in Malaysia, it is uncertain how it will be at this stage, but the analysis suggested that REDD+ seems to be able to address some of the drivers. Nevertheless, it must be supported by strong political will and national ownership of the REDD+ policy process. From the analysis, REDD+ appears to be far more complex and challenging. It was not just about forest conservation or emission reduction but it involves other issues within the country such as forest governance, financial resources, political structure and many more. Financing REDD+ activities will be a long-term challenge for Malaysia, especially when the country's eligibility to tap into the existing fast-track finance is limited due to its status as an upper middle-income economy. Furthermore, the analysis gave the impression that Malaysia may need to co-finance the implementation of REDD+ activities in the country right from the start, like what is currently on-going in preparing for the readiness phase. This is due to the development of REDD+ discussion at the international arena where the burden of financing REDD+ is partly being shifted to the host-countries.

Overall, the findings suggested that REDD+ can address some of the drivers of deforestation and its performance-based incentives can motivate the state governments to conserve more forest areas. Therefore, it is believed that REDD+ can be a feasible tool to protect the forests in Malaysia. However, at this point in time, it is difficult to identify or measure the effectiveness of REDD+ in preserving the forests in Malaysia. This is due to the many uncertainties discussed earlier and the fact that the REDD+ mechanism is still developing. Furthermore, the on-going REDD+ demonstration projects have yet to show any results that we could learn from (Angelsen et al, 2012; Venter & Koh, 2012).

6.2 Addressing the challenges of the Federal-State system

The analysis suggested that the resistance from the state governments in Malaysia was due to their concerns about the sharing of power and economy of the state as they regard forest resources as their economic assets. In order to address these concerns, the theory of incentives based on the principal-agent model can be applied.

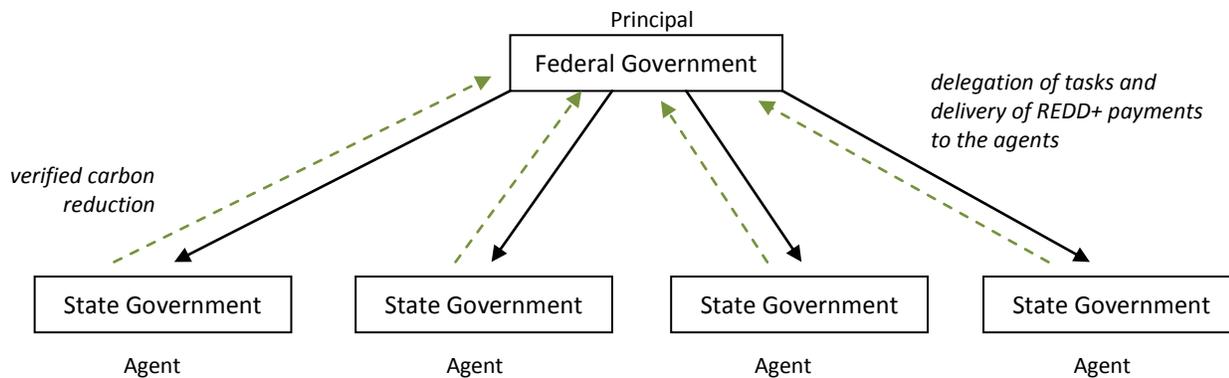


Figure 8. Adaptation of the Principal-Agent Model to the case study

The set-up of the principal-agent model in the context of Malaysia is illustrated in *Figure 8*. The federal government is to undertake two roles, as the agent in the global context and as the principal in the national context. After securing the funding for REDD+ activities, the federal government then shifts to its principal role in delegating tasks to the state governments that wish to implement REDD+ activities, as well as managing and distributing the REDD+ incentives. In general, the principal-agent model functions in the same way as discussed in *Section 4.1*. There are concerns that the principal may not have detailed information about the opportunity costs incurred or how the tasks will be implemented by the agent (Karsenty & Ongolo, 2012; Laffont & Martimort, 2002). However, at the national level context, these concerns may be minor due to two reasons. First, the federal government is the entity responsible in seeking the funds to finance REDD+ activities in Malaysia. In doing so, the federal government needs to undertake economic evaluation assessment of its forests in order to know the opportunity costs incurred by Malaysia. Thus, this means that the federal government, as the principal, will have at least rough estimates of the opportunity costs that may be incurred by each of the state government. Second, as a REDD+ country, Malaysia will have its national REDD+ strategies, which are designed and developed to guide implementation of REDD+ activities at the state level. Simultaneously, regular monitoring of

REDD+ activities will be undertaken for the purpose of reporting to the UNFCCC. So, there is little issue of not knowing how the delegated tasks will be implemented. Additionally, the processes of developing national strategies within the federal-state system are conducted with the consensus of the state governments. Therefore, the issue of diverging interests among the state governments will also be addressed.

By having this set-up, the principal must make an agreement with the agent regarding the terms and conditions of REDD+ activities. In this process, the agents have the opportunity to negotiate on the terms of payments, where they can request for advance payment or progress payments based on their performance. This process will give the assurance to the state governments that they can still generate revenue by preserving their forests. With such assurance, the state governments will feel more secure and thus may not be putting up resistance to the implementation of REDD+ activities in Malaysia.

6.3 Recommendation

REDD+ was developed by putting several existing forest management approaches together under one big umbrella. Hence, when the aim is to protect forests, there are many other tools available for that purpose, like gazettement of forest reserves and national parks. To a certain degree, REDD+ is considered as a feasible tool in preserving the forests in Malaysia, and the performance-based incentives play important role in realising this. Currently, Malaysia is undertaking groundwork to prepare itself for implementation of REDD+ activities in the near future. However, considering that it is still at a very early stage, and taking into account the challenges that Malaysia may face in setting up the REDD+ legal framework, finding financial resources as well as addressing the prerequisites, it will take at least a couple of years to be completed. Therefore, it is hope within that timeframe, we will be able to see some preliminary results from the on-going demonstration projects.

Meanwhile, based on the analysis in *Section 5*, it is recommended that Malaysia starts identifying potential financing resources to fund its REDD+ activities. This is due to the time needed to find the resources and to negotiate the terms and conditions. Simultaneously, Malaysia could further strengthen its federal-state relationship to enable better coordination on matters related to forests and natural resources management. It is necessary for the federal and all the state governments to reach consensus and work together in designing and planning the overarching national REDD+ strategies to ensure

smooth and successful implementation of the activities, and to identify measures that can minimise the potential socio-economic impacts.

The findings also suggested that the Malaysian forest governance needs to be strengthened and be more transparent and credible in terms of enforcement. This, however, needs to be coupled with regular monitoring and strong political support to push the country's environmental agenda for greater actions at the ground level. Additionally, the economic development policies of the country need to place more emphasis on economic activities that produce less GHG emission from forest sectors like education, financial and services sector. Based on the analysis, there is urgent need for the federal government to commence a comprehensive economic forest evaluation in order to calculate the value of standing forests and the ecosystem services it offers. Provisions of such information together with reliable decision-making tools are important in guiding the state governments to make informed decisions in the future regarding their forests. Additionally, the Malaysian government should focus on the effort to increase awareness and build capacity at all levels, especially among the politicians, government officials and private sectors on the importance of forests and the ways degraded forests could negatively affect the country's economy.

Although these recommendations neither present new approaches nor best solutions, I believe that it is important for the recommendations to be tailored to the Malaysian context. Various measures need to be undertaken simultaneously and they need to complement each other in order to bring the desired outcomes. I hope the findings of this study can contribute to the future planning of the forest management in Malaysia, especially in the planning of the national REDD+ strategies.

6.4 Future Research

The issue of deforestation in the tropics is large and the complex driving forces behind it do not make it less complicated. Although it has been given much attention, it has yet to be fully understood in its complexity, over geographical and temporal scales. A similar situation can be applied to Malaysia's case. With the prospect of REDD+ as a new mechanism that has the potential to address deforestation, it seems that tropical deforestation may be reduced substantially. However, REDD+ itself is very complex and it is uncertain how the mechanism really works at this stage. Therefore, there are urgent needs to conduct more research in investigating the suitability of implementing REDD+ in Malaysia. For instance,

these researches should look at the evaluation of opportunity costs and other socio-economic impacts, identify ways to address the drivers of deforestation, establish the benefits of REDD+ to the *orang asli* of Peninsular Malaysia and the natives of Sabah and Sarawak, and examine other concerns related to methodological concerns of REDD+.

7. CONCLUSION

This study demonstrates that deforestation continues to be a problem in Malaysia, due to the complexity of the forces that are driving deforestation in the country. Implementation of conservation strategies can reduce the pressures and impacts of deforestation, but their capabilities in addressing the drivers of deforestation are limited. Analysis on the REDD+ mechanism suggested that the issue of financing REDD+ activities will be central to Malaysia due to the challenge in tapping into the existing fast-track finance and therefore Malaysia will need to explore other financing alternatives. Additionally, setting-up the REDD+ mechanism within the federal-state system will also be a challenging process. As shown in the analysis, Malaysia may face some resistance from the state governments due to their concerns on the interference of the federal government in state matters and the possibility of losing their power over forests. Nevertheless, although it could not be clearly specified to what extent REDD+ can be effective in protecting tropical forests at this stage, the analysis also suggested that it has the capacity to address the drivers of deforestation. However, we need to acknowledge that there is no panacea in solving complex environmental and natural resource problems, and deforestation of Malaysia's rainforest is one of those complex problems, but REDD+ can be regarded as a step in addressing deforestation in the country. Therefore, on the basis of the findings generated by this study, it is concluded that REDD+ can be a feasible tool to preserve the forests in Malaysia.

List of References

- Abdullah, S. A., & Hezri, A. A. (2008). From forest landscape to agricultural landscape in the developing tropical country of Malaysia: Pattern, process, and their significance on policy. *Springer Science +Business Media, LLC, 42, 5*, 907-917.
- Angelsen, A., Brockhaus, M., Sunderlin, W. D., & Verchot, L. V. (2012). *Analysing REDD+: Challenges and choices*. CIFOR, Bogor, Indonesia.
- Asian Development Bank. (2010). *National REDD+ Strategies in Asia and the Pacific: Progress and Challenges*. Mandaluyong City, Philippines.
- Atkins J. P., Burdon D., Elliott M., & Gregory A. J. (2011). Management of the marine environment: Integrating ecosystem services and societal benefits with the DPSIR framework in a systems approach. *Marine Pollution Bulletin, 62*, 215–226, doi: 10.1016/j.marpolbul.2010.12.012.
- Barr, C. M., & Sayer, J. A. (2012). The political economy of reforestation and forest restoration in Asia–Pacific: Critical issues for REDD+. *Biological Conservation, 154*, 9–19, doi:10.1016/j.biocon.2012.03.020.
- Bruner, A. G., Gullison, R. E., Rice, R. E., & da Fonseca, G. A. B. (2001). Effectiveness of Parks in Protecting Tropical Biodiversity. *Science, 291*, 5501.
- Bryman, A. (2012). *Social Research Methods 4th Edition*. New York: Oxford University Press
- Cerbu, G. A., Swallow, B. M., & Thompson, D. Y. (2011). Locating REDD: A global survey and analysis of REDD readiness and demonstration activities. *Environmental Science & Policy, 14*, 168-180, doi:10.1016/j.envsci.2010.09.007.

- Commissioner of Law Revision. (2006). *Laws of Malaysia: Act 313 - National Forestry Act 1984, Incorporating All Amendments up to 1 January 2006*. The Authority of the Revision of Laws Act 1968, Malaysia: Percetakan Nasional Malaysia Bhd.
- Corbera, E., & Schroeder, H. (2011). Governing and implementing REDD+. *Environmental Science & Policy*, 14, 89-99, doi:10.1016/j.envsci.2010.11.002.
- de Figueiredo, C. C. M. 2007. From paper parks to real conservation: Case studies of national park management effectiveness in Brazil. The Ohio State University. United States.
- Elagupillay S. T. (2005). Conceptualizing Protected Area Policy for Peninsular Malaysia: A Case Study of Land-based Protected Area Designation. University of Idaho, United States.
- Food and Agriculture Organization of the United Nations, United Nations Development Programme, & United Nations Environment Programme. (2011). *Support to National REDD+ Action: Global Programme Framework 2011-2015*, UN-REDD, Adopted as of 9 August 2011.
- Food and Agriculture Organization of the United Nations^a. (2010). *Main Report: Global Forest Resources Assessment 2010*. Fra2010/123. Rome.
- Food and Agriculture Organization of the United Nations^b. (2010). *Global Forest Resources Assessment 2010: Country Report Malaysia*. Fra2010/123. Rome.
- Gaveau, D. L. A., Wandono, H., & Setiabudi, F. (2007). Three decades of deforestation in southwest Sumatra: Have protected areas halted forest loss and logging, and promoted re-growth? *Biological Conservation*, 134, 495-504, doi:10.1016/j.biocon.2006.08.035.
- Geist, H. J., & Lambin, E. F. (2001). *What Drives Tropical Deforestation? A meta-analysis of proximate and underlying causes of deforestation based on subnational case study evidence*. LUCC International Project Office, Louvain-la-Neuve: Ciaco Printshop.

- Government of Malaysia^a. (2012). *Understanding REDD+ for Implementation in Malaysia*. Putrajaya, Malaysia, Ministry of Natural Resources and Environment.
- Government of Malaysia^b. (2012). *Federal Constitution (as at 20th February 2012)*. Kuala Lumpur, Malaysia, International Law Book Services.
- Government of Malaysia. (2011). *Malaysia Second National Communication to the UNFCCC*. Putrajaya, Malaysia, Ministry of Natural Resources and Environment.
- Government of Malaysia^b. (2010). *Annual Report 2010*. Putrajaya, Malaysia, Forestry Department Peninsular Malaysia
- Government of Malaysia^a. (2010). *Tenth Malaysia Plan 2011-2015*. Putrajaya, Malaysia, Economic Planning Unit, Prime Minister's Department.
- Haberl H., Gaube V., Díaz-Delgado R., Krauze K., Neuner A., Peterseil J., Plutzer C., Singh S. J., & Vadineanu A. (2009). Towards an integrated model of socioeconomic biodiversity drivers, pressures and impacts: A feasibility study based on three European long-term socio-ecological research platforms. *Ecological Economics*, 68, 1797-1812, doi:10.1016/j.ecolecon.2008.11.013.
- Irawan, S., & Tacconi, L. (2009). Reducing Emissions from Deforestation and Forest Degradation (REDD) and Decentralized Forest Management. *International Forestry Review*, 11(4), Commonwealth Forestry Association, 427-438, doi: [10.1505/ifor.11.4.427](https://doi.org/10.1505/ifor.11.4.427).
- Jomo K.S., Chang Y. T., Khoo K. J., with others. (2004). *Deforesting Malaysia: The Political Economy and Social Ecology of Agricultural Expansion and Commercial Logging*. London, New York: Zed Books Ltd.
- Karsenty, A., & Ongolo, S. (2012). Can “fragile states” decide to reduce their deforestation? The inappropriate use of the theory of incentives with respect to the REDD mechanism. *Forest Policy and Economics*, 18, 38–45, doi:10.1016/j.forpol.2011.05.006.

- Kristensen P. (2004). *The DPSIR Framework*. National Environmental Research Institute, Denmark.
- Laurance W. F. (2007). Forest Destruction in Tropical Asia. *Current Science*, Special Section: Asian Biodiversity Crises, *93*, *11*, 1544-1550.
- Mahanty, S., Suich, H., & Tacconi, L. (2013). Access and benefits in payments for environmental services and implications for REDD+: Lessons from seven PES schemes. *Land Use Policy*, *31*, 38– 47, doi:10.1016/j.landusepol.2011.10.009.
- Minang P. A., & van Noordwijk M. (2013). Design Challenges for Achieving Reduced Emission from Deforestation and Forest Degradation through Conservation: Leveraging Multiple Paradigms at the Tropical Forest Margins. *Land Use Policy*, *31*, 61-70, doi: 10.1016/j.landusepol.2012.04.025.
- National Research Council. (1993). *Sustainable Agriculture and the Environment in the Humid Tropics*. Washington, D. C.: National Academy Press.
- Ness, B., Anderberg, S., & Olsson, L. (2010). Structuring problems in sustainability science: The multi-level DPSIR framework. *Geoforum*, *41*, 479–488, doi:10.1016/j.geoforum.2009.12.005.
- Osman R., Phua M. H., Ling Z. Y., & Kamlun K. U. (2012). Monitoring of Deforestation Rate and Trend in Sabah between 1990 and 2008 Using Multitemporal Landsat Data. *Journal of Forest Science*, *28*, *3*, 144-151, doi: [10.7747/JFS.2012.28.3.144](https://doi.org/10.7747/JFS.2012.28.3.144).
- Ostrom, E. (2007). A diagnostic approach for going beyond panaceas. *PNAS Special Feature: Perspective, The National Academy of Sciences of the USA*, *104*, *39*, 15181–15187, doi:10.1073_pnas.0702288104.
- Phelps, J., Webb, E. L., & Agrawal, A. (2010). Does REDD+ Threaten to Recentralize Forest Governance?. *Science*, *328*, doi: 10.1126/science.1187774

- Pettenella, D., & Brotto, L. (2012). Governance features for successful REDD+ projects organization. *Forest Policy and Economics*, 18, 46–52, doi:10.1016/j.forpol.2011.09.006.
- Putz, F. E., & Romero, C. (2012). Helping curb tropical forest degradation by linking REDD+ with other conservation interventions: a view from the forest. *Current Opinion in Environmental Sustainability*, 4, 670–677, doi: 10.1016/j.cosust.2012.10.003.
- Sarawak Chief Minister's Office. (1998). *Laws of Sarawak: Forest Ordinance Chapter 126, 1958 Edition, Incorporating all amendments and modifications up to 31st July 1998*. Kuching, Sarawak: Percetakan Nasional Malaysia Berhad.
- Streck, C. (2012). Financing REDD+: matching needs and ends. *Current Opinion in Environmental Sustainability*, 4, 628–637, doi: 10.1016/j.cosust.2012.10.001.
- Thompson, M. C., Baruah, M., & Carr, E. R. (2011). Seeing REDD+ as a project of environmental governance. *Environmental Science & Policy*, 14, 100-110, doi: 10.1016/j.envsci.2010.11.006.
- Tscherning K., Helming K., Krippner B., Sieber S., & y Paloma S. G. (2012). Does research applying the DPSIR framework support decision making?. *Land Use Policy*, 29, 102– 110, doi: 10.1016/j.landusepol.2011.05.009.
- United Nations Framework Convention on Climate Change. (2012). Agenda item 5. Methodological guidance for activities relating to reducing emissions from deforestation and forest degradation and the role of conservation, sustainable management of forests and enhancement of forest carbon stocks in developing countries. Subsidiary Body for Scientific and Technological Advice Thirty-seventh session. *FCCC/SBSTA/2012/L.31*.
- United Nations Framework Convention on Climate Change. (2011). Report of the Conference of the Parties on its sixteenth session held in Cancun from 29 November to 10 December 2010. *FCCC/CP/2010/7/Add.1*

Vatn, A., & Vedeld, V. O. (2012). National governance structures for REDD+. *Global Environmental Change, Article in Press*, doi: 10.1016/j.gloenvcha.2012.11.005.

Venter, O., & Koh, L. P. (2012). Reducing emissions from deforestation and forest degradation (REDD+): game changer or just another quick fix? *The Year in Ecology and Conservation Biology, Annals of the New York, Academy of Sciences, 1249*, 137–150, doi: 10.1111/j.1749-6632.2011.06306.

Visseren-Hamakers, I. J., Gupta, A., Herold, M., Pena-Claros, M., & Vijge, M. J. (2012). Will REDD+ work? The need for interdisciplinary research to address key challenges. *Current Opinion in Environmental Sustainability, 4*, 590–596, doi: 10.1016/j.cosust.2012.10.006.

Yin, R. K. (2003). *Case Study Research: Design and Methods*, 3rd Edition. Sage Publications. Thousand Oaks.

Online resources:

Butler, R. A. (2005). Malaysia's deforestation rate increasing rapidly - 86% jump since 1990s. Accessed on May 2, 2013. Retrieved from <http://news.mongabay.com/2005/1228malaysia.html>

Economist. (2012). Deforestation in Sarawak. Log tale. A new investigation accuses HSBC of ignoring its own sustainability policies. Accessed on 29 April 2013. Retrieved from <http://www.economist.com/news/finance-and-economics/21565622-new-investigation-accuses-hsbc-ignoring-its-own-sustainability-policies-log>

Forestry Department Peninsular Malaysia. (2012). Publication Book. Accessed on May 12, 2013. Retrieved from <http://www.forestry.gov.my/index.php/en/pusat-sumber2/terbitan-jpsm.html>

Greenwood International's Blog. (2013). The Malaysian Central Forest Spine Master Plan. Accessed on 25 April 2013. Retrieved from <http://greenwoodinternational.blogspot.se/search/label/Malaysia>

GRID-Arendal. (2013). Extent of deforestation in Borneo 1950-2005, and projection towards 2020.

Accessed on 25 April 2013. Retrieved from http://www.grida.no/graphicslib/detail/extent-of-deforestation-in-borneo-1950-2005-and-projection-towards-2020_119c

Malaysian Timber Council. (2007). Malaysia Sustainable Forest Management. Accessed on February 18,

2013. Retrieved from <http://www.mtc.com.my/info/images/stories/pdf/forest-management.pdf>

Malaysian Timber Industry Board. (2013). Frequently asked questions. Timber Species. Accessed on 25

April 2013. Retrieved from

http://www.mtib.gov.my/index.php?option=com_content&view=article&id=1636&limitstart=3

Nik, A. R.. 2009. Voluntary Emission Reduction Target: What Does It Mean?. Accessed on May 13, 2013.

Retrieved from

http://www.mengo.org/resources_others/voluntary_emission_reduction_target_by_dr_rahim.pdf

Mongabay.com. (2013). Controversial Chief Minister of Sarawak asked to step down until corruption

allegations resolved. Accessed on May 2, 2013. Retrieved from

<http://news.mongabay.com/2013/0322-taib-vs-transparency-intl.html>

Sarawak Report. (2013). Global Witness say yes to Taib!. Accessed on 30 April 2013.

Retrieved from <http://www.sarawakreport.org/2013/04/global-witness-say-yes-to-taib/>

United Nations Development Programme. (2013). REDD+ : Reducing emissions from deforestation and

forest degradation. National REDD+ Readiness in Malaysia. Accessed on February 13, 2013.

Retrieved from <http://www.undp.org.my/page.php?pid=215&action=preview&menu=main>

United Nations Framework Convention on Climate Change. (2013). Methodological guidance for activities relating to reducing emissions from deforestation and forest degradation and the role of conservation, sustainable management of forests and enhancement of forest carbon stocks in developing countries (SBSTA). Accessed on February 16, 2013. Retrieved from http://unfccc.int/methods_science/redd/methodological_guidance/items/4123.php

World Bank. (2013). GDP per capita (current US\$). Accessed on May 6, 2013
Retrieved from <http://data.worldbank.org/indicator/NY.GDP.PCAP.CD>

WWF-Malaysia. (2013). The Malaysian Rainforest. Accessed on 25 April 2013. Retrieved from http://www.wwf.org.my/about_wwf/what_we_do/forests_main/the_malaysian_rainforest/

Interview resources:

Respondent 1. (2013). Interview with a senior researcher at the Forest Research Institute of Malaysia, Ministry of Natural Resources and Environment. Kepong, Malaysia.

Respondent 2. (2013). Interview with a senior officer at the Economic Planning Unit, Prime Minister's Department. Putrajaya, Malaysia.

Respondent 3. (2013). Interview with a senior officer at the Biodiversity Management and Forestry Division, Ministry of Natural Resource and Environment. Putrajaya, Malaysia.

Respondent 4. (2013). Interview with a senior officer at the Biodiversity Management and Forestry Division, Ministry of Natural Resource and Environment. Putrajaya, Malaysia.

Respondent 5. (2013). Interview with a representative from Centre for Environment, Technology and Development Malaysia (CETDEM). Petaling Jaya, Malaysia.

Respondent 6. (2013). Online interview with a senior officer at the Forest Department of Sarawak, Malaysia.

Respondent 7. (2013). Online interview with senior researcher at the Institute of Energy Policy and Research, Universiti Tenaga Nasional (UNITEN), Malaysia.

Respondent 8. (2013). Online interview with a representative from Global Environment Centre, Malaysia

Respondent 9. (2013). Online interview with a representative from Malaysian Nature Society (MNS)

Other resource (presentation slide):

Kugan, F., & William, H. (2012). *Sabah REDD+ Preparedness Roadmap*. Kota Kinabalu, Sabah, Malaysia.

Phases of forest conversion in Peninsular Malaysia, 1904-1988

The forest-conversion processes in Peninsular Malaysia was divided into three phases as follows:

- i) Rapid phase (1904-1932): 49,000 hectares per year mainly for rubber cultivation;
- ii) Slower phase (1932-1966): 24,000 hectares per year mainly for rubber cultivation; and
- iii) Most rapid phase (1966-1988): 57,000 hectares per year mainly for oil palm cultivation.

These phases were driven by the expanding sector, e.g. foreign-dominated private estates from British colonial times expanded agriculture and drove deforestation during the first phase, whereas the second phase involved independent small Malay landholders. The most rapid phase was mainly driven by the enlargement of private estates and the Malaysian New Economic Policy (NEP) 1971-1990 which aims at alleviating poverty and developing rural areas.

(Source: National Research Council, 1993; Jomo et al., 2004)

Types of timber species in Malaysia

Heavy hardwood	Chengal (<i>Neobalanocarpus heimii</i>) Balau / Selangan Batu (<i>Shorea spp.</i>) Merbau (<i>Intsia spp.</i>) Belian (<i>Eusideroxylon zwageri</i>) Resak (<i>Vatica spp. & Cotylelobium spp.</i>)
Medium hardwood	Kempas (<i>Koompassia malaccensis</i>) Keruing (<i>Dipterocarpus spp.</i>) Kapur (<i>Dryobalanops spp.</i>)
Light hardwood	Meranti (<i>Shorea spp.</i>) Rubberwood (<i>Hevea brasiliensis</i>) Nyatoh (<i>Sapotaceae spp.</i>) Ramin (<i>Gonystylus spp.</i>) Kembang Semangkuk (<i>Scaphium spp.</i>) Sepetir (<i>Sindora spp. & Copaifera palustris</i>) Tualang (<i>Koompassia excelsa</i>) Jelutong (<i>Dyera spp.</i>) Sesendok (<i>Endospermum spp.</i>) Durian (<i>Coelostegia spp. / Durio spp. / Neesia spp.</i>)
Softwood	Damar minyak (<i>Agathis borneensis</i>) Podo (<i>Podocarpus spp.</i>) Sempilor (<i>Dacrydium spp; Phyllocladius spp.</i>)

(Source: Malaysian Timber Industry Board, 2013)

Classification of forest type in Malaysia

National class	Definition
Primary	Virgin Jungle Reserves, National Parks and Wildlife Birds Sanctuary
Semi-natural	Consist of three broad forest types, namely Dipterocarp Forest, Peat Swamp Forest and Mangrove Forest.
Productive plantation	Forest plantation planted with fast-growing hardwood species, such as <i>Acacia mangium</i> , <i>Gmelina arborea</i> , and <i>Paraserianthes falcataria</i> , <i>P. merkusii</i> and <i>Araucaria</i> species. Includes Rubber Plantations.

(Source: Food and Agriculture Organization of the United Nations, 2010b)

List of Interviewee

Personal communication:

1. *Respondent 1*
Senior Research Officer
Climate Change Programme, Forestry and Environment Division
Forest Research Institute of Malaysia (FRIM)
Ministry of Natural Resource and Environment (NRE), Malaysia

2. *Respondent 2*
Director
Environment and Natural Resource Economics Section
Economic Planning Unit (EPU)
Prime Minister's Department, Malaysia

3. *Respondent 3*
Deputy Under Secretary
Biodiversity Management and Forestry Division
Ministry of Natural Resource and Environment (NRE), Malaysia

4. *Respondent 4*
Principal Assistant Secretary
Biodiversity Management and Forestry Division
Ministry of Natural Resource and Environment (NRE), Malaysia

5. *Respondent 5*
Executive Director
Centre for Environment, Technology and Development Malaysia (CETDEM)

Online (via e-mail) communication:

6. *Respondent 6*
Assistant Director
Forest Management and Planning Division
Forest Department of Sarawak, Malaysia

7. *Respondent 7*
Institute of Energy Policy and Research
Universiti Tenaga Nasional (UNITEN), Malaysia

8. *Respondent 8*
Technical Officer
Global Environment Centre, Malaysia

9. *Respondent 9*
Head of Conservation
Malaysian Nature Society (MNS)

**Did not respond for interview request:*

10. *Eco-Tourism Division*
Department of Wildlife National Parks
Ministry of Natural Resources and Environment (NRE), Malaysia
11. *Forest Sector Planning*
Sabah Forestry Department, Malaysia
12. *United Nations Development Programme (UNDP), Malaysia*
13. *Economic Intelligence,*
Iskandar Regional Development Authority (IRDA), Malaysia
14. *Sustainability Division*
Malaysia Airports Holding Berhad
15. *Environment Division*
Malaysia Airlines
16. *Civil Society Initiatives and Wildlife Conservation*
Land Empowerment Animals People (LEAP), Malaysia
17. *World Wide Fund for Nature (WWF-Malaysia)*

Interview Questions

Set 1: *Forest Research Institute of Malaysia, Ministry of Natural Resources and Environment*

1. Many other forest-rich nations are attracted to REDD+ because of its incentives. Why is Malaysia interested to embark on REDD+ activities as well?
2. In the REDD+ booklet, it was mentioned that implementation will be based on current best practices. Why?
3. Why is the country want to consider REDD+ as an option? What are its advantages compared to the current practices? Are there any concerns if we carry on through conventional approaches and without REDD+?
4. REDD+ is carbon-centric. Do you think it can achieve its other objectives like protecting the biodiversity and alleviate poverty?
5. In Malaysia, do we still have many indigenous people and local communities that are depending on forests for their livelihood?
6. What exactly is/are the key problem that Malaysia is facing that the country wants to address with REDD+? What is our priority?
7. Are there any other options to address the key problem and our priority besides REDD+?
8. There are several prerequisites that need to be fulfilled prior to implementation of REDD+ activities. What are the key challenges? Do you see the prerequisites themselves as a challenge?
9. What are the concerns we have in terms of the current federal-state system in REDD+ implementation? Do you see it as strength or weakness?
10. Can REDD+ be implemented within the existing federal-state system? How can it be harmonised later on?
11. How can we get the state governments to be in line with the national vision especially when it comes to pursuing common vision of conservation?
12. We are currently at the very early stage of preparing for REDD+ readiness. When do we foresee to undertake activities at the 2nd phase?
13. In general, what is your opinion about REDD+? Is it the appropriate tool for Malaysia in addressing our problems?

Set 2: *Environment and Natural Resource Economics Section, Economic Planning Unit, Prime Minister's Department*

1. Forests and its resources played a key role in generating income for the country especially in the 1960s-1990s. Is forest and its resources still relevant in today's economy?
2. Does the country acknowledge deforestation and forest degradation as one of the problems? How does the country address it the problem?
3. Do the current approaches help in conserving and protecting the forests? Are there any challenges and drawbacks in the current approaches?
4. What is your view on the current forest management system? Does this federal-state set-up helps in terms of managing the forests? What are the advantages and disadvantages?
5. How do you define sustainable forest management?
6. What is your view on REDD+? Can it achieve its multiple objectives especially in protecting the forests and alleviating poverty among the forest-dependent communities?
7. Do you think REDD+ could protect the forests of Malaysia? What are the advantages of REDD+ compared to the current approaches?
8. Why Malaysia is interested in implementing REDD+?
9. Malaysia is at the very early stage in REDD+. What are the challenges faced by the country?
10. What are the concerns in terms of protecting the forests or reducing carbon emission without REDD+?
11. Jurisdiction of land and forests lies exclusively with the respective states. How can the federal government get the state governments to share the same vision with the federal government?
12. This includes adoption of new policies and laws including amendments of existing laws. How can policies and laws play a role in setting up REDD+ readiness?
13. What are the implications if the federal government legislate laws via provisions under the Federal Constitution?
14. Do you think it is important to have a centralized forest management system in order to effectively implement REDD+? Can it be implemented within the current federal-state system?

Set 3: *Biodiversity Management and Forestry, Ministry of Natural Resources and Environment*

1. The country highly depended on forests and its resource to generate income for the economy. Do you think this is still relevant for today's economy?
2. Does Malaysia acknowledge deforestation and forest degradation as one of the problem faced by the country? How does it being addressed?
3. Are these approaches effective in protecting the forests? Are there any concerns regarding these approaches?
4. In the Rio Summit, Malaysia pledged to maintain at least 50% of its forest and tree cover. Can this target be attained?
5. What is unique about deforestation in Malaysia?
6. There is a study by Vincent and Hadi (1991) that says opening up land for development schemes (i.e. FELDA) was considered as one of the way to curb deforestation. What is your opinion on that?
7. What are your views on the federal-state system practiced in Malaysia especially in terms of forest management? Are there any concern regarding this system?
8. What do you think of REDD+ in general? Does it have any potential to address the issue of deforestation and also achieve its other objectives like protecting the forests and its habitat? What are the advantages of REDD+ mechanism compared to existing approach?

Set 4: *Centre for Environment, Technology and Development Malaysia (CETDEM)*

1. What do you think of the deforestation rate in Malaysia? Is it at the stage where we consider it as a big problem?
2. Deforestation will definitely threaten the biodiversity of flora and fauna, the climate, the forest-dependent communities (indigenous people and local communities) and many more. From your point of view, what is the best way for Malaysia to protect its forests together with the biodiversity as well as the livelihood of the IPs and LCs?
3. How effective are the current approaches in addressing these issues? (e.g. SFM, RIL, selective logging, forests reserve, etc. and designation of wildlife protected areas). Does it address all concerns above? What are the challenges?
4. Can these current approaches address the drivers of deforestation itself (e.g. national development policies, poverty alleviation, etc.)?
5. What do you think of the stakeholders' participation in conventional approaches? Is it sufficient?
6. Our economy is still depending on forests and its produce (e.g. timber industries). In this case, how can Malaysia ensure its forests are protected? Is it possible to utilise the forests as usual and at the same time keeping at least 50% intact, as pledged in the Rio Summit and COP15?
7. What do you think of REDD+ in general. What role does it play? Could it be the potential tool to protect the Malaysian forests?
8. Can it address the driving forces of deforestation? Can it work on its own or does it need to be synergized with current approaches? How?
9. What are the concerns regarding implementation of REDD+ in general?
10. What are the challenges that Malaysia are facing at the stage of readiness? Do you foresee future long-term challenges?
11. How do you foresee the future of Malaysian forests and biodiversity as well as IPS and LCs without REDD+?
12. And what would it be like with REDD+? What are the advantages of REDD+ that cannot be found in other approaches?
13. As you are aware, Malaysia is practicing the federal-state system, where jurisdiction of forests and land are exclusively under the purview of states. Do you think REDD+ can be implemented in our current system? How? What are the challenges?
14. How can the federal government encourage state governments to move along with the national visions of protecting forests instead of clearing them?

15. How can the sub-national REDD+ activities be harmonised later on, in order to make it as a national efforts?
16. Besides normal conservation efforts, wildlife protected areas and REDD+, do you see other options?
17. Comparing between conservation strategies, designation of totally protected areas (wildlife) and REDD+, which of these do you think could achieve the country's goal to protect the forests and its biodiversity, the IPs and LCs and still contribute to the country's economic growth? How?

Set 5: *Sarawak Forestry Department, Malaysia*

1. What do you think of the deforestation rate in Malaysia? Is it at the stage where the country considers it as a big problem?
2. From your point of view, what is the best way for Malaysia to protect its forests together with the biodiversity? What are the challenges of this approach?
3. Can current approaches like forest conservation strategies and SFM address the driving forces behind deforestation (e.g. national development policies, poverty alleviation, etc.)?
4. In terms of financing of the forest reserves or carrying out conservation activities, is it fully borne by the state government? Is there any specific fund for it?
5. How does the forest department or responsible agency monitor the conservation efforts and ensure that SFM practices, certification and other sustainable forestry measures are implemented?
6. When identifying and designating areas for the purpose of forests reserve, does the process include consultation with stakeholders?
7. If the economy is still depending on forests and its produce (e.g timber industries), then how can the country make sure the forests are protected? Is it possible to utilise the forests as usual and keeping at least 50% intact, as pledged in the Rio Summit and COP15? How?
8. What do you think of REDD+ in general. What role does it play? Could it be the potential tool to protect the Malaysian forests? Why?
9. Can REDD+ address the driving forces of deforestation (e.g. national policies, poverty alleviation, etc.)?
10. What are the concerns regarding implementation of REDD+ in general?
11. What are the challenges that Malaysia is facing at the readiness stage? What are the long-term challenges?

12. How do you foresee the future of Malaysian forests and biodiversity as well as indigenous people and local communities without REDD+?
13. And what would it be like with REDD+? What are the advantages of REDD+ that cannot be found in other approaches?
14. Do you think REDD+ can be implemented in Malaysia's current federal-state system? What are the challenges that may arise?
15. How can the federal government encourage state governments to move in line with the national visions of protecting forests?
16. Besides conservation efforts, wildlife protected areas and REDD+, do you see any other options to protect the forests?

Set 6: *Biodiversity Division, Ministry of Natural Resources and Environment, Malaysia*

1. What do you think of the deforestation rate in Malaysia? Is it at the stage where the country considers it as a big problem?
2. From your point of view, what is the best way for Malaysia to protect its forests together with the biodiversity? What are the challenges of this approach?
3. By designating wildlife protected areas, can it address the driving forces behind deforestation (e.g. national development policies, poverty alleviation, etc.)?
4. Since wildlife protected areas are totally protected and does not allow any activities to be carried out within the area, what are the implications on the forest-dependent communities. Will they lose their source of revenue? How is this being addressed?
5. In terms of financing of the protected areas, is it fully borne by the federal or state government (depending on gazette under state or federal)? Is there any specific fund?
6. Once gazetted as protected areas, does it have the potential to be converted into other use, as in the case of forests reserves, where it can be converted to other use?
7. How does the monitoring on the quality and effectiveness of wildlife protected areas being done?
8. When identifying and designating the protected areas, does the process include consultation with stakeholders?
9. Comparing wildlife protected areas with forests conservation efforts, which is more effective in protecting the forests for long term?

10. If our economy is still depending on forests and its produce (e.g timber industries), how can the country make sure the forests are protected? Is it possible to utilise the forests as usual and keeping at least 50% intact, as pledged in the Rio Summit and COP15?
11. What do you think of REDD+ in general. What role does it play? Could it be the potential tool to protect the Malaysian forests? Why?
12. Can it address the driving forces of deforestation? Can it work on its own or does it need to be synergized with current approaches? How?
13. What are the concerns regarding implementation of REDD+ in general?
14. What are the challenges that Malaysia are facing at the stage of readiness? Do you foresee future long-term challenges?
15. How do you foresee the future of Malaysian forests and biodiversity as well as indigenous people and local communities without REDD+?
16. And what would it be like with REDD+? What are the advantages of REDD+ that cannot be found in other approaches?
17. Do you think REDD+ can be implemented in Malaysia's current federal-state system? What are the challenges that may arise?
18. How can the federal government encourage state governments to move along with the national visions of protecting forests instead of clearing them?
19. Besides conservation efforts, wildlife protected areas and REDD+, do you see other options to protect the forests?

Set 7: *NGOs*

1. What do you think of the deforestation rate in Malaysia? Is it at the stage where it is consider as a big problem?
2. Do you think the current approaches Malaysia are taking to conserve its forest (i.e. forest conservation strategies – SFM, RIL, and designation of wildlife protected area) can help Malaysia maintain the remaining forests cover? Do these approaches address the issue of deforestation and its drivers directly?
3. Do you think it is possible for Malaysia to preserve its current forest cover while utilizing the forests at the same time? How?
4. As you are aware, REDD+ has multiple benefits including reducing emission, reducing deforestation, protecting biodiversity, alleviating poverty and many more. Do you think REDD+

can be an effective tool to conserve and maintain the remaining forests cover and protect biodiversity in Malaysia? How?

5. Will it address the issue of deforestation and its driving forces? And how will REDD+ benefit the indigenous people of Malaysia?
6. What are the advantages of REDD+ compared to other existing forest conservation strategies including wildlife protected areas?
7. Can Malaysia maintain its forest cover without REDD+? What other options do you think can be implemented?
8. If REDD+ were to be implemented in Malaysia, do you foresee any challenges that the country will face? What kind of challenges?
9. Do you think REDD+ can be implemented in the existing federal-state system in Malaysia? Will the state governments be interested in REDD+? What are the challenges (if any)?
10. Do you think the stakeholders' participation in Malaysia's current forest management system is sufficient? Why? Can this be addressed with REDD+?
11. In terms of financing, if Malaysia were to implement REDD+, what would be the country's potential financial resources? (Since REDD+ performance-based payment will only be paid at the later stage). Do you see this as a challenge?
12. Comparing between conservation strategies, designation of wildlife protected areas and REDD+, which of these do you think could achieve the country's goal to protect the forests and its biodiversity, the indigenous people and still contribute to the country's economic growth? Why?

Set 8: *Universiti Tenaga Nasional (UNITEN)*

1. As you are aware, REDD+ has multiple benefits including reducing emission, reducing deforestation, protecting biodiversity, alleviating poverty and many more. Do you think REDD+ can be an effective tool to conserve and help Malaysia maintain its remaining forests cover? How?
2. What are the advantages of REDD+ compared to other existing forest conservation strategies (e.g. gazettement of permanent forest reserve, sustainable management approach, replanting, and designation of wildlife protected area)?
3. If REDD+ were to be implemented in Malaysia, do you foresee any challenges that the country will face? What kind of challenges?

4. Do you think REDD+ is the appropriate tool for Malaysia to address deforestation problem in the country? How?
5. Do you think REDD+ can be implemented in the existing federal-state system in Malaysia? Will the state governments be interested in REDD+? What are the challenges (if any)?
6. In terms of financing, if Malaysia were to implement REDD+, what would be the country's potential financial resources?

Legislative List – Federal, State and Concurrent List

<p>Federal List (covers 27 headings including:)</p>	<ul style="list-style-type: none"> - External affairs, including: <ul style="list-style-type: none"> - Treaties, agreements and conventions with other countries and all matters which bring the Federation into relations with any other country; - Implementation of the treaties, agreements and conventions with other countries; - International organisations; participation in international bodies and implementation of decisions taken thereat; - etc. - Finance - Trade, commerce and industry - Welfare of the aborigines - Tourism - etc.
<p>State List (covers 19 headings including:)</p>	<ul style="list-style-type: none"> - Land including <ul style="list-style-type: none"> - Land tenure, relation of landlord and tenant; registration of titles and deeds relating to land; colonization; land improvement and soil conservation; rent restriction; - Malay reservations or, in the States of Sabah and Sarawak, native reservations; - Compulsory acquisition of land; - etc. - Agriculture and forestry, including <ul style="list-style-type: none"> - Agriculture and agricultural loans; and - Forests. - Native law and custom; the constitution, organisation and procedure of native courts, and the jurisdiction and power of such courts - etc.
<p>Concurrent List (covers 23 headings including:)</p>	<ul style="list-style-type: none"> - Protection of wild animals and wild birds; National Parks - Town and country planning - Rehabilitation of mining land and land which has suffered soil erosion - etc.

(Source: Government of Malaysia, 2012b)

Land and forest-related policies and laws

Legislation	Peninsular Malaysia	Sabah	Sarawak
Forest	<ul style="list-style-type: none"> - National Forestry Act 1984 (Amended 1993) - National Forestry Policy 1978 (Revised 1992) - Forest Rules 1985 	<ul style="list-style-type: none"> - Sabah Forestry Enactment 1968 - Sabah Forestry Policy 1954 - Forest Rules 1969 	<ul style="list-style-type: none"> - Sarawak Forest Ordinance 1958 - Sarawak Forestry Policy 1954 - Forest Rules 1962 - The Forests (Planted Forest) Rules 1997
Land	<ul style="list-style-type: none"> - National Land Code 1965 - Land Conservation Act 1960 	<ul style="list-style-type: none"> - Land Ordinance 1930 - Land Ordinance (Cap.68) 	<ul style="list-style-type: none"> - Sarawak Land Code 1958
Protected Areas	<ul style="list-style-type: none"> - Protection of Wildlife Act 1972 - National Parks Act 1980 - Taman Negara (Kelantan) Enactment - Taman Negara (Pahang) Enactment - Taman Negara (Johor) Enactment 	<ul style="list-style-type: none"> - Sabah Parks 1984 	<ul style="list-style-type: none"> - National Park and Reserve Ordinance 1998 - Wildlife Protection Ordinance 1998
Biodiversity	<ul style="list-style-type: none"> - National Policy on Biological Diversity 1998 	<ul style="list-style-type: none"> - Sabah Biodiversity Enactment 2000 	<ul style="list-style-type: none"> - Sarawak Biodiversity Centre Ordinance 1997 - Sarawak Biodiversity (Access, Collection & Research Regulations) 1998
Environment	<ul style="list-style-type: none"> - Environmental Quality Act 1974 	<ul style="list-style-type: none"> - Environment Protection Enactment 2002 - Environmental Quality Act 1974 (on brown issues) - Water Resource Enactment 1998 	<ul style="list-style-type: none"> - Natural Resources & Environment Ordinance 1997 - Water Ordinance 1994
Town and Country Planning	<ul style="list-style-type: none"> - Town and Country Planning Act 	<ul style="list-style-type: none"> - Sabah Town and Country Planning Ordinance 	
Others	<ul style="list-style-type: none"> - Aboriginal Peoples Act 1954 	<ul style="list-style-type: none"> - Native Ordinance (Sabah Cap.64) 	<ul style="list-style-type: none"> - Native Code 1992 - Native Code Rules 1996 - Native Custom Declaration 1996

(Source: Government of Malaysia, 2012a)

Classification and Definition of Forest and Land in Malaysia

Classification	Definition
Permanent Reserved Forest (sub-classes: production and protective forests)	Forested areas that are gazetted as Permanent Reserved Forest are being managed sustainably for environment and socio-economic purposes
State Land Forest	Natural and Planted forested areas outside Permanent Reserved Forest
National Parks; Wildlife and Bird Sanctuary	Protected natural forested areas designated for the protection of the environment and the conservation of biological diversity
Rubber Plantation	Areas planted with rubber tree crops
Other agriculture crops	Areas planted with agricultural crops such as oil palms, coconut, paddy, tobacco, sugar cane, cocoa, tea and coffee
Other lands	Urban, mining and others built-up areas

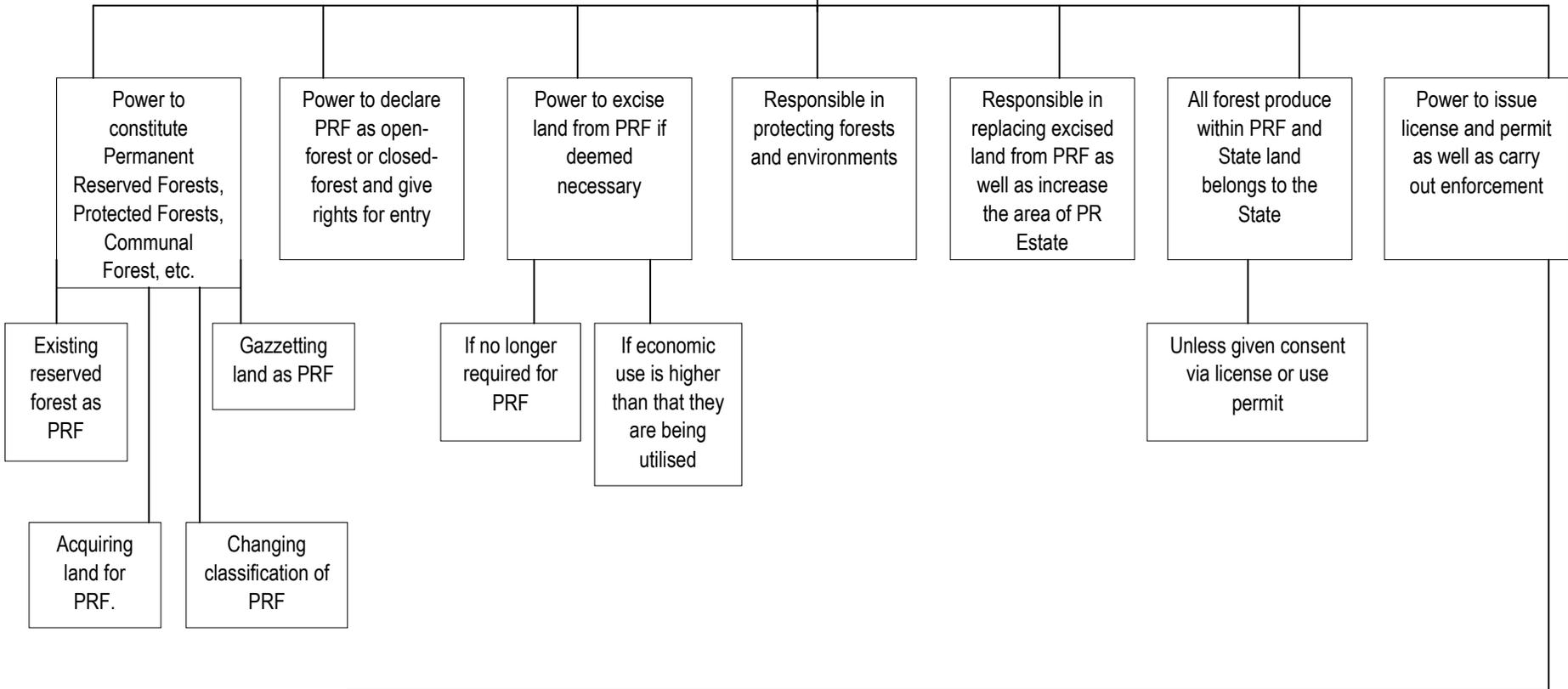
(Source: Food and Agriculture Organization of the United Nations, 2010b)

Federal jurisdiction:

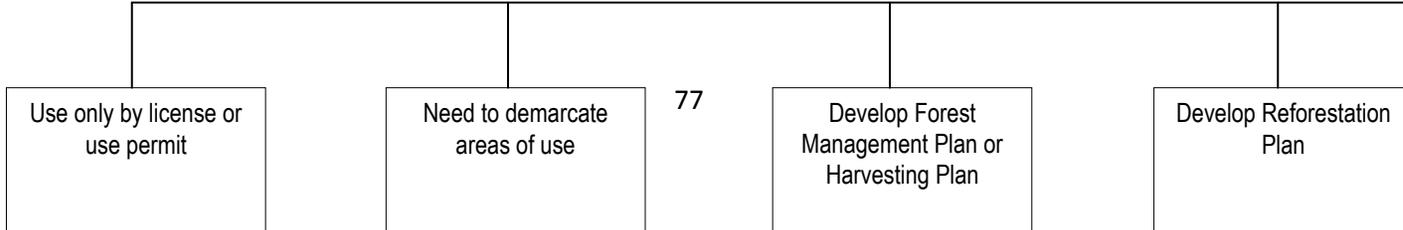
National Forestry Policy 1978 (Revised 1992)
National Forestry Act 1984 (Amended 1993)

- Provide technical advice on forest management and development
- Undertake research and development activities
- Promote industrial development of wood-based industries and trade
- National Forestry Council facilitating the adoption of coordinated and common approach to forestry

State jurisdiction:



Forests' user



Designated function for forest in Malaysia

FRA 2010 Categories	Forest area (1000 hectares)			
	1990	2000	2005	2010
Production	11 736	12 921	11 819	12739
Protection of soil and water	2 700	2 910	3 810	2694
Conservation of biodiversity	1 120	1 120	1 120	1946
Social services	0	0	0	0
Multiple use	6 820	4 640	4 141	3077
Other (please specify in comments below the table)	0	0	0	0
No / unknown	0	0	0	0
TOTAL	22 376	21 591	20 890	20456

(Source: Food and Agriculture Organization of the United Nations, 2010b)

Designated area of forest in Malaysia

FRA 2010 Categories	Forest area (1000 hectares)			
	1990	2000	2005	2010
Area of permanent forest estate	12600	14400	14400	14301
Forest area within protected areas	3820	4030	4930	4640
Forest area under sustainable forest management	12600	14400	14400	14301
Forest area with management plan	16420	18430	19330	18941

(Source: Food and Agriculture Organization of the United Nations, 2010b)

Areas reforested in Malaysia

FRA 2010 Categories	Annual forest establishment (hectares/year)			...of which of introduced species ¹⁾ (hectares/year)		
	1990	2000	2005	1990	2000	2005
Afforestation	N/A	N/A	N/A	N/A	N/A	N/A
Reforestation	989	6839	33009	940	6482	31154
...of which on areas previously planted						
Natural expansion of forest	N/A	N/A	N/A	N/A	N/A	N/A

The figures for the reporting years refer to the averages for the 5-year periods 1988-1992, 1998-2002 and 2003-2007 respectively.

(Source: Food and Agriculture Organization of the United Nations, 2010b)

Planted areas of major agricultural crops, 2000-2007

Crops \ Year	2000 (‘000 ha)	2005 (‘000 ha)	2006 (‘000 ha)	2007 (‘000 ha)
Rubber	1,344.4	1,272.6	1,263.6	1,247.4
Oil Palm	3,376.7	4,051.3	4,165.2	4,304.9
Cocoa	33.4	33.4	31.3	28.2
Paddy	698.7	666.7 (r)	676.0(r)	674.4

(Source: Government of Malaysia, 2011)

Average annual changes in rubber and oil palm areas in Peninsular Malaysia, 1900-1988

Year (Decade)	Hectares per year (1,000)	
	Rubber	Palm Oil
1900 - 1910	22	0
1910 - 1920	66	0
1920 - 1930	36	2
1930 - 1940	14	1
1940 - 1950	5	1
1950 - 1960	11	2
1960 - 1970	18	23
1970 - 1980	-3	63
1980 - 1988	-21	67

(Source: National Research Council, 1993)