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Nature For Sale But Whoôs Buying?

Biodiversity Banking in Malua, Sabah.

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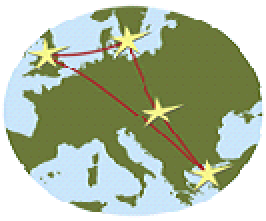

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Abstract

There is a growing shift in environmental management tools from the traditional ‘command and control’ approach to market mechanisms where environmental goods and services are assigned market values to generate incentives for environmental protection. In November 2007, the Sabah state government announced a joint venture with New Forests Pty. Ltd. to set up a Wildlife Conservation Bank at Malua Forest Reserve. In doing so, Malaysia will be the first country to sell biodiversity credits in Southeast Asia. Targeting oil palm businesses, energy companies and the biofuel sector as potential buyers of credits, it is a presumed move to improve the palm oil industry’s environmental portfolio by engaging them in conservation initiatives. This study seeks to understand how the Malua bank will be established, local stakeholder perceptions and the potential challenges and benefits of implementing biodiversity banking in Malaysia. The study was conducted based on literature review and interviews with identified stakeholders. Although there is great potential and interest for the adoption of market mechanisms in Malaysia, it was found that there are still concerns regarding the transparency, credibility and permanence of the scheme owing to a lack of legislative support and obligation for biodiversity offsets at a national or state level. Furthermore, the newness of the scheme meant that there are gaps in knowledge and expertise among local conservation groups and government agencies which may affect the outcome of the Malua bank. The final details on the bank set up are still under deliberation and will only be finalised in June 2008. As such, the conclusions of this study remain preliminary. Further work needs to be done on whether voluntary or regulatory offset schemes would work best in Malaysia and how benefits from market schemes can be passed on to local and indigenous communities in an equitable manner.

Executive Summary

The past decade has seen a steady rise in application of market mechanisms to provide payment for ecosystem services in order to generate incentives for long term environmental protection. The shift towards payments for ecosystem services (PES) is a reflection of the inadequacy of traditional ìcommand and controlî regimes to deal with environmental problems. Conservation purist may balk at the idea of putting a price on nature. However, the idea is not to put nature on sale to the highest bidder but to generate incentives that would allow say a piece of forest to compete with other alternative land use types such as oil palm plantations which are perceived to be more profitable.

In November 2007, the Sabah state government announced a joint venture with New Forests Pty Ltd, an Australian based company to set up a Wildlife Conservation Bank at Malua Forest Reserve. In doing so, Malaysia will be the first country to sell biodiversity credits in Southeast Asia. New Forests will invest an estimated USD 10 million to fund the rehabilitation and protection of the Malua reserve in return for the rights to market and sell the biodiversity credits while ownership of Malua will be retained by the Sabah government. Although said to model the United States Conservation Banking scheme in which developers are legally required to offset their activities by purchasing credits, purchase of the Malua credits is voluntary for now.

Targeting oil palm businesses, energy companies and the biofuel sector as potential buyers of the credits, it is presumably a move to improve the palm oil industryís environmental portfolio by engaging them in biodiversity conservation initiatives. Malaysia is currently the worldís largest exporter and 2nd largest producer of crude palm oil. Of late, the environmental image of palm oil has taken quite a blow with international NGOís such as Greenpeace, Friends of the Earth and Wetlands International linking oil palm cultivation with deforestation, biodiversity loss and large greenhouse gas emissions from the destruction of peatlands and forest fires. This has lead to retail boycotts of products made from íunsustainableî palm oil and the introduction of sustainability criteria on biofuel feedstock in the proposed EU Directive on Renewable Energy Resources and Fuel Quality which is seen to be extremely unfavourable towards palm oil.

The announcement of the joint venture came at a time when the Sabah Forestry Department (SFD) is undertaking huge conservation initiatives in the Ulu Segama-Malua (USM) Forest Reserve (within which the proposed bank will be located). The USM area is said to be the home to the highest population of íorang utansî in Borneo and a host to several other flagship species such as the Borneon pygmy elephant and the Sumatran rhino. However much of USM is said to be degraded due to decades of unsustainable logging prompting the Sabah state government to stop all logging activities in the area for rehabilitation purposes. Several mechanisms are currently in place such as Sustainable Forest Management (SFM) by SFD and Yayasan Sabahís INFAPRO and RIL project which generates voluntary carbon offsets credits via carbon sequestration by reforestation activities. The introduction of biodiversity banking could be a start for other similar market mechanisms to fund the rehabilitation of Sabahís forests with a potential broader application for conservation in the rest of Malaysia.

Five stakeholder groups were interviewed for this study and they are government agencies, oil palm plantation owners, investors and customers, industry organisations and environmental NGOs. Although there are worries that the purchase of credits could serve as a greenwashing tool for the palm oil sector and that balanced trade offs cannot actually be made, there is

general consensus among conservation groups that initiatives like the Malua bank could generate funds for conservation activities that would otherwise go begging. Stakeholders have also brought up concerns surrounding the issue of transparency and governance which they feel are important in increasing the credibility of the scheme. There are also mixed responses on whether the voluntary nature of the scheme. While there are some who feel that there would be sufficient demand and interest in the credits, one interviewee felt that the purchase had to be a regulatory requirement before sufficient demand can be generated. Furthermore, regulation would ensure uniformity across the board. It is also interesting to note that previous studies on biodiversity offsets and conservation banking in the United States have pointed out that regulatory obligation is a key factor in driving the demand for biodiversity credits. Although not the focus of this study, it was acknowledged that local and indigenous communities whose livelihoods depend on forests are important stakeholders and for any market mechanisms to be credible, the rights and concerns of this group should be respected. It is still unclear how (and if) benefits from the Malua scheme would trickle down to these communities.

PES mechanisms such as biodiversity offset and trading schemes are already in use in some countries such as United States, Australia, Costa Rica and Brazil, but the concept is still pretty new among government agencies, NGOs and the private sector in Malaysia. There is a great need for capacity building among the local stakeholders who are currently reliant on external expertise in PES. Although there is increasing interest in adopting more PES schemes in the future, the gaps in local knowledge and expertise have to be addressed to ensure effective implementation.

There is also concern over the extent of additionality. It is recognised that the banking scheme would result in rehabilitation of degraded forests which may or may not have been vulnerable to conversion into oil palm plantations. However, Malua Forest is a permanent forest reserve and even though it is a production forest, the area is supposed to be managed by the state so that it remains under forest cover. The question of perverse incentives arises in this case because it may enable continued unsustainable logging practices in forest reserves because the consequent degraded area can be turned into a òbankó where restoration is funded by a trading scheme. Furthermore, with banks being set up in areas that are already gazetted as a forest reserve, it does not bring any added protection to forests that lie outside state protection and these are the areas that are most vulnerable to development and conversion activities.

It remains to be seen if the Malua Wildlife Conservation Bank would be successful enough to be used as a model example for the rest of the country and perhaps the region. Voluntary biodiversity markets are still rather new and experimental and it would take considerable time and some fine tuning before it can be considered an effective conservation tool. The final details on the Malua bank set up are still under deliberation and will only be finalised in June 2008. As such, the conclusions of this study remain tentative. Further work needs to be done on whether voluntary or regulatory offset schemes would work best in Malaysia. Several voluntary carbon offset projects via carbon sequestration are already in place in Sabah and with the potential interest in REDD it could be worthwhile to conduct a comparative study on which type of scheme would work best and have the highest stakeholder acceptance.

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1 Introduction

1.1 Background and Problem Statement

Over the years there is a growing consensus to place an economic value on the environment and its services in order to better ensure their long term protection (Bayon, 2008; Jenkins, Scherr & Inbar, 2004). Nature conservation generally comes into conflicts with other land use types that are more economically attractive and as such, it needs to generate some sort of a value to make it more attractive to the alternative (Jenkins *et al.*, 2004). As Bayon puts it in his article in State of the World 2008, the current economic system advocates the removal of forests in favour of soybean and oil palm plantations.

Placing a price tag on ecosystem services may be a concept that is hard to swallow for some, as these are considered òpublic goodsó (Jenkins *et al.*, 2004). However, it has to be acknowledged that proper management of resources does come at a cost. If a landowner were to manage his property in such a way as to enhance biodiversity (and thus public benefits), he incurs all the cost privately as the beneficiaries have no incentive to compensate him for this service (Jenkins *et al.*, 2004). Nature may be priceless but as long as economic values are not attached to a species, forest or a wetland, they will be perceived as worthless in the eyes of developers (Bayon, 2008).

Based on this understanding came the development of a variety of finance mechanisms to generate funds and create incentives for environment conservation. Sometimes called ômarket creationõ, markets are established where non previously existed (Pearce, 2004) bringing about PES (payment for ecosystem services) schemes such as carbon sequestration, watershed protection, landscape beauty and more recently biodiversity conservation (Grieg-Gran & Bann)

The strong and growing interest in developing these markets can be seen as a result of the ineffectiveness of the traditional ôcommand and controlõ approach which strictly relies on government regulation, support and funding (Jenkins, Scherr & Inbar, 2004). Donation driven mechanism (especially in the developing world) is often unsustainable on both economical and environmental terms (Jenkins *et al.*, 2004). The International Institute for Environment and Development (IIED) did a study on 72 cases of markets for forest biodiversity protection services in 33 countries (mostly in Latin America and Asia Pacific). They found that the main buyers of biodiversity services were private corporations, international NGOs and research institutes, donors, governments, and private individuals while the main suppliers are communities, public agencies, and private individuals (Landell-Mills & Porras, 2002). International actors tend to focus on the most biodiverse and threatened habitats while local actors commonly focus on protecting species or habitats of particular economic, subsistence, or cultural value (Landell-Mills & Porras, 2002).

Markets for ecosystem services potentially offer a cheaper and more efficient alternative to forest conservation (Scherr, White & Kare, 2003). òCommand and controló and protected area approaches to conservation remain important tools but are inadequate due to a lack of funding to protect resources that lie outside the borders of protected areas (Scherr *et al.*, 2003). For effective conservation of a particular land to be realized, it needs to be more valuable than the alternative uses of the land and market forces provide this opportunity (Pearce, 2004, Bayon; 2008).

There is huge potential for such markets in Malaysia as the country is a major biodiversity hotspot and its forested lands are increasingly falling under the threat of conversion to agriculture and development and unsustainable timber extraction. Protection and rehabilitation of remaining forest areas require huge funds that are largely dependent on government and local and international donors. There is an increasing need to explore more self sustaining sources of funding. The state of Sabah has recently announced its intention to set up a Wildlife Habitat Conservation Bank to sell biodiversity credits to generate funds for the conservation of the Malua Forest Reserve (Muguntan, 2007) which is said to harbour about 3000 orang utans (The Star, 2007). The pilot conservation banking project will be the first to be undertaken by a Southeast Asian country. New Forests will make an initial investment of USD 10 million in the project in return for the rights to market and sell the biodiversity credits (LaFrenz, 2007). The Sabah state government retains ownership of the forest (LaFrenz, 2007).

Malaysia is currently the worldôs largest exporter and the 2nd largest producer (after Indonesia) of crude palm oil (Barrock, 2007). In 2007, both countries make up about 85 percent of global production (Yusof, 2008). In 2006, 15.9 million tonnes of palm oil was produced from plantations covering an area of 4.17 million hectares (MPOB, 2006). The industry employs about 860,000 people and contributed close to USD 9.7 billion in export earnings in 2006 (MPOC, 2007). Palm oil is the most produced plant based oil in the world (see Figure 1-1). The high demand of palm oil is driven by its wide variety of uses, such as cooking oil, cosmetic, food additives, industrial lubricants and more recently as a feedstock in biodiesel production (MPOC, 2007). Palm oil can be found in about 10 percent of food products worldwide (MPOC, 2007).

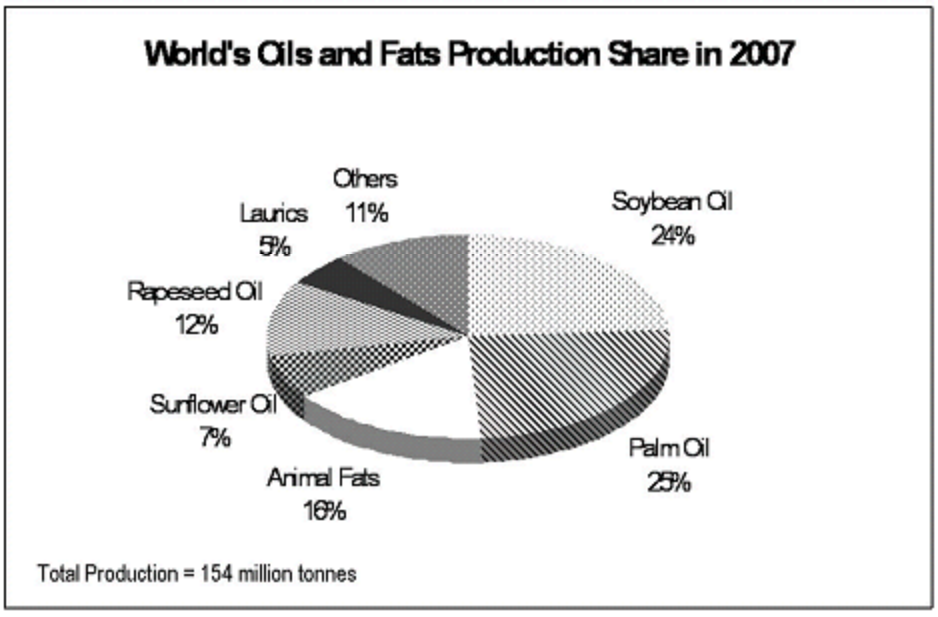

Figure 1-1: Share of Palm Oil Production in 2007 (Source: Oil World taken from MPOC website www.mpoc.org.my)

According to MPOB (Malaysian Palm Oil Board) data, less than 1 percent of palm oil produced in Malaysia is used in biodiesel production (Yusof, 2008) however with the EU setting targets for renewables and biofuels in the energy and transport sector, there is a growing market for palm oil in biodiesel production (MPOC, 2007b). Malaysia has pledged to set aside 6 million tonnes of crude palm oil (CPO) for biodiesel production and is heavily

promoting domestic production and utilisation of biodiesel (MIDA, 2006). Currently, the United States (US) and EU countries are the main customers of Malaysian palm oil for biodiesel production (see Figure 1-2).

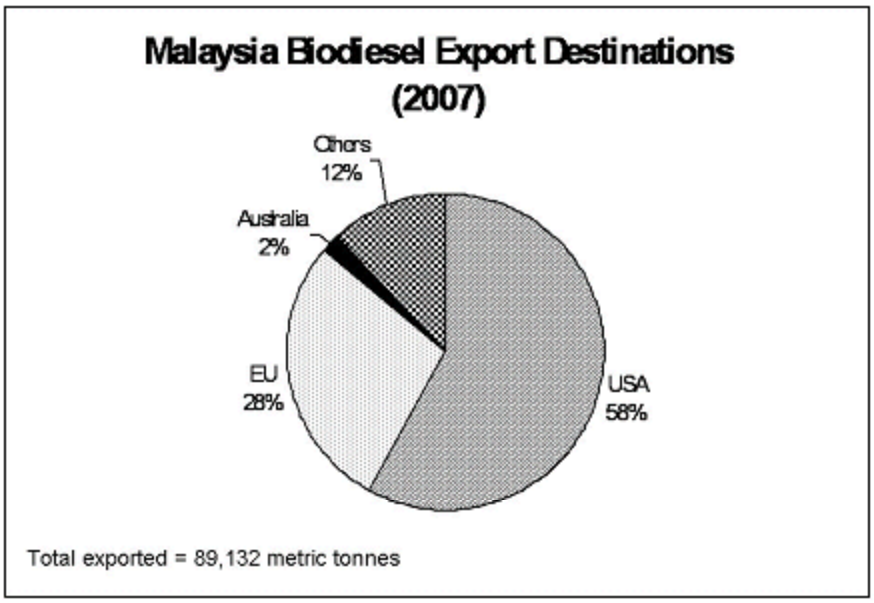

Figure 1-2: Export Destinations of biodiesel from Malaysia (Source: Yusof, 2008)

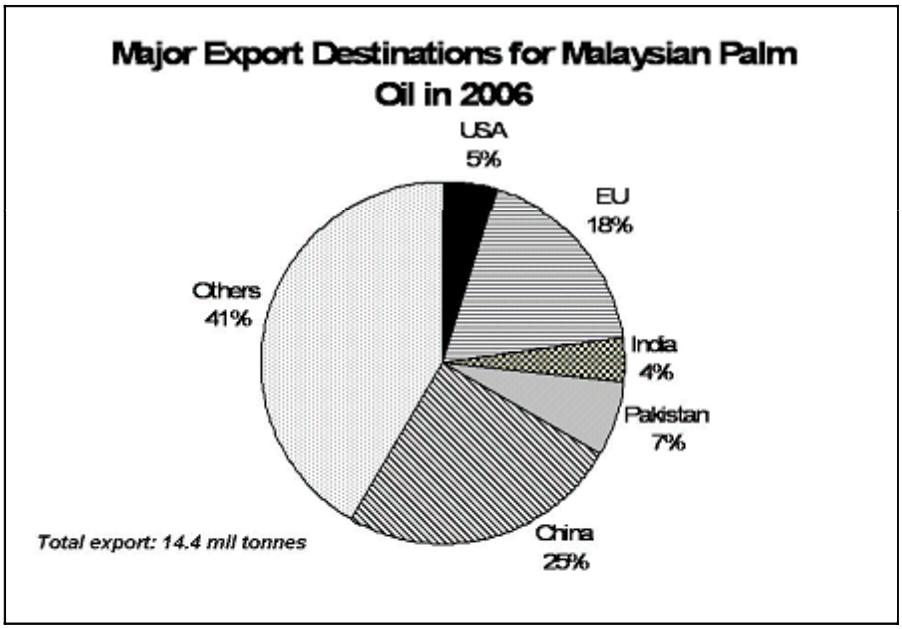

Figure 1-3 Major Export Destinations for Malaysian Palm Oil in 2006 (MPOC, 2007)

However, tapping into the growing biodiesel market is not going to be an easy task. Responding to claims made by international NGOs such as Wetlands International, Friends of the Earth and Greenpeace, EU has expressed concerns over deforestation, forest fires, loss of habitat, threat to wildlife and the expansion of monoculture at the expense of

biodiversity, commonly associated with oil palm cultivation (Guerin, 2007; Damodaran, 2007). Consequently, the sustainability criteria imposed on biofuel feedstock in the proposed EU Directive on Renewable Energy Resources and Fuel Quality is seen by the industry to be highly discriminatory and disadvantageous to palm oil production (Guerin, 2007; Damodaran, 2007; Barrock, 2007). The state of Oregon in the U.S. has legislated a ban on palm oil as a biodiesel feedstock in its biofuel programme and there are serious concerns from the Malaysian oil palm sector whether the other American states may follow suit (Yusof, 2007b).

In the past several years, both the Malaysian and Indonesian palm oil sectors have attracted vast criticism from green NGOs as the major source of deforestation and habitat loss for endangered species such as the *Pongo pygmaeus* (orang utan) (Buckland, 2005; Brown & Jacobson 2005). The negative publicity has led companies and retailers such as Sainsbury, the Body Shop and Asda to ban palm oil from unsustainable sources from their products (Benjamin, 2007; Adam, 2007). Similarly, Lush, a cosmetic company, has gone as far as announcing a total ban of palm oil in all its products (Benjamin, 2007).

Although spokespersons for the Malaysian palm oil industry remain defensive on the negative claims associated with palm oil cultivation, measures are being taken to give palm oil a greener image such as introduction of the RSPO (Roundtable on Sustainable Palm Oil) certification scheme (Barrock, 2007; Benjamin, 2007; Damodaran, 2007; Murray, 2007; Yusof, 2007a). Many may agree that RSPO certification is a step in the right direction, but it requires clear documentation and transparency along the palm oil supply chain and a study by Devisscher (2007) indicated that stakeholders remain unclear on how traceability along the supply chain can be achieved. In a very recent report, Greenpeace claimed that Unilever did not know where 20 percent of its palm oil came from and as for the remaining 80 percent, the suppliers were known but not the concession area of origin (Greenpeace, 2008).

The Chief Minister of Sabah has called on the oil palm companies and biofuel businesses to support the Malua project via the voluntary purchase of credits (Muguntan, 2007) and it can be presumed to be a move to ògreenó the image of the industry. Sabah is the biggest palm oil producing state in Malaysia accounting for over 30 percent of national output and has over 1.2 million hectares of palm oil plantations (POIC, 2007). The announcement of the Malua project came at a time when the state of Sabah is undertaking massive steps in rehabilitating large tracts of their degraded forest. The latest and biggest initiative is said to be at the Ulu Segama-Malua Forest Reserves within which the proposed Malua bank will be located (SFD, 2006, The Star, 2007b). The degradation of the forest reserves is mostly due to unsustainable logging practices, illegal logging and illegal expansion of oil palm plantations (SFD, 2006).

1.2 Objectives and Research Questions

With rising palm oil prices and increasing demand in the edible oils market along with the potentially large biofuel market, the palm oil industry will definitely grow from strength to strength (The Star, 2008). The importance of palm oil to Malaysiaôs industry is undeniable and it is likely that forest land will come under increasing pressure for conversion to oil palm plantations.

Market mechanisms that give economic value and incentives to forest conservation are crucial in making forests competitive with other land use alternatives. Although new to Malaysia and the region as a whole, the idea of biodiversity banking is a novel one and if successful, the Malua banking project can serve as a model case study for the entire region.

Thus, this study aims to answer the following research questions:

- How will the bank be set up and how will the credits be valued?
- What are the Malaysian stakeholders' perspectives on the introduction of conservation banking in Sabah?
- What are the potential benefits and challenges?

1.3 Methodology

The initial idea for this descriptive study was first conceived based on Malaysian press releases on the impending Malua bank project. The design of the thesis methodology was very much based on preliminary information released in these news articles. As such, the search for literature was based on topics relating to conservation markets, biodiversity banking, palm oil industry and forest management and land use in Malaysia. The information gathered from literature review was to serve as a foundation to understanding the key issues and experiences of market mechanisms for ecosystem services especially in relation to biodiversity banking and the potential implications on land use and oil palm cultivation in the Malaysian context. The literature review was also intended to assist in the identification of the focus and scope of this research, identification of stakeholders and the formulation of interview questions.

Literature review was largely based on information taken from published journals, books, news articles, databases and online government documents. Information was also taken from websites of environment and development related non-governmental organizations (NGOs), oil palm trade/industry associations and palm oil plantation companies. When the scheme was announced, the target market for the biodiversity credits was said to be palm oil and biodiesel companies. Therefore, the stakeholders selected for this study was based on a previous study on the Malaysian oil palm industry by Teoh (2002). Teoh had identified the key players in the oil palm industry as shown in Figure 1-4.

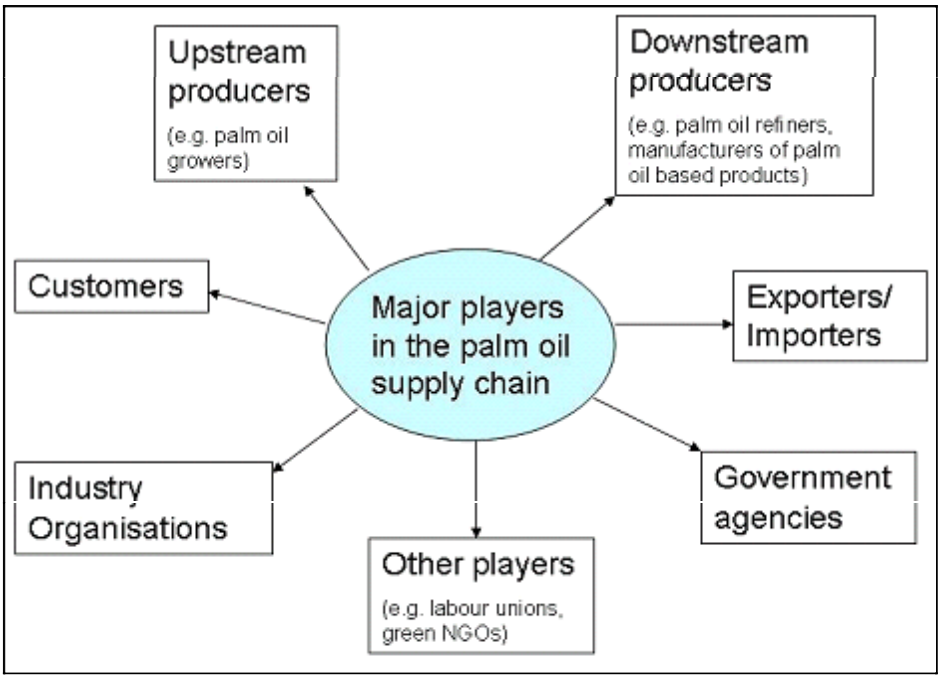

Figure 1-4: The main actors in the palm oil supply chain (Source: Teoh, 2002)

To gain a multi stakeholder view, an attempt to interview at least one representative from each stakeholder group was made. Downstream producers were excluded because many companies in Malaysia are involved in both the upstream production (cultivation and crude palm oil production) and downstream activities such as refining and manufacturing of palm oil based products. Furthermore, among the environmental impacts of the oil palm industry, this study focuses more on land use and loss of biodiversity issues and these are more relevant at the cultivation stage (upstream production). For the purpose of this study, exporters/importers stakeholder group is assumed to have a much lower impact as compared to the others and therefore excluded as well.

International organizations that have conducted studies on market mechanisms for ecosystem services and biodiversity trading schemes such as IUCN (International Union for Conservation of Nature), IIED (International Institute for Environment and Development) and GTZ (German Agency for Technical Cooperation) were also contacted. The initial intention was to conduct expert interviews but it was indicated that they (researchers contacted) did not have specific information on the developments at Malua and most of their work and experiences can be found as published articles and report anyway. Consequently, further recommendations on reading material were taken instead.

As research was not conducted in the field, in-person dialogues were not possible. Instead, semi structured interviews were made via email correspondence or phone conversations. Where possible, local (Malaysian) organizations were selected for the interviews but in the case of the customer stakeholder group, European organizations were interviewed as most of the crude palm oil produced in Malaysia is exported and the EU is one of the major buyers (see Figure 1-2 and Figure 1-3). Furthermore, with the proposed introduction of the EU directive on biofuels and the sustainability criteria on feedstock, the European market is assumed to be more sensitive to the environmental issues surrounding palm oil production.

Interview questions vary depending on the stakeholder group concerned, but the interviews attempted to examine the following issues:

- Their overall knowledge/confidence in biodiversity banking and the Malua project
- Willingness to support a biodiversity banking scheme in Sabah. Why or why not?
- Relevance of the Malua project to their business
- Challenges and opportunities
- Future application of similar projects in Malaysia

Findings from both literature review and the interviews were analysed and used as a basis for future recommendations and identification of potential areas for further research.

1.4 Limitations

At the completion of this thesis, the Malua Conservation Bank project is still in the negotiation stage. Therefore, information gathered remains tentative. Furthermore, due to the newness of the scheme, many of the interviewees that are not directly involved in the establishment of the Malua bank (such as the oil palm sector ð the intended buyers), are not well versed with the details of the project except for what is released in the press.

Actual field research was not conducted and thus the ability to reach out to more stakeholders was limited. Generally, potential interviewees are people in the top management of their respective organizations and are difficult to reach via email or phone. Response level was lower than initially expected. However, up to date conference materials relating to palm oil and sustainability are used where relevant as the speakers in these events are normally persons who are prominent in the Malaysian palm oil scene or represent huge palm oil organizations or environmental NGOs.

The study mainly focuses on the potential of PES schemes such as biodiversity banking in Sabah based on the perspectives of industry, government and local environmental NGOs. It is assumed that NGOs do consider the rights and concerns of indigenous communities given that social and environmental aspects are very much integrated in today's world. Although it is acknowledged that indigenous communities that rely on forests are stakeholders in the establishment of the Malua banking scheme, they are excluded from the scope of this study. Since data collection is done offshore via email and telephone correspondence, proper communication with indigenous communities will be problematic and therefore adequate representation of their views and perceptions may not be obtained.

2 Markets for Conservation

2.1 Market oriented approaches to environmental management

For the past two decades, interests in adopting market systems to generate economic incentives for environmental regulation have been steadily growing. The òCommand and Control (CAC) approach, traditionally relied on by governments to deal with issues such as pollution prevention, proved to be too cost ineffective due to the resources needed to regulate, monitor and enforce. The introduction of the sulphur dioxide (SO_2) òcap and tradeó program in the United States in 1990 practically revolutionized the way environmental problems concerning òpublic goodsó were managed. By placing a cap on SO_2 emissions and thereby limiting a public good (the absorption capacity of the atmosphere), the government effectively placed a price tag on a now limited resource. Emitters require a permit for each ton of SO_2 they release.

Market forces determine the lowest price of reducing emissions. Companies have the flexibility to decide the cheapest possible way to reduce their emissions (investment of advance technologies, change of fuel source, paying someone else to achieve the reductions by purchasing additional permits). The use of a market mechanism was so successful in reducing SO_2 emissions that it led to the emergence of the carbon market to tackle climate change under the Kyoto Protocol. This is known as tradable permits and can be applied to limit emissions to control air pollution or it can be to limit extraction as in the case of fishing quotas or groundwater extraction.

Other mechanisms known to generate revenue for conservation include environmental fines (e.g. water pollution fines in Brazil and Colombia) and deposit refund schemes and environmental performance bonds (Bayon, Lovink & Veening, 2000). Deposit refund schemes and pollution bonds are imposed on companies or individuals by the government as a form of liability insurance and they are usually used for extraction activities such as logging and mining to fund the rehabilitation and restoration efforts upon cessation of activities (Bayon *et al.*, 2000).

2.2 Payment for Ecosystem Services (PES)

PES is based on the principle that òthose who provide environmental services should be compensated for the cost of doing soó (Grieg-Gran & Bann 2003). The four common types of markets for ecosystem services are briefly summarised below.

2.2.1 Carbon sequestration

The signing of the Kyoto Protocol in 1997 led to the development of both regulatory and voluntary markets for carbon offsets including forest based carbon sequestration and storage. Two standard ways to increase carbon sequestration is either by the planting of new trees through afforestation, reforestation and agroforestry and the avoidance of emissions by retaining trees (avoided deforestation) (Grieg-Gran & Bann 2003). The amount of carbon in the atmosphere is a global issue and carbon is a uniform commodity (one ton of carbon dioxide is the same everywhere in the world) so it does not really matter where carbon is emitted or sequestrated and thus making it possible to trade offsets internationally. There has been two such carbon offset initiatives in Sabah, Malaysia, the INFAPRO and RIL projects which will be discussed in Chapter 4.

The next big thing for carbon sequestration market may be the REDD (reducing emissions from deforestation and degradation of forest ecosystems) initiative which gained centre stage in post Kyoto negotiations during the United Nations Conference on Climate Change in Bali, Indonesia. In support of the REDD initiative, the World Bank has set up the Forest Carbon Partnership Facility (FCPF), which is designed to facilitate a large scale system of incentives for reducing emissions via avoided deforestation and thus provide a new source of funding for the sustainable use of forest resources and biodiversity conservation (Bosquet & Aquino, 2007). The FCPF aims to develop a carbon trading system that will recognize emission reductions from avoided deforestation and forest degradation post Kyoto (after 2012). The market for such credits is projected to exceed USD 1 billion by 2014 (Bosquet & Aquino, 2007).

The implementation of policies regarding REDD requires effective deforestation measurement and monitoring systems that are consistent, accurate, reproducible and transparent to be implemented at the national level (Kanninen *et al*., 2007). Given the track record in forest governance in the five proposed candidate countries (Indonesia, Papua New Guinea, Democratic Republic of Congo, Brazil and Costa Rica) for the FCPF pilot carbon finance scheme, it is questionable if these countries can acquire the capacity to meet REDD commitments in the relatively short readiness phase set by the Bank (BIC, 2007). The baseline needs to demonstrate that the area is under threat of deforestation before credible carbon credits can be produced under the REDD program. Attention must also be given to the elimination of policies that provides perverse incentives such as reducing the costs or risks associated with deforestation or obstructing activities relating to sustainable forest management (Kanninen *et al*., 2007). Subsidies that enable forest clearing for agriculture, ranching or biofuel development to be more profitable must be removed for obvious reasons (Kanninen *et al*., 2007). Although payments would only be made out to countries that achieve emission reductions that are both measurable and verifiable, questions remain on how verification will take place and if proceeds will be channelled to poor communities and indigenous people that rely on forests for livelihood (BIC, 2007). Despite the unanswered questions, hopes are high regarding the future of REDD generated carbon credits and the market is projected to exceed USD 1 billion by 2014 (Bosquet & Aquino, 2007).

Although currently there are no plans underway for REDD in Malaysia, the Malaysian stakeholders are nevertheless supportive of the idea and are interested in looking into future possibilities of adopting REDD projects (Fletcher, Theseira & Nik, 2007). Box 2-1 summarises the latest development under REDD that is taking place in the island of Sumatra in Indonesia.

Box 2-1: The Ulu Masen Project

In light of post Bali interest in voluntary carbon offsets via avoided deforestation initiatives, Carbon Conservation and Merrill Lynch recently announced their plans to offer voluntary carbon credits generated from a massive Indonesian avoided deforestation project at the750,000 hectares Ulu Masen forest in the Aceh province of Sumatra. The project is estimated to produce up to 100 million metric tonnes of offsets over a period of 30 years. Logging at Ulu Masen is expected to be reduced by 85 % and thereby generating credits representing 3.3 million tons of carbon a year.

Local villages will receive payments once they demonstrate trees have not been logged. Progress will be monitored from the ground by forest wardens and from the air by satellite images. Payments are projected to reach USD 26 million over the first five years.

The Ulu Masen project was certified by the Climate, Community & Biodiversity Alliance, which includes non- governmental organizations such as The Nature Conservancy and the Rainforest Alliance and companies such as Intel Corp. and Weyerhaeuser Co. In the long term, project managers are looking into finance mechanisms to initiate the sustainable cultivation of palm oil, coffee and cocoa which will be marketed under the brand òAceh Greenó.

Companies may not use credits generated by avoided deforestation to meet pollution targets under the European Union's greenhouse gas program or the Kyoto Protocol.

Source: (Zwick, 2008 and Efstathiou Jr., 2008)

2.2.2 Watershed protection

The type and depth of watershed services provided by forests are site specific but in general, forests contribute to water quality protection, water flow regulation, flood prevention, maintenance of aquatic habitat and soil salinization control (Grieg-Gran & Bann, 2003). . Downstream users are generally affected by upstream activities and payment schemes have developed where downstream users (beneficiaries) pay upstream users (polluters) to protect the forests through sustainable management activities (Grieg-Gran & Bann, 2003). One example of this is the New York City watershed management programme where taxes on water users in the city are used to compensate farmers upstream who adopt best management practices for the extra cost incurred (Scherr *et al.*, 2003). In Costa Rica, a National Fund for Forest Financing (FONAFIFO) was set up in 1997 to compensate landowners and public authorities for restoration, forest management and forest conservation (Pagiola, 2002).

2.2.3 Landscape beauty

While landscape beauty is essential in capturing a market for ecotourism, payments for this ecosystem service has been underdeveloped despite it being the oldest of the four services considered in this section (Landell-Mills & Porras, 2002). Often, very little effort is used to set appropriate prices for access and participation by private and community landowners is low (Grieg-Gran & Bann, 2003). However there are those that are quick to realize their position in providing landscape services that are extremely rare such as the government of Rwanda

which introduced an entry fee if USD 250 (in the 1980s) per tourist into the home of Africa's last remaining mountain gorillas (Grieg-Gran & Bann, 2003).

2.2.4 Biodiversity conservation

Despite growing interest, the markets for biodiversity conservation remain new and experimental for most parts (Landell-Mills & Porras, 2002). There is a huge variety in the types of payments that are currently out there for biodiversity and they are indicated in the table below.

Table 2-1: Types of payments for biodiversity protection.

Type		Mechanism
Purchase of high-value habitat (explicitly for biodiversity conservation)	Private land acquisition	Purchase by private actors or NGOs
	Public land acquisition	Purchase by government agencies
Payment for access to species or habitat	Bio prospecting rights	Rights for the collection, testing and use of genetic material from a specified area
	Research permits	Rights to collect specimens, take measurements and conduct studies in a defined area
	Hunting, fishing or gathering permits for wild species	Right to hunt, fish and gather
	Ecotourism use	Rights to enter a designated area for the purpose of recreation such as wildlife observation, camping or hiking
Payment for biodiversity-conserving management	Conservation easements	Owner is paid to use and manage a defined area only for conservation purposes (usually permanent and transferable upon sale of land)
	Conservation land lease	Owner is paid to use and manage a defined land area only for conservation for a defined period of time
	Conservation concession	Public forest agency is paid to maintain a defined area for conservation purposes only.
	Community concession in public protected areas	Allocation of rights to individuals or communities to use a defined area of forest or grassland in exchange for commitment to protect biodiversity in the said area.
	Management contracts for habitat or species conservation on private farms, forests grazing lands	Contract that details biodiversity management activities and payments based on achievement of specified objectives
Tradable rights under cap-and-trade regulations	Tradable wetland mitigation credits	Purchase of credits from wetland conservation or restoration by developers to maintain a minimum area of natural wetlands in a defined region
	Tradable development rights	Development rights allocated for a limited total area of natural habitat within a defined region
	Tradable biodiversity credits	Purchase of credits representing areas of biodiversity protection or enhancement by developers to meet

		minimum requirements for biodiversity protection
Support biodiversity-conserving business	Biodiversity-friendly businesses	Business shares in businesses that manage for biodiversity conservation
	Biodiversity-friendly products	Ecolabelling

(Source: Scherr, White & Khare, 2003)

Government payment schemes are quite popular in some countries. In China, the government funded Sloping Lands Conversion Programme (SLCP) pays farmers to maintain forest cover on hillsides for watershed conservation and flood prevention leading to an overall benefit to biodiversity (Gee, 2006). Mexico has established a programme for water conservation where water users are required to pay a fixed amount which will be used to protect key forested watershed in the country (Bayon, 2008). In Australia, the BushTender and EcoTender scheme established in the state of Victoria uses a òreverse auction systemó for providing government funds to private landowners for biodiversity protection (Eigenraam, 2005). Landowners submit competitive bids for government funding to pay for improved management of their properties (Eigenraam, 2005). However, these schemes rely on money coming from government (and in some cases private donors) and the link between buyer and supplier is absent (Bayon, 2008). For example, in the case of Mexico, all Mexican water users pay a fee as a contribution to the fund that manages watershed protection but often, they are unaware of what they are paying for and the payment does not necessarily go to the watershed their water comes from (Bayon, 2008). Since these are not market based mechanisms, the price is determined by the governmentôs ability to pay rather than the market value based on supply and demand. However, despite the weaknesses, the programmes in China and Mexico have succeeded in achieving an overall increase in forest cover by creating incentives and values for biodiversity protection (Bayon, 2008).

This paper focuses on another type of ecosystem services payment, one that relies on market mechanisms, which is the trade in biodiversity credits and biodiversity offsets.

2.3 Biodiversity Offsets and the Development of Biodiversity Markets

The term òoffsetó has been widely used in emission trading schemes for greenhouse gases and sulphur dioxide (ten Kate, Bishop & Bayon, 2004). In the context of carbon trading, the emission of a ton of carbon dioxide can be offset by avoiding the release of a ton elsewhere or by removing a ton from the atmosphere.

òBiodiversity offsets are conservation actions intended to compensate for the residual, unavoidable harm to biodiversity caused by development projects, so as to ensure no net loss of biodiversityó (ten Kate *et al*., 2004). However, offsets are applicable only when the developmental activities have met the necessary requirements (legal or otherwise) and all precaution has been taken to avoid harm to biodiversity. If the damage cannot be prevented, then all viable steps have to be taken to minimize the damage before offsets should be considered (ten Kate *et al*., 2004). In other words, biodiversity offsets should be considered last in the mitigation hierarchy (Carroll, Bayon & Fox, 2008). The types of conservation activities that are included in a biodiversity offset are summarised in Figure 2-1.

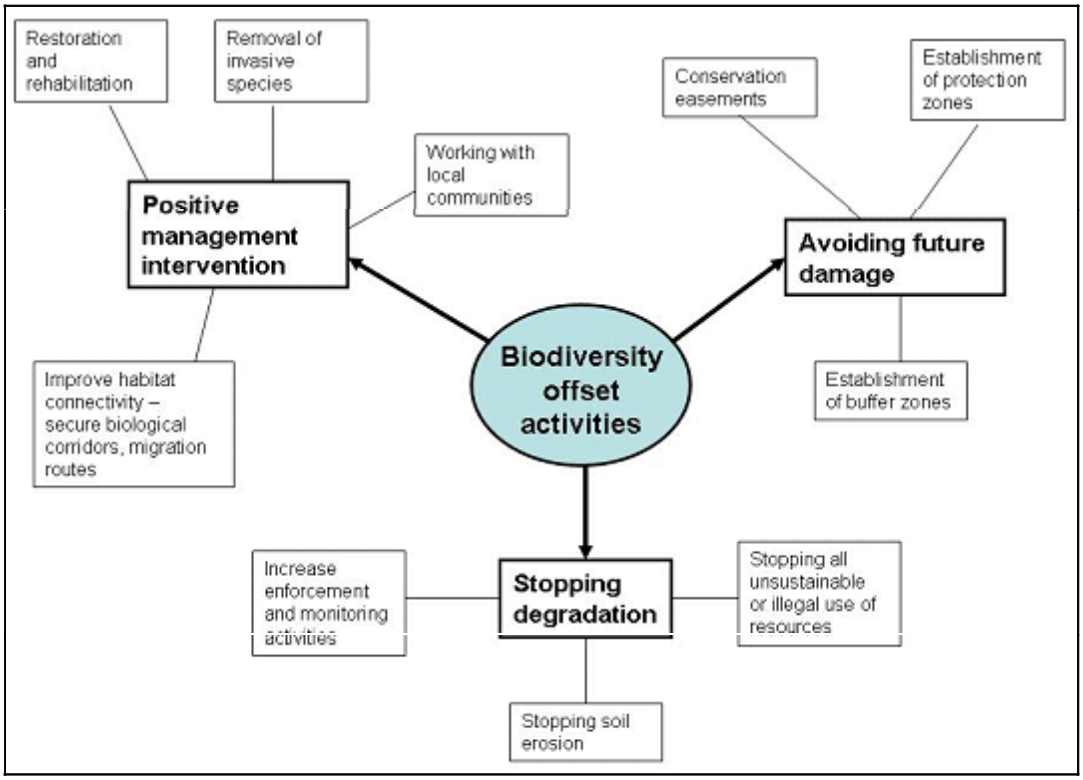

Figure 2-1: Typical conservation activities included in a biodiversity offset. (Source: adapted from BBOP, 2008 and ten Kate & Inbar, 2008)

Standard approaches to mitigating the environmental impacts caused by developmental projects have a tendency to neglect biodiversity loss, focusing instead on air and noise pollution mitigation (ten Kate & Inbar, 2008). The use of biodiversity offsets can help companies manage their biodiversity related risks more effectively, leading to a better rapport with authorities, NGOs and the community and thereby giving them a ösocial license to operateó (ten Kate & Inbar, 2008; ten Kate *et al.*, 2004). Moreover, through the sale of credits, biodiversity offsets can address funding issues that frequently plague conservation activities.

Despite the huge benefits that biodiversity offsets could potentially bring, Bishop, Kapila, Hicks, Mitchell, & Vorhies (2008) and ten Kate & Inbar (2008) pointed out some challenging issues that still need to be addressed and these are summarised as follows.

1. Will biodiversity offsets lead to approval of projects that would otherwise be rejected and therefore give developers a ôlicense to trashô?

2. How is social equity (ensuring that the rights and concerns of local and indigenous communities are properly taken care of) addressed?

3. How can a suitable offset be determined so as to ensure that they provide benefits equal to the original ecosystem?

4. Who is responsible for the offset and its evaluation? For how long should a developer be held responsible for the offset? Should developers be held accountable for indirect impacts?

5. How to ensure additionality and avoid leakage?

6. How to secure the permanence of the offset in question?

7. Should offsets be in place before the impact? How can this be done?

These challenges are widely recognised among those working with biodiversity offsets and BBOP[1] is currently working on a draft biodiversity offset design handbook to address them.

The use of mandatory biodiversity offsets are growing in popularity and examples can be found in the United States, Brazil, Canada and Australia with future possibilities in European countries under the Environmental Liability Directive that was passed in 2004 (Bishop *et al*., 2008). Legally required biodiversity offsets have been practised for almost two decades in the United States in the form of Wetlands Mitigation Banking and Conservation Banking (also known as Endangered Species Mitigation Banking) and this will be discussed further in the next section.

Unlike the carbon trading scheme, where a ton of CO_2 emitted (a homogenous commodity) can be compensated by another ton of CO_2 avoided elsewhere, biodiversity is a lot more complex. Biodiversity composition is site specific. For example, it would not make sense to offset the draining of tropical peat swamps for agricultural conversion by conserving a piece of mountainous temperate forest. Although both may be ecologically valuable, they are too different to be treated on equal terms. For this reason, the future trade of biodiversity credits in an international market is unlikely but there is still great potential for it to be a profitable business venture at local, national and corporate levels (Bishop *et al*., 2008). Recognising this, some pilot initiatives on voluntary biodiversity offsets have started to take off in countries where compensation for biodiversity loss is not legally required (Bishop *et al*., 2008; Bayon 2008). The focus of this study, the Malua Wildlife Conservation Bank, is one such initiative.

To provide some understanding on how biodiversity banking works, an overview of the conservation banking experience in the U.S. is provided in the next section.

2.3.1 Experiences in Conservation & Biodiversity Banking

Conservation banking in the United States first had its roots in wetland mitigation banking under the Clean Water Act 1972 (Mead, 2008). In the context of wetland mitigation banking, developers are required to offset their negative impacts on a wetland by the creation, restoration, enhancement, or preservation of a similar wetland habitat elsewhere (Bean *et al*., 1999). To achieve the òno net lossó goal stipulated by the policy, each hectare of damaged wetland has to be compensated by a hectare (sometimes more) of comparable wetland that is restored or recreated in a defined service area (Kate *et al*., 2004). Wetland credits are usually a measure of acreage (Weems & Canter, 1995, Bean *et al*., 1999).

Similarly, conservation banking requires that the impacts to endangered, threatened or protected species (as listed under the Endangered Species Act 1973 (ESA)) be compensated for by the purchase of credits representing either individuals or habitat (Mead, 2008). Before the introduction of conservation banks, ESA protected species were conserved on a project-by-project basis which eventually led to a highly fragmented approach to conservation because habitats were managed individually (Bauer *et al*., 2004).

[1] Business and Biodiversity Offsets Program (BBOP) is an international partnetship of more than 50 companies, governments, conservationists and financial institutions led by Forest Trends and Conservation International.

USFWS (United States Fish and Wildlife Service) defines a conservation bank as a piece of land of high conservation value (i.e. containing species that are endangered, threatened or at risk) that is permanently protected and managed (USFWS, 2003). The first official conservation bank was established in the state of California in 1995 and in 2003 USFWS issued Guidance for the Establishment, Use and Operation of Conservation Banks as a federal guideline for conservation banking by public or private bodies.

Box 2-2: Carlsbad Highland Conservation Bank – America's First Conservation Bank

Carlsbad Highland is located in San Diego County and consists of coastal sage scrub, an important habitat of the coastal Californian gnatcatcher (*Polioptila californica californica*), an increasingly threatened songbird due to habitat loss. The Bank of America acquired the 263 acre Carlsbad Highlands at about the same time the gnatcatcher was added to California's endangered species list. Consequently, the bank found that its development options for the land became increasingly limited and expensive. At the same time, the California Department of Transportation (CalTrans) was building a highway on prime gnatcatcher habitat and due to the bird's endangered status; CalTrans was required to mitigate the impact of the project. CalTrans ended up paying the Bank of America to put a conservation easement on 83 acres of Carlsbad Highlands in return for a certain number of gnatcatcher mitigation credits. The remaining 180 acres were developed into the Carlsbad Highlands Conservation Bank. Thus, in 1995, the first conservation bank was set up. The Carlsbad Highlands Bank has since sold about 180 mitigation credits at a value of USD 10,000 to USD 15,000 per credit. Since then, over 60 conservation banks have been approved in the U.S with the majority of them being in California.

Source: ten Kate et al. (2004), Bauer et al. (2004), Mead (2008), USFWS (2004).

Under the ESA, activities that harm an endangered species by modifying its habitat are prohibited without a permit and can lead to severe penalties (Bauer *et al.*, 2004). This means that from a landowner's perspective, having land that is a habitat for an endangered species brings about all kinds of legislative restrictions pertaining to land use which may force them to forgo economic revenue from the use of the land (Bauer *et al.*, 2004). In the past (before the introduction of the banking scheme) these restrictions under the ESA has led to perverse incentives as landowners resort to get rid of the animals either by killing them (before the authorities got to know about their presence) or by land management practices that make the habitat unfavourable to these animals (Bauer *et al.*, 2004). Conservation banking enables the landowners to convert this liability into an economic asset by establishing a bank and generating income by the sale of credits (Bauer *et al.*, 2004). With credit prices ranging from around USD 7,000 – 300,000, it is not surprising that 91 percent of conservation banks surveyed in a study by Fox & Nino Murcia (2005) stated that financial motives are the main driver for their establishment. Banks in the U.S range from 10 to 4,210 hectares (Fox & Nino Murcia, 2005). Some banks allow for activities that are compatible with the ecological objectives of the bank such as grazing, hunting, hiking and so forth and in some cases these activities contribute to the overall health and conservation of habitat (Fox & Nino Murcia, 2005; USFWS, 2004). Moreover, 73 percent of the land in U.S. is privately owned, and most of the threatened and endangered species live on these private lands, therefore it is important to engage the private landowners in conservation efforts (Bauer *et al.*, 2004).

A conservation bank is made up of four main parts which are the conservation bank agreement, conservation easement, management plan and financial guarantees (Hill, 2008). Before a conservation bank can be established, a conservation bank agreement has to be drawn up between the conservation bank owner and a regulatory body such as the USFWS to determine the terms and conditions under which the bank will be set up and operated (USFWS, 2003). A conservation easement ensures the protection of the bank in perpetuity and requires the owner of the property, ôgrantorõ to relinquish certain development rights to the ôgranteeõ which must be a government body (Hill, 2008). The management plan determines the operations and performance objectives of the bank and includes statement of management activities, identification of funds required, identification of permissible or prohibited activities, monitoring and reporting requirements, identification of responsible person or parties, accounting system to track credits and funding, and a comprehensive record of biological value (vegetation map or species inventory) (USFWS, 2003). The bankõs main funding comes from an endowment fund made up of a percentage of credit sales (Hill, 2008).

The ecological value of the land is translated into credits that can be sold to fund the management of the bank in perpetuity (USFWS, 2003). One credit can equal one acre of habitat or an area supporting a nesting pair or it may refer to specific species (e.g. red cockaded woodpecker credits) (Kate *et al.*, 2004) and if the bank has more that one ESA listed species then the bank may have more than one credit type (USFWS 2003). Since there will be differences between the quality of habitat that will be impacted by development and the quality of the habitat used as an offset, a balance is calculated via a credit ratio (USFWS, 2003). Ratios are applied to ensure that mitigation measures are proportionate to the scale of impact. If the project results in impacts of small magnitude and takes place in a habitat of low quality, a mitigation ratio of 1:2 (one bank acre to two project acres) might be granted. On the other hand, if a project results in large scale impacts on a large area of high quality habitat, the developer might be expected to mitigate at a ratio of 2:1 (two bank acres to one project acre) or higher (USFWS, 2003).

There are two kinds of credits ð ôpreservation creditsõ and ôcreation creditsõ (Hill, 2008). Preservation credits are allocated to habitats that already exist and are functioning whereas creation credits are allocated when there is a need for restoration, enhancement or creation of desired habitat (Hill, 2008). Creation credits usually require more consideration as conservation outcome is uncertain and these credits are usually allocated after certain performance objectives are met (Hill, 2008). When valuing credits, the two important factors to consider are area and quality of habitat (Kate *et al.*, 2004). Since it is preferable for the compensation or offset to take place as close to the impacted site as possible, a service area has to be determined (USFWS, 2003). The service area is the geographic area where credits from a bank can be sold for compensation purposes (USFWS, 2003). Usually, the service area is within 40 miles from the bank site (Kate *et al.*, 2004). Conservation banks provide a simple and economical alternative to developers through a one-time purchase of credits that not only saves time and money but also provides regulatory certainty and the transfer of liabilities to a third party (Sheahan, 2001; Weems & Canter, 1995; USFWS, 2003). Conservation bankers can also use banks to meet their own expected future mitigation needs. Transport agencies in the US have set up banks to generate sufficient mitigation credits for future highway projects (Bauer *et al.*, 2004). Conservation banking allows for the establishment of large reserves that are more likely to ensure ecosystem functions, enhance biodiversity and increase population viability of endangered species (USFWS, 2003).

Protection of open spaces and conservation of biodiversity are better facilitated especially when conservation banking works in concert with regional conservation planning. Economy

of scale is achieved as the management of a large piece of land under the bank is more cost effective than the management of several small areas (USFWS, 2004). By consolidating many small areas into several larger conservation grounds, regulatory agencies face fewer problems in enforcement and compliance issues (Sheahan, 2001) and at lower costs as an economy of scale is achieved (USFWS, 2004).

There has yet to be any comprehensive study on the success or failure of the US conservation banking scheme from the ecological perspective. Has its introduction reduced the impact of habitat loss and fragmentation and aid the recovery of endangered species? Based on the information available, it is still not clear (Fleischer & Fox, 2008). Studies by Fox & Nino-Murcia (2005) and ten Kate *et al.* (2004) have indicated that strong regulatory support is a key component in the success of conservation banking. According to Fox & Nino-Murcia (2005), it is the enforcement of mitigation requirements that drive the demand for credits as shown in the state of California, where strong implementation of both federal and state biodiversity protection laws has made the establishment of banks attractive due to the high credit prices and the high availability of potential buyers.

3 Oil Palm and Land Use in Sabah, Malaysia

3.1 An overview of land use patterns in Malaysia

Malaysia is situated near the equator in the Southeast Asian Region. The country consists of two parts, Peninsular Malaysia and East Malaysia (Borneo part), separated by the South China Sea. The country is made up of thirteen states, eleven in the Peninsular side and two (Sabah and Sarawak) in Borneo. Peninsular Malaysia was formerly known as Malaya, a British colony that gained independence in 1957. In 1963, Malaya joined forces with Sabah, Sarawak and Singapore (all former British colonies) to form the Federation of Malaysia (Singapore left the Federation to form an independent republic in 1965). Due to its colonial history, the Malaysian government system closely resembles the British system.

The Malaysian climate is tropical with high humidity, high annual rainfall and temperatures ranging between 21°C and 34°C. The country is also blessed with many natural resources such as petroleum and natural gas, large tracts of tropical rainforest, diverse flora and fauna and a number of mineral resources. In the 1960s and 1970s the Malaysian economy was heavily reliant on timber, tin and rubber and although agricultural sector remains important, the economy has since diversified to include manufacturing and service industries (National Economies Encyclopedia, 2007). Currently Malaysia is a net exporter of manufactured goods mainly electronics and electrical products (MIDA, 2007). The countryôs population is slightly over 27 million people with a per capita income of USD 6,092 (MIDA, 2007).

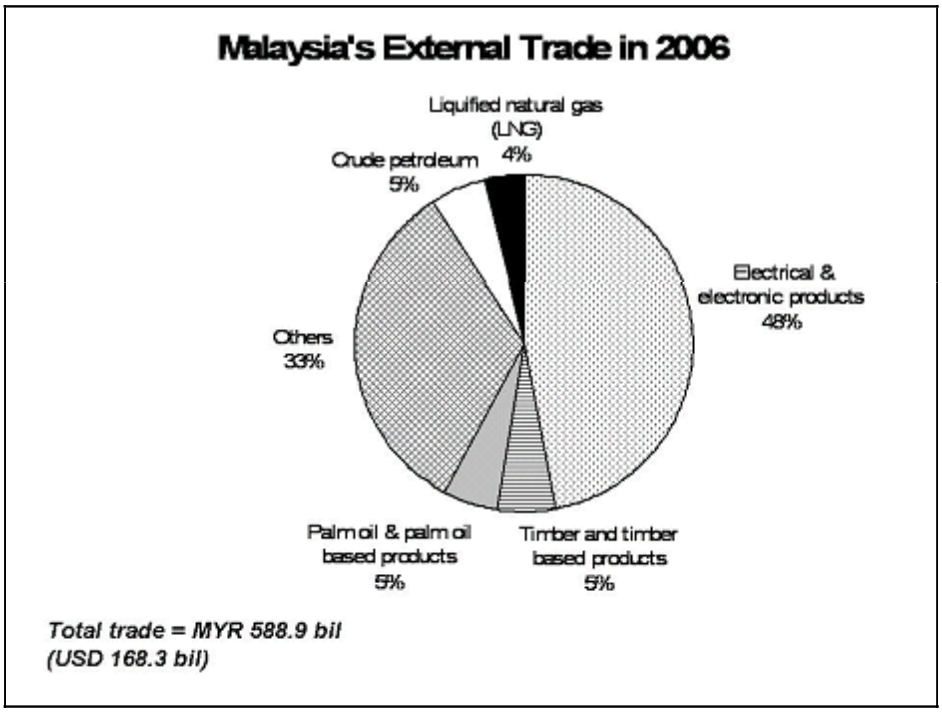

Figure 3-1: Malaysiaôs main exports in 2006 (Source: Department of Statistics 2007 in MPOC 2007)

Malaysia has a land area of 32.8 million hectares (FAO, 2007) of which about 6 million is agricultural land (Yusof, 2006) and 20.9 million is considered to be forest (FAO, 2007). In Peninsular Malaysia, large-scale deforestation for commercial plantation agriculture began in the early 20th century especially with the introduction of rubber (Jomo, Chang & Khoo,

2004). For the states of Sabah and Sarawak, the plantation boom only occurred in the 1980s and majority of the indigenous communities living in Sabah and Sarawak are still dependent on forests for subsistence based hunting and gathering and shifting cultivation (Jomo *et al.*, 2004). Federal and state governments generally oppose shifting cultivation, perceiving it as wasteful and instead are very supportive of large-scale land development schemes (Jomo *et al.*, 2004)

According to FAO (2007), 63.6% of Malaysia is still covered by forest and this has often been used by the government and the industry as a defense for oil palm cultivation. However, this figure has been a subject of contention among NGOs. FAOîs broad definition of forests actually includes forest plantations such as rubber plantations. The inclusion of forest plantations such as rubber (there is a fear that oil palm plantations may one day be included as forest plantations too) actually obscures the amount of natural forest that is actually left (WWF, 2008).

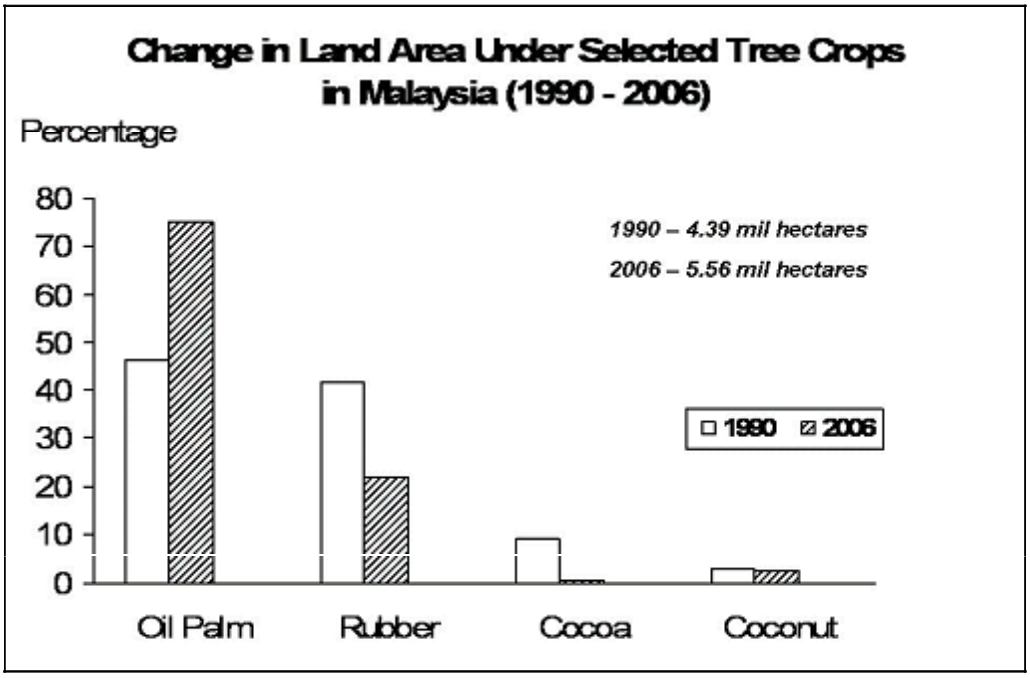

Figure 3-2: Change in cultivated land area of the major tree crops in Malaysia from 1990 ð 2006 (Source: MPOC 2007)

Table 3-1: Forest Cover Change in Malaysia from 1995 – 2005 (mil ha)

Forest Cover Type	1995	2000	2005
Permanent Reserved Forest (PRF) - Protected	3.43	3.84	3.11
PRF – Sustainable Forest Management	10.85	10.60	12.19
National Parks, Wildlife and Bird Sanctuaries and Nature Reserves - Protected	2.12	1.87	2.44
State Land/Alienated Land – Conversion Forest	4.19	3.93	0.57

i) Deforestation occurred mainly on state land that was alienated for development

ii) Changes in hectarage of PRFs and National Parks, Wildlife & Bird Sanctuaries & Nature Reserves are due to reclassification

Source: (FAO, 7th, 8th and 9th Malaysia Plans, Forestry Department of Malaysia, Ministry of Plantation Industries & Commodities, Tachibana, S., Rachagan S.S. and Thang, H.C.) - cited in Yusof, (2008)

There is no legislation in Malaysia that holistically addresses biological diversity conservation and management (MNBP, 1998). Instead existing legislation are sectoral based. For example, the National Forestry Act 1984 deals only with management and use of forests, the Fisheries Act 1985 deals with fisheries and the protection of wildlife is dealt with separately in the Protection of Wild Life Act 1972 (MNBP, 1998). As such, the current legislative framework lacks comprehensive scope, coverage and consideration for biological diversity issues.

Another deficiency is that legislative matters relevant to biodiversity does not always fall under one single authority. Some fall under both Federal and State authorities such as the protection of national parks and wildlife and others fall under the State legislative authority alone such as forests, land, water resources and agriculture (MNBP, 1998). There is also a lack of uniformity in state enactments especially concerning matters that are under the State jurisdiction alone such as native peoples' rights, forestry and protected areas (MNBP, 1998).

3.2 The case of Sabah

3.2.1 Geography, people, culture and economy

Covering an area of 7.37 million hectares, Sabah is the second largest state among the thirteen states in Malaysia and is located at the northern tip of Borneo Island. The rainforests of Sabah is incredibly rich in biodiversity and is home to over 3,000 species of native trees and a variety of well known (and threatened) large mammals such as the orang utan, Borneon pygmy elephant, Sumatran rhino and proboscis monkey. Sabah has a population of 2.5 million where slightly over half is made up of 39 different indigenous communities (Lasimbang, 2002). Majority of the indigenous people live in rural areas where they depend on subsistence farming and cultivation of cash crops (PACOS, 2008). Over the years there have been issues with disputes over land ownership rights due to weak enforcement of the Native Customary Rights law and the indigenous communities of Sabah are still quite marginalized and lack behind in both social and economic terms (PACOS, 2008; Thien, 2008). In recent statistical report compiled by UNDP showed that majority of Sabah's population is employed

in the agriculture, forestry, fishing and manufacturing sectors (Leete, 2008). Despite rich timber resources and a growing tourism industry, the poverty rate in Sabah is the highest in the country with 23 percent of households (average 4-5 persons) living below the poverty line (Leete, 2008).

3.2.2 Land use patterns and ownership

According Toh & Grace (2006), there are three types of property rights in Sabah.

1. State property rights ð covers all land that belongs to the State including forest reserves.

2. Private property rights ð covers land that has been set aside by the state for development such as privately owned oil palm plantations

3. Communal property rights ð covers land claimed by indigenous communities. Currently, only a small area is classified under this type

Large scale logging began in Sabah in the 1950s and reached its peak in the 1970s and early 1980s so much so that timber royalties made up almost 90 percent of the state's budget (Toh & Grace, 2006). Based on a study by Toh and Grace (2006), the substantial loss of forests in Sabah was mainly due to over harvesting, poor logging practices that lead to severe damage to residual trees, short logging cycles (no time for recuperation or regeneration) and the lack of silvicultural and rehabilitation activities following harvesting. This resulted in a massive reduction of primary forest cover, from 2.8 million hectares to 300,000 hectares while the area of degraded forest increased to 2.5 million hectares (1975 ð 1995) (Mannan & Yahya, 1997 cited in Toh & Grace, 2006).

Over time, the rate of logging decreased as the forests became more degraded and high quality timber became less available. The forests faced a new threat in the form of oil palm plantations (Teoh, 2000; Teoh, 2002). Huge areas of degraded forests were degazetted and cleared for oil palm cultivation and by 2003, 87 percent of the total land under agricultural cultivation in Sabah was made up of oil palms (Toh & Grace, 2006).

3.2.3 Yayasan Sabah and the Yayasan Sabah Forest Management Area (YSFMA)

Yayasan Sabah (Sabah Foundation) is a statutory body that was established in 1966 by an enactment of the Sabah Legislative Assembly (Yayasan Sabah, 2008). The main aim of the institution is to improve the socio-economic situation in Sabah and to provide economic equity by improving the state's education, welfare and industry (Yayasan Sabah, 2008). The main source of funding was timber (initially) and Yayasan Sabah (YS) was allocated a forest concession area under a 100 year licence in south-eastern Sabah covering a total area of over 1 million hectares (Yayasan Sabah, 2008). One of the largest forest concessions in Southeast Asia, the Yayasan Sabah Forest Management Area (YSFMA)[2] takes up almost 14% of the state's land area and is managed by Innoprise Corporation Sdn. Bhd. (ICSB), a wholly owned commercial subsidiary of Yayasan Sabah (Yayasan Sabah, 2008). Today, ICSB has 38 subsidiary companies and the YS Group's business activities have expanded to include real

[2] YSFMA is also commonly referred to as YS concession area in other literature

estate, tourism, agro-plantation, fisheries, biotechnology and oil and gas (Yayasan Sabah, 2008).

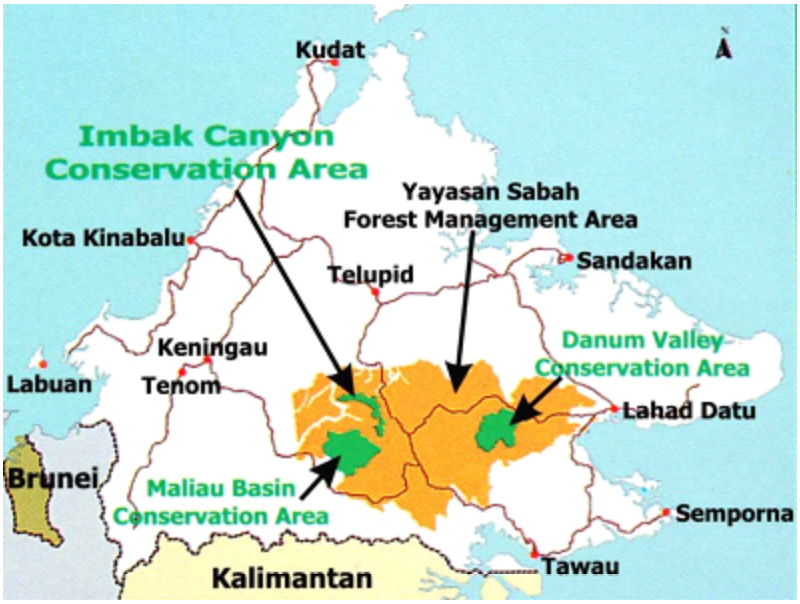

Figure 3-3: Location of Yayasan Sabahòs Forest Management Area

Within the concession, 750,000 hectares are commercial forests that have been logged from the early 1970s, 60,000 hectares are forest plantations and the Yayasan Sabah Group is in the process of developing 80,000 hectares into oil palm plantations by 2010 (Yayasan Sabah, 2008).

The YS record is òone of noble official socio-economic objectives mixed with poor management and some abuse of its vast forest concessionsó (Jomo *et al.*, 2004). With politicians sitting in senior management, it is not difficult for YS to obtain government approval to intensify timber harvest (Jomo *et al.*, 2004). The way in which Yayasan Sabah (YS) manages its concession area has come under heavy criticism. The Chief Minister of Sabah (head of state cabinet), is also the Chairman of Yayasan Sabah and this has lead to questions regarding transparency in the awarding of logging and development contracts within the concession area (Daily Express, 2007b; Malaysiakini, 2007). The Malaysian branch of Friends of the Earth (Sahabat Alam Malaysia) has accused Innoprise Corporation Sdn. Bhd. of proceeding with the logging of 33,000 hectares of forests within the YSFMA (with the consent of a former Chief Minister) without ever conducting an EIA (Mohd. Idris 2000). Yayasan Sabah has also been accused of poor logging and management practices leading to incidences of illegal logging and severe degradation of the Ulu Segama-Malua Forest Reserve (pers. Comm. April 2007; Daily Express, 2007b).

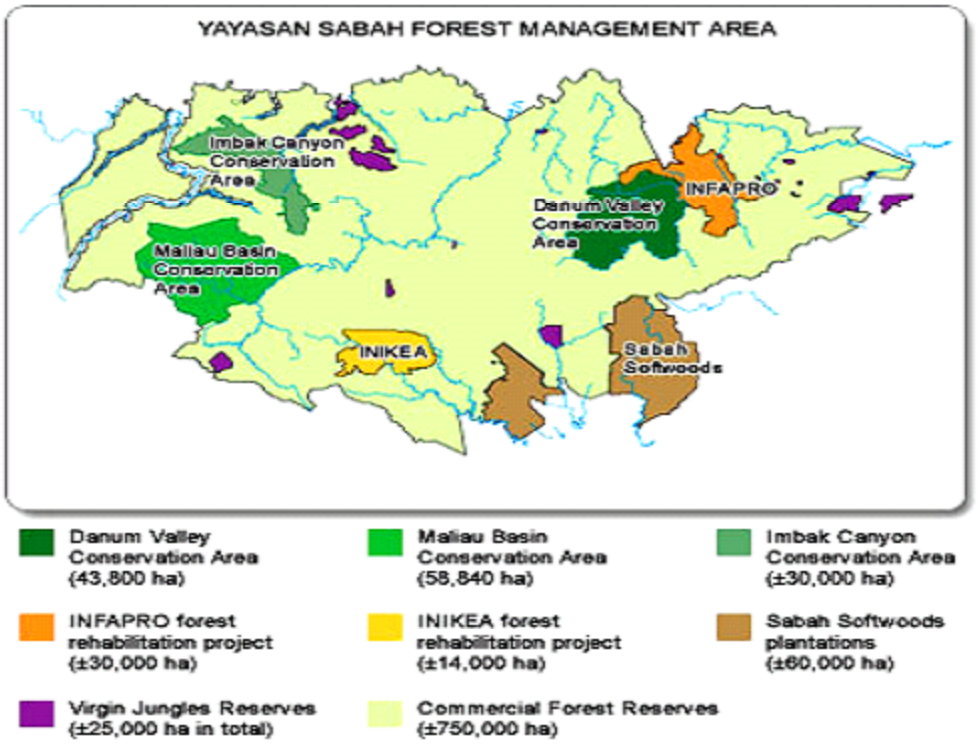

Figure 3-4: The different management zones within the concession area. Source: SEARRP (2008)

This is not to say that all of the YSFMA are designated for timber harvesting. Due to the high conservation value of certain areas, YS has set aside some areas under Class I Protection Forest. These include the Danum Valley, Maliau Basin and Imbak Canyon Conservation Areas (see Figure 3-4).

The degraded state of much of the forests in the YSFMA and the subsequent decline in good quality timber harvest has lead to the development of several reforestation projects mostly with foreign funding and expertise. These include the first voluntary carbon offset initiatives in Malaysia, INFAPRO and RIL (see Box 3-1 and Box 3-2 for more details). INIKEA is a collaborative effort between "Sow a Seed", a Swedish foundation sponsored by furniture giant, IKEA, and ICSB. The forest rehabilitation project is supervised by the Swedish University of Agriculture Sciences and the funding comes from òSow a Seedó. The site if INIKEA covering 4,000ð5,000 hectares was heavily degraded by a combination of bad logging practices and forest fires (Garcia & Falck, 2003).

The latest initiatives to prevent further degradation and facilitate rehabilitation of the forests within the YSFMA were the declaration of the USM Forest Reserve under SFM and the introduction of the Malua bank project.

Box 3-1: Innoprise-FACE Foundation Rainforest Rehabilitation Project (INFAPRO)

INFAPRO is a joint venture initiated in 1992 between Innoprise Corporation Sdn. Bhd. (the investment arm of Sabah Foundation) and the FACE (Forests Absorbing Carbon Dioxide Emissions) Foundation. FACE Foundation was set up in 1990 by the Dutch Electricity Generating Board with the aim of offsetting CO_2 emissions by Dutch energy companies via reforestation. It was the first pilot carbon offset project to take off in Malaysia. The project is located within the YS Concession Area in the Ulu Segama Forest Reserve, near Danum Valley.

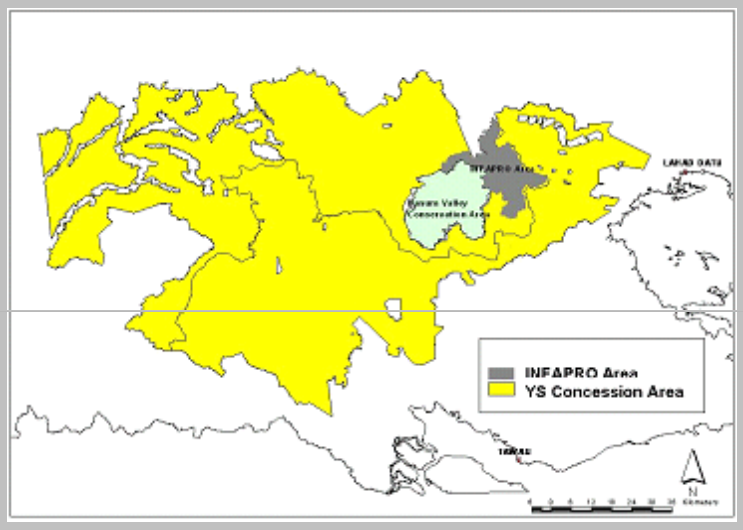

Figure 3-5: Location of INFAPRO project

The agreed project duration is 99 years, during which, 25,000 hectares of degraded mixed dipterocarp forests is to be rehabilitated with native species. No logging is allowed during the project period. The project is expected to yield an estimated offset of 2.3 million tonnes of carbon. About 11,000 hectares have been reforested as of December 2006.

All project activities are based on a 10 year Management Plan and are overseen by a Steering Committee comprising the Sabah Forestry Department (SFD), Sabah Foundation and University Putra Malaysia and Forest Research Institute Malaysia (FRIM). Rehabilitation activities consist of enrichment planting and silviculture (removal of climbers and shrubs to promote optimum growth of dipterocarps).

Without external intervention, the degraded forest would never return to its natural state. Furthermore, there were insufficient local funds for the rehabilitation. The INFAPRO carbon offset project offered the perfect solution as revenue generated for the carbon credits can be used for further restoration efforts. Besides carbon sequestration, the project also contributes to biodiversity conservation by improving the habitat for wildlife.

Source: SFD (2006), and Climate Neutral Group (2008)

Box 3-2: Reduced Impact Logging (RIL) Project

In 1992, Rakyat Berjaya Sdn. Bhd., subsidiary of Yayasan Sabah, entered into a joint venture with New England Power Company of Massachusetts, USA, to develop a pilot carbon offset project using RIL techniques. A total of 1400 hectares of forest was harvested using RIL methods resulting in an estimated CO_2 offset of 400,000 to 500,000 tonnes over a period of 60 years. RIL techniques have been shown to significantly reduce soil disturbance and damages to residual trees. Compared to conventional logging, RIL reduces environmental damages by 50 percent.

To ensure compliance, an Environmental Audit Committee consisting of representatives from the Rainforest Alliance, Forest Research Institute Malaysia (FRIM), University of Florida and Center for International Forestry Research (CIFOR), conducts independent verification based on FSC guidelines.

Since New England Company pays for the sequestered carbon that comes from the use of RIL techniques, Rakyat Berjaya is compensated for the extra costs associated with the adoption of RIL and is thus able to with cheaper logs in the market harvested by conventional methods. The implementation of RIL by logging companies may not be as financially feasible otherwise.

Source:: Waidi, Yap, & Jaludin (2007), Dykstra (1996) and Dykstra & Heinrich (1997).

3.2.4 Forest policy and Sustainable Forest Management (SFM)

There are seven types of forest reserves depending on their use. There are 3,595,216 hectares of forest reserves in Sabah (48.8 percent of the total land area) and most of them fall under the control of the Sabah Forestry Department (SFD) (Refer to Table 3-2).

Table 3-2: Permanent Forest Estate in Sabah. Source: SFD (2006)

Type	Use	Area (hectares)	Percentage
Class I Protection Forest	Forest set aside for ecosystem services such as soil protection, water catchment and biodiversity conservation.	342,848	9.5
Class II Commercial Forest	Forest set aside for logging to supply timber and other forest products.	2,683,480	74.6
Class III Domestic Forest	Forest gazetted for local communities to hunt, fish and collect minor forest products for their own domestic use, subject to permits.	7,355	0.2
Class IV Amenity Forest	Provide recreational opportunities for the general public. Recreational facilities may be provided and exotic tree species are often planted to increase the recreation value of these forests.	21,092	0.6
Class V Mangrove Forest	Forest for supplying mangrove timber and other produce (such as firewood and fishing stakes) to meet general trade demands	315,874	8.8
Class VI Virgin Jungle	Forest that are set aside for research purposes and logging is strictly prohibited.	91,914	2.6
Class VII Wildlife Reserve	Forest conserved for wildlife protection and research. These forests are managed by the Sabah Wildlife Department	132,653	3.7
Total		3,595,216	100

For operational and administrative convenience, forest lands in Sabah are divided into 27 forest management units (FMUs) averaging 100,000 hectares in area (Toh & Grace, 2006). In September 1997, Sustainable Forest Management License Agreement (SFMLA) replaced the licenses previously issued for commercial timber harvesting they are valid for 100 years (Toh & Grace, 2006). The Sustainable Forest Management model was based on the Deramakot project (see Box 3-3).

Under the SFMLA, the licensee is required to post a MYR 5 million performance guarantee bond to ensure compliance to licensing conditions that contain requirements on management, silviculture, rehabilitation and use of reduced-impact logging (RIL) techniques (Toh & Grace, 2006). Companies that do not comply risk losing their bonds and having their licenses revoked by SFD (Toh & Grace, 2006).

Forests on state land that have not been gazetted as a forest reserve are not protected in any way and therefore the state reserves the right to alienate such lands for development and these are the forests that are usually logged and cleared for agriculture (Toh & Grace, 2006).

Box 3-3: Deramakot Forest Reserve

In 1989, SFD with technical support from the German Agency for Technical Cooperation (GTZ) began development of a pilot project with the aim of making it a sustainable forest management (SFM) model for the rest of Sabah. The success of the project eventually led to the establishment of the long-term Sustainable Forest Management License Agreement policy launched in September 1997.

The Deramakot Forest Reserve was basically 55,000 hectares of logged over forest. The area was licensed for logging from 1955 to 1989. Felling cycle was supposed to be 60 years and the minimum diameter for harvesting was 60cm. However, these conditions were ignored and this resulted in severe degradation in more than 30 percent of the forest. Only a mere 20 percent of the area had considerable stock of trees that are suitable for harvesting when the SFM project was initiated.

About three-quarters of Deramakot Forest Reserve remain undisturbed at any given time. This means that all forest management activities such as harvesting, silviculture and replanting are focused on a small area of about 10,000 hectares staggered over a 10 year period. The intention is to provide an undisturbed habitat for wildlife as well as promote natural plant succession in the reserve. The Deramakot forest is an important habitat for globally threatened animals such as the orangutan, Asian elephant, banteng (wild cattle), proboscis monkey, and clouded leopard

The Deramakot project also helped improve the livelihood of native communities living within its fringes by providing employment (there are no indigenous people living in the reserve itself) in carrying out management activities. These communities traditionally depend on subsistence cultivation, fishing and collection of non-timber forest products.

In 1997, the Deramakot Forest Reserve became the first natural forest reserve in Southeast Asia to be certified as òwell managedó by FSC. Early 2008, the Deramakot project received a boost in funding from HSBC Malaysia to support further reforestation activities to improve the well being of orang utans living in the reserve.

(Source: Mannan, Yahya, Radin, Abi & Lagan, 2002; Lagan, Mannan & Matsubayashi, 2007).

3.3 Malaysia and Oil Palm

3.3.1 History and Development

The oil palm tree (*Elaeis guineensis*) is West African in origin and was first introduced by British colonizers to Malaysia (then Malaya) in the early 1870s as an ornamental plant (MPOC, 2007). The first commercial planting took place in 1917 in the state of Selangor and the tree has since flourished and established itself as the number one plantation crop in Malaysia (MPOC, 2007). In 1920, there was only 100 hectares of land covered in oil palm and this steadily grew to around 55,000 hectares in 1960 (Gustaffson, 2007). Cultivation was intensified in the sixties as part of the governmentòs agricultural diversification programme to reduce the countryòs economic dependence on rubber and tin and to alleviate rural poverty (MPOC, 2007).

The Federal Land Development Authority (FELDA) was established in 1956 with the support of World Bank and United Nations (FELDA, 2008; Gustaffson, 2007). It is part of a poverty reduction scheme for landless farmers and smallholders. FELDA has enabled the resettlement of about 100,000 families who were landless and living below the poverty level and provided each family with 4 hectares of land cultivated with crops such as oil palm, rubber or cocoa (Gustaffson, 2007). Through this land scheme, FELDA currently manages 853,313 hectares of plantations and provides basic amenities such as piped water, electricity, schools, roads and medical facilities to the employed farmers (FELDA, 2008).

By 2002, land area covered by oil palm plantations was about 67 times what it was in 1960 (Ramli, 2003). Initially, most of this expansion took place in the Malaysian peninsula but as the availability of cheap and suitable land ran out, more of the recent expansions took place in West Malaysia (Borneo island) in the States of Sabah and Sarawak (Teoh, 2000; Teoh 2002). Although commercial planting only began around 1970 in Sabah, by 1999, oil palm plantations cover over 28 percent of the stateôs total land area.

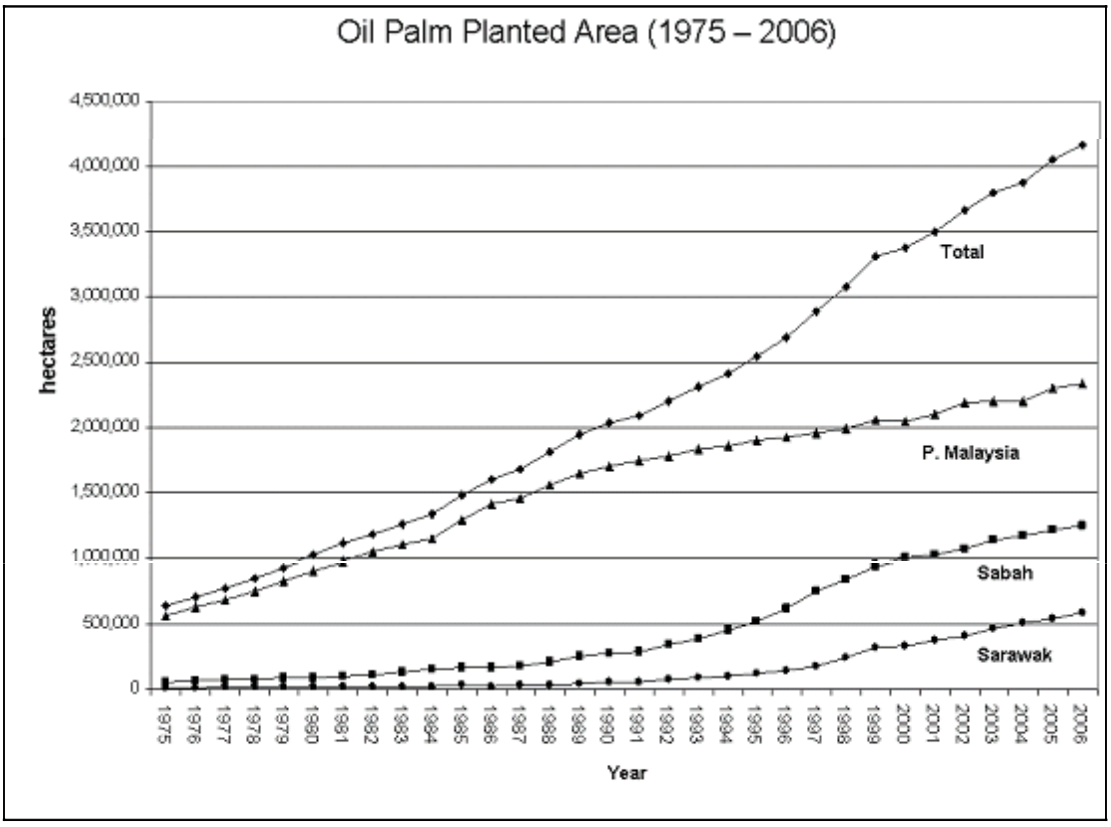

Figure 3-6: Increase in oil palm planted area in Malaysia from 1975 ð 2006. (Source: MPOB, 2006)

Malaysia is the largest exporter of palm oil in the world and in 2006, 15.9 million tonnes of palm oil was produced from plantations covering an area of 4.17 million hectares and contributing about USD 9.7 billion in export earnings (MPOC, 2007). The industry employs more than half a million people. Sabah is the biggest palm oil producing state in Malaysia accounting for over 30 percent of national output and has over 1.2 million hectares of palm oil plantation (POIC, 2007).

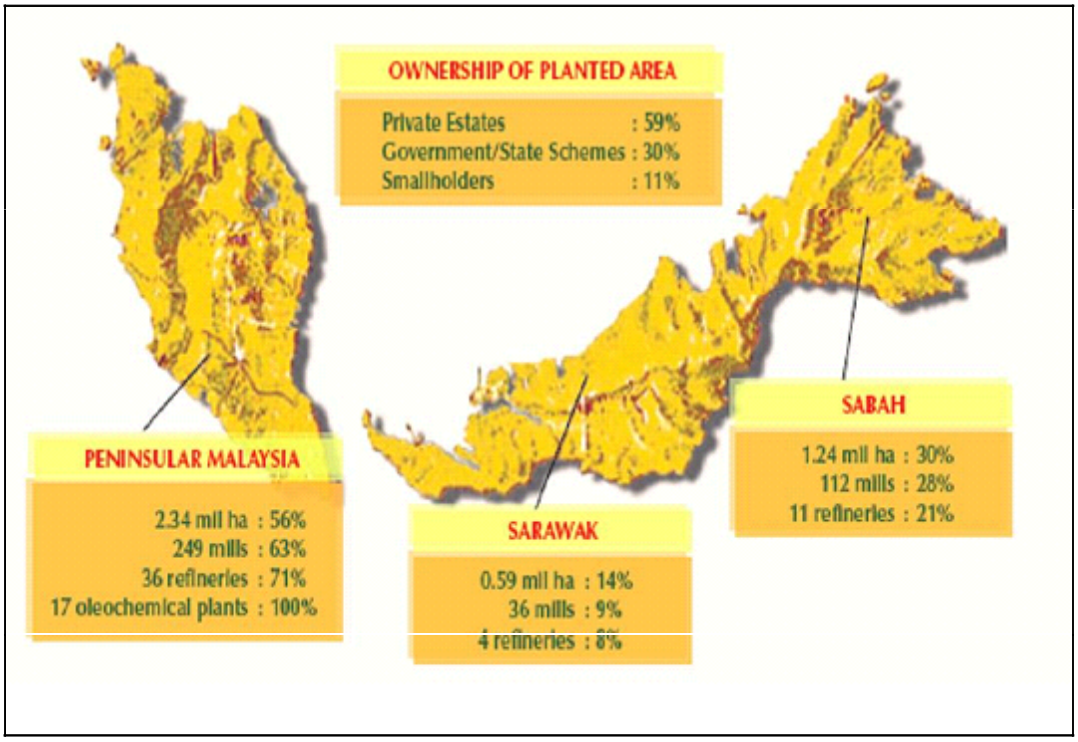

Figure 3-7: Distribution of the Malaysian Oil Palm Business in 2006. (Source: MPOC, 2007)

Table 3-3: Area under oil palm relative to total land area (2007).

Location	Land area (mil ha)	Oil palm area (mil ha)	% of area under oil palm
Peninsula Malaysia	13.16	2.36	17.9
Sarawak	12.33	0.66	5.4
Sabah	7.37	1.28	17.4
Malaysia	32.86	4.3	13.1

(Source: MPOC, 2007)

Despite negative publicity and strong pressure from green NGOs, the global use of palm oil continues to grow due to its relatively low price and its wide variety of uses, such as cooking oil, cosmetic, food additives, industrial lubricants and more recently biofuel (MPOC, 2007). The competitiveness of plantation palm oil production relies on cheap labour and land. Tapping on the potentially large and emerging global biofuel market, Malaysia is looking to further expand and develop its palm oil industry. By 2020 the projected oil palm coverage is 4.9 million hectares, with slightly more than half being in the states of Sabah and Sarawak (Ramli, 2003). Faced with the limitation of land for expansion of plantations the Malaysian palm oil industry is placing more emphasis on technological improvements to improve the yield per hectare of land (Teoh, 2002).

3.3.2 The Controversial Palm

Despite accusations that oil palm cultivation is the main driver of deforestation and habitat loss from organizations such as Greenpeace and Friends of the Earth, spokespersons for the

Malaysian palm oil industry remained defensive on the negative claims associated with palm oil cultivation. A quick look at the website of the Malaysian Palm Oil Council (MPOC) revealed many reports and press releases highlighting the environment virtues of the oil palm tree contrary to allegations by green NGOs. One article even went as far as to say that oil palm plantations should be likened to planted forests as the oil palm is after all a forest species (Yusof 2007a). The industry is also quick to point out that in comparison to other crops grown for oil production, the oil palm is by far the most efficient crop giving the highest yield per hectare (see Table 1) (Yusof 2007a)

Table 3-4: Productivity of oil palm in comparison with the other plant based oils

Oil Crop	Oil production (million tonnes)	Average oil yield (tonnes/ha/yr)	Planted area (million ha)
Soybean	33.58	0.36	92.10
Sunflower	9.66	0.42	22.90
Rapeseed	16.21	0.59	27.30
Oil palm	33.73	3.68	9.17

Source: Oil World Dec 2007 cited in Yusof (2008)

An oil palm tree will normally start bearing fruits after 30 months of planting and will continue to be productive for the next 20 to 30 years (Ramli 2003). The productivity is also reflected in high photosynthetic rates resulting in oxygen emission and carbon dioxide absorption rates that are ten times more effective than those observed for soybean (Yusof 2007).

3.3.3 Greening of the Industry

The Roundtable on Sustainable Palm Oil (RSPO) was set up in 2003 and is made up of a myriad of stakeholders including plantation companies, environmental and social NGOs, biofuel companies and manufacturers and retailers of palm oil products. The main aim of RSPO is to promote the development and use of sustainable palm oil by engaging all stakeholders and participants along the palm oil supply chain. Its latest and much publicized initiative is the introduction of a RSPO certification scheme for sustainable palm oil (Benjamin 2007, Murray 2007).

The Malaysian Palm Oil Council recently organized an International Palm Oil Sustainability Conference (IPOSC) in Kota Kinabalu, Sabah. The three day conference held in April 2008 which featured speakers from environmental NGOs, the academia, palm oil corporations and associations, attracted more than 500 local and foreign participants. The conference also saw the launch of the Malaysian Palm Oil Wildlife Conservation Fund of RM20 million (USD6.4 million) whereby half of the fund is made up of contributions from Malaysian palm oil companies and the balance is a grant from the government. The purpose of the fund is to finance research on wildlife, oil palm and the environment.

The state of Sabah has recently announced its intention to set up a Wildlife Habitat Conservation Bank to sell biodiversity credits to generate funds for the conservation of the Malua Forest Reserve (Muguntan 2007, The Star 2007b) which is said to harbour about 3000 orang utans (The Star 2007a). As the main targets to purchase these credits are palm oil businesses (Muguntan 2007, The Star 2007b), it can be seen as a move to make the industry more sustainable.

4 Conservation Banking in Malua, Sabah

This chapter provides an overview of the bank set up based on initial press releases and information obtained from interviews conducted with those directly involved in the project negotiations. A brief background as to the location of the bank, the Malua Forest Reserve and its surrounding as well as an introduction to the conservation plans (present and future) that SFD has set in motion are also given. This is to build a better understanding of the current developments in Sabah and the priorities of the state with regards to forestry and conservation.

4.1 Basic setup

In November 2007, the Sabah state government announced its intention to enter into a joint venture with New Forests Pty. Ltd. to set a Wildlife Habitat Conservation Bank at the Malua Forest Reserve covering 34,000 hectares (The Star, 2007b). An MoU (memorandum of understanding) was signed between New Forests and Sabah Foundation, under which both parties agreed to carry out a detailed feasibility study, business plan and marketing plan for the commercial operation of the bank (New Forests, 2007). New Forests is an Australian based forestry investment management and consultancy business, specializing in environmental markets (New Forests, 2007).

New Forests will invest an estimated USD 10 million to fund the rehabilitation and protection of the Malua reserve in return for the rights to market and sell the biodiversity credits generated by the conservation banking scheme (Mahabir, 2007). The ownership of Malua will be retained by the government (Mahabir, 2007). Modelled after the U.S. endangered species banking (New Forests, 2007), this conservation initiative is a first for Malaysia and the Southeast Asian region as a whole.

According to press releases by both the Malaysian media and New Forests, the credits are targeted towards the palm oil and energy sector in order to strengthen their environmental portfolio (Kaur, 2008; The Star, 2007b; Daily Express, 2007a). Sabah Chief Minister, Datuk Seri Musa Aman, called on all sectors, including the oil palm and oil and gas industries, to consider the purchase of these credits (The Star, 2007b; Daily Express, 2007a). Although the purchase of biodiversity credits is not a regulatory requirement, Datuk Sam Mannan, Director of Sabah Forestry Department mentioned the possibility of imposing the requirement in contracts with oil palm companies when new areas are converted to plantations (The Star, 2007b).

According to Dr. David Brand, Managing Director of New Forests, the main aim of the bank is to create a win-win solution for all parties (Kaur, 2008). Not only will the scheme enable palm oil companies to contribute to forest protection and generate returns on private investments, but it can also potentially contribute to improving the sustainability of oil palm cultivation (New Forests, 2007).

Based on information in articles printed in national dailies, press releases on the New Forests website (www.newforests.com.au) and personal communication with local NGOs, the key actors in the setting up of the Malua Wildlife Conservation Bank have been identified as

Sabah Forestry Department, New Forests, LEAP[3] and Yayasan Sabah. Malua was chosen due to a combination of factors, the presence of high orang utan population and other flagship[4] species, the size and location (serves as a wildlife corridor for the greater USM area and DVCA)[5].

Like much of the USM area, certain sections of the Malua Forest Reserve are severely degraded due to logging activities which means the main activities of the bank would involve rehabilitation and reforestation works. The orang utan population in USM is said to be stressed at a density of 6.6 individuals per square kilometre (sq km) as there is not enough healthy forest areas for them to spread out.[6] A healthy population should have a density of about 2.5 individuals per sq km. As mentioned earlier, New Forests will put in an initial investment of USD 10 million in exchange for the right to market and sell the credits (called BioD credits). New Forests is currently developing a Conservation Management Plan (CMP) which will be submitted to the Malua project management committee (comprising of SFD, Sabah Wildlife Department, NGOs and Yayasan Sabah) for approval.

At the moment, one hectare of land will be worth 100 credits with a minimum price of 7 USD per credit[7]. The proceeds from the sale of credits will go into a trust fund. The money will be split three ways[8], a portion will go to the State, a portion will go to New Forests and the remainder will be used to finance the activities stipulated in the (CMP). YS is the contracting party on behalf of the Sabah state government (the project is taking place within its concession area). YS will be responsible in ensuring that the CMP is implemented properly under the guidance and direct control of SFD.

The contract period for the project is still under discussion but SFD is looking at a timeline of maybe 50 years subject to the performance of the bank. The CMP however is only for a 10 year period (it will be subjected to renewal every 10 years). The purchase of credits is purely voluntary and the project management committee is hoping to attract both international and local buyers. Contrary to what was announced in the initial press releases, Fredrick Kugan from SFD says that their main target is not necessarily the palm oil industry and the energy sector but any organizations (commercial or otherwise) that would be keen to invest in biodiversity conservation. He also added that support from the local palm oil industry would also be desirable. At the moment, there are no plans to impose a regulatory requirement on the purchase of BioD credits similar to the conservation banking model in the U.S.

The Malua Forest Reserve official classification is still Class II Production Forest (for now), although some areas will be designated for conservation. Reclassification of the reserve is a future possibility but much of it depends on the success of the bank based on the sale of the

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[3] LEAP (Land Empowerment Animals People) is an NGO that is working with forest and wildlife conservation issues as well as indigenous community development in Sabah. LEAP was involved in facilitating the development of the Malua Wildlife Conservation Bank project and was a key mediator in the negotiations between New Forests and Sabah Forestry Department (personal comm., Cynthia Ong, April 2008).

[4] Flagship species - popular, charismatic species that serve as symbols and rallying points to stimulate conservation awareness and action. http://biodiversitychm.eea.europa.eu/nyglossary_terms/F/flagship_species

[5] Cynthia Ong personal communication May 2008

[6] Fredrick Kugan, personal communication April 2008

[7] Fredrick Kugan, personal communication April 2008

[8] At the time of study, information on the actual proportion of the division of the fund could not be obtained.

credits and the implementation of the first CMP. According to SFD, Malua is zoned for conservation[9] which means there will be no timber harvesting for at least 50 years.

The Malua project is still under negotiation although all parties hope to finalise and sign an agreement in June.

4.2 The Ulu Segama-Malua Forest Reserve

The proposed bank site, Malua Forest Reserve, is a small part of a greater area known as the Ulu Segama-Malua Forest Reserve (USM). Covering over 241,098 hectares, USM is said to house the highest concentration of orang utans in Northern Borneo, an estimated 3,300 individuals (SFD, 2006). The area is also home to other significant (and threatened) wildlife such as the elusive Sumatran Rhino, Borneon pygmy elephant, Malayan sun bear and Tembadau (wild cattle) (SFD, 2006). USM also plays an important role as a òbufferó or òwildlife corridoró for the highly protected Danum Valley Conservation Area (DVCA), the largest and most pristine lowland Dipterocarp forest in Sabah (43,800 hectares) (SFD, 2006)

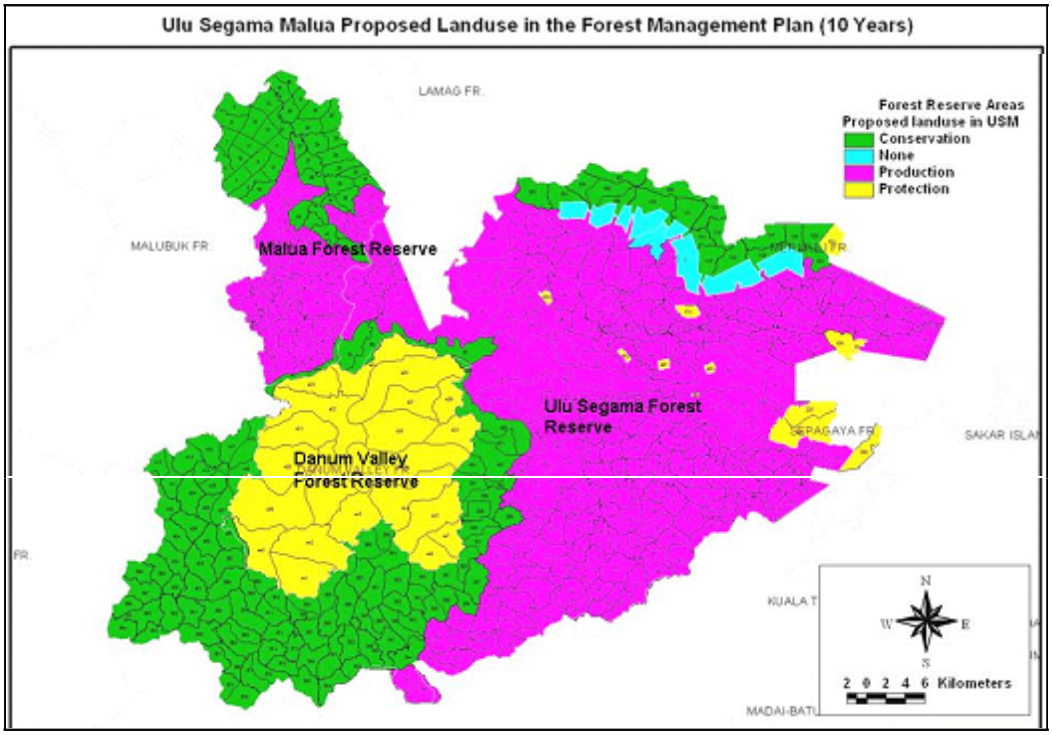

Figure 4-1: Location of Malua Forest Reserve. Source: WWF-Sabah, email attachment, May 2008

In a press release, the Sam Mannan, Forestry Director admitted that USM was a òlogging disasteró but the state has no choice but to allow the logging to continue according to license conditions (Daily Express, 2007a). Due to its importance for biodiversity conservation, on 15th March 2006, the Sabah state government declared the USM Forest Reserve to be placed under Sustainable Forest Management (SFM) based on the successful pioneer model of the Deramakot Forest Reserve. When the declaration was made the Ulu Segama and Malua forest

[9] A protection category within production forest reserves (Fredrick Kugan, Pers. Comm., April 2008)

reserves were still heavily logged and logging was only phased out by 31st Dec 2007 (SFD, 2006). A condition was placed on Malua to prepare Comprehensive Harvesting Plans (CHPs) and implement Reduced Impact Logging (RIL) from the period of the declaration for SFM till logging is phased out (SFD, 2006). Commercial timber harvesting in the reserve began in the early 1960s (Mannan, 2007).

Table 4-1: The USM Project Area.

Forest Reserves	Class	Function	Area (hectares)
Danum Valley	I	Protection	43,800
Ulu Segama Malua	II	Production	236,825
Merisuli	VI	Virgin Jungle Reserve	552
Kawag Gibong	VI	Virgin Jungle Reserve	707
Sepagaya	VI	Virgin Jungle Reserve	2,316
	I	Protection	698

*Danum Valley is managed separately by Danum Valley Management Committee (DVMC)

(Source: SFD 2006)

According to SFDòs 2006 annual report the main aim of declaring the USM Forest Reserves under SFM was to òsecure a home for orang utans in co-existence with forest management in the long termó. A Forest Management Plan was drawn up by the Forest Management Planning Team (FMPT) consisting of representatives from SFD, YS, Sabah Wildlife Department, WWF and other NGOs (SFD, 2006).

Table 4-2: Preliminary Zoning of Forest Functions in USM

Zone	Area (hectares)	Percentage (%)
Protection	50,161	17.6
Conservation	53,349	18.7
Production	181,388	63.7
Total	284,898	100

(Source: SFD 2006)

The USM is classified as production forests and much of it is said to be in a highly degraded condition. Forests in the northern part of Ulu Segama for example, had been logged in 1960s by concessionaires and short term licensees in the 1970s and 1980s (Mannan, 2007). The severe degradation of some 12,000 hectares was caused by a combination of unsustainable logging practices, forest fires and illegal encroachment and cultivation by illegal immigrants (Mannan, 2007).

As an indication to the severity of the problem, 4,000 hectares have been identified for immediate silviculture treatment and 160,977 hectares was recommended for restoration[10] (SFD, 2006). All in all, the project will cost the state over half a billion ringgit in investments and about one billion ringgit of forgone revenue (SFD, 2006). This has led SFD to explore

[10] Restoration was recommended on areas that have less than 10 trees of 40 cm dbh and above per hectare and areas that are devoid of forest cover (illegally cleared or planted with oil palm and other crops). Restoration methods will be based on the INFAPRO project.

new sources of funding including the possibility of carbon offset projects under the voluntary market or CDM (SFD, 2006). About 2,570 hectares of forest which were degraded due to fires in 1983 may offer a viable option for a CDM project under Kyoto Protocol (SFD, 2006).

4.3 Sabah Development Corridor

In January 2008, the Malaysian Prime Minister launched the ambitious Sabah Development Corridor (SDC). The SDC is projected to bring about a total of RM105 billion (USD 33 billion) in investments, 900,000 jobs, a waterfront city, tourism projects and an expansion in agro-food industry, agro-forestry and palm oil based industry over the next 18 years (Vanar & Sario, 2008). With the demand of palm oil outstripping supply and the rising prices of CPO, further expansion of oil palm plantations is expected in Sabah and Sarawak as suitable land in the Peninsula is no longer available (Teoh, 2000; Teoh, 2002; Sario, 2008). Malaysia's first Palm Oil Industrial Cluster (POIC) was set up two years ago in Sabah to further develop the state's palm oil sector and is projected to attract investments worth about RM9 billion (USD 2.8 billion) and will be further developed as part of the SDC project (Sario, 2008). As part of Sabah's POIC master plan (2006-2021), there are huge plans in place to promote the development of downstream processing of palm oil especially in relation to biodiesel production as well as major jetty development to ease import and export activities (Hanim, 2008).

5 Stakeholder Perspectives

While examining the various stakeholder perspectives, it should be taken into account that the interviewees do not have in depth experience or knowledge on biodiversity offset scheme and PES mechanisms. Their views and perspectives are based on information that is made available to them through the course of their work in their respective organizations. However, for the purpose of this study, this is not seen as a limitation because in reality, aside from the actors involved in the design of the trading scheme itself, the rest of the stakeholder groups (government, NGOs, target buyers ð developers, industry players) would have limited and varying expertise in the field. This is especially true for Malaysian stakeholders as the idea of PES is still relatively new.

5.1 Government

SFD recognises the need to restore the degraded forests in Sabah. The state is also all too aware of the high cost this requires and is open to the introduction of new mechanisms to fund rehabilitation efforts. Whether or not the state will continue to support similar conservation schemes hinges on the success of this project but they seem optimistic for now. SFD for now is more supportive of voluntary trading markets compared to CDM projects for carbon sequestration due to the various eligibility issues[11]. Forest based CDM projects require that the land in question is not a forest at the start of the project and that either afforestation or reforestation activities have to be undertaken (FRIM 2007). As such the choice of national forest definition is important as it determines the eligibility of the land for CDM. So far no threshold definition of a forest has been submitted and as such no A&R (afforestation and reforestation) CDM projects have been registered (Theseira 2007). Consequently, voluntary offset markets similar to the INFAPRO project seem more attractive at the moment (Theseira 2007, Fredrick Kugan, pers comm., April 2008)

Malaysia has indicated strong interest and support in the REDD mechanism (Fletcher *et al.* 2007) but also wishes to include a compensation for SFM practices in addition to incentives totally protected areas (Samsudin, Fletcher & Norini, 2007). There is also developing interest in using conservation easements as a tool to protect increasingly fragmented natural habitats within private lands (e.g. oil palm estates) especially river reserves[12]. Although already practised in the U.S. where tax incentives are given to participating landowners, the idea remains under developed in Malaysia and feasibility studies still need to be conducted[13].

5.2 Palm oil businesses (Upstream producers)

Two major oil palm plantation companies were included in this study. For the sake of anonymity, they shall be referred to as Company A and Company B. Both interviewees were from senior management level and from departments that oversee environment and quality issues. Both companies have been very active in conservation activities in Sabah. Company A has oil palm plantations in both Malaysia and Indonesia covering and area of 524,626 hectares. Company B has 167,875 hectares of oil palm plantations in Malaysia of which almost 70 percent are in Sabah. Both companies are members of RSPO.

[11] Fredrick Kugan, personal communication, April 2008

[12] Sivanathan Elagupillay, personal communication, May 2008

[13] Sivanathan Elagupillay, personal communication, May 2008

Both interviewees responded positively to the Malua banking project and indicated that investment in the biodiversity banking scheme is something they would look into once they obtain more information regarding the project. Aside from news releases, industrial representatives are not aware of the details of the banking scheme. Both respondents agree that there is substantial pressure from international buyers to ensure the sustainability of palm oil production due to the negative publicity brought on by governments and NGOs like Greenpeace. As such the industry is eager to be a part of the conservation projects in Malaysia provided they are economically viable and result in genuine benefits to the environment.

However, there was a perception that the debate over the sustainability of palm oil is highly politicised and is used to by EU countries and the U.S. to protect their own agriculture industry.

While respondent from Company A felt that there will still be interests in the credits despite the voluntary nature of the scheme, respondent from Company B was (at least from his side) less optimistic. He felt that for the industry to actively participate in the credit trading scheme, purchase of credits should be made a regulatory obligation (similar to the US model) otherwise, most industrial players will employ a ówait and seeô attitude. He also added that this was also influenced by Malaysian culture, óvoluntary schemes just donôt work in Malaysiaô. He also added that regulation will result in some sort of uniformity to the system, meaning that all palm oil companies will be required to buy credits, placing them on a level playing field. He also stressed that in order to capture the interest of buyers, it is crucial to have an independent third party verification to ensure transparency and accountability especially pertaining to fund management. It was indicated that there will be more trust in the scheme if there was high involvement from environmental NGOôs in the development and monitoring process.

From the interviews, it was indicated that companies would be more willing to purchase these credits if it makes good business sense to do so. Both interviewees felt that at the moment, the main priority for oil palm plantation companies in Malaysia is to obtain RSPO certification to enable the competitiveness of their product in international markets.

5.3 Investors/Customers

Since the concept of biodiversity banking is still rather new and very little details regarding the Malua banking scheme is known aside from the press releases. It was difficult for stakeholders in this group to properly comment on their positions on it. As mentioned in the previous section, local palm oil companies are generally open to the idea and view the introduction of the Malua banking project as a novel tool that could enhance current conservation initiatives but are adopting a "wait and see" approach at the moment pending more detailed feasibility plan. The same was more or less the case for the environmental manager of an oil refining and marketing company (Company C) based in Northern Europe. She also thinks that biodiversity banking could potentially be a good way to complement other sustainability initiatives within the palm oil sector. However a lot more information needs to be known before a stronger opinion can be made. Coincidentally, Company B is

Company Cís sole supplier of palm oil from Malaysia. She is also in agreement with the local palm oil businesses that the main priority at the moment is the RSPO certification[14].

Based on statements and comments from interviewees representing investors, there appeared to be a lack of interest in a biodiversity trading scheme. This could be attributed to a lack of understanding more so than a lack of confidence in the idea. An investment analyst from Company D feels that it is very much dependent on the kind of commodity it refers to and how the offset would work and whether a balanced tradeoff is being made (Company D is a prominent insurance company and fund manager based in the UK). HSBC, the first major bank to become carbon neutral, has recently committed to fund reforestation activities at Deramakot. Although active in climate change issues, HSBC Malaysia has no immediate plans to move towards the purchasing or trading of biodiversity credits[15].

Furthermore, the analyst from Company D felt that a balanced trade off is rarely made in offset schemes and at the moment, the primary concern for energy and biofuel related companies is with the sourcing and purchasing of sustainable palm oil. She believes that companiesô main impact on the environment is through their own operations and that is where focus should be given when it comes to mitigation.

5.4 Industry Organisations

Vengeta Rao of RSPO is unsure if there will be sufficient demand for the credits as it will be seen as additional operational costs especially in Sabah where the sales tax on palm oil is the highest in Malaysia. Currently, RSPO certification is the priority among most palm oil producers and having to have both certification and purchase of biodiversity credits (if made regulatory) may be seen as burdensome. However, he added that the industry will always opt for whatever the market prefers. The palm oil producers will also consider the business aspect of the investment in BioD credits (i.e. will there be a healthy trading environment for these credits)[16]. Although supportive of the proposal, MPOA (Malaysian Palm Oil Association) also added that strong incentives such as tax exemptions, evident CSR benefits and the ability to offset development of HCV (high conservation value) areas would be needed to drive a demand for these credits[17]. HCV areas typically have ecological, cultural or economical significance in that they either have high biodiversity, perform an important environmental service (flood control, soil protection, etc.), meet subsistence needs of local communities and so forth (RSPO 2007). HCV areas in a plantation holding have to be properly managed with respect to RSPO criteria and in some cases new plantings may not be allowed in these areas (RSPO 2007). As such, plantation owners may see a benefit in investing in biodiversity credits as a form of compensation if they are able to go ahead and develop HCV areas within their estates in exchange. Aside from providing incentives, how transparency and accountability of the scheme are managed are also important factors[18].

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[14] Currently RSPO certified palm oil is still not yet available in the market. Information from interviews indicated that the certification is a very time consuming process and for larger companies, it may take up to 4-5 years before they are able to get all their plantations certified. However, some certified palm oil is expected to hit the market by the later part of this year or early next year.

[15] HSBC Malaysiaôs Head of Group Communications (Mîsia) and Corporate Sustainability, personal communication, April 2008

[16] Vengeta Rao, personal communication, April 2008

[17] Head of R&D, personal communication, May 2008

[18] Head of R&D, personal communication, May 2008

5.5 Others

Environmental groups appeared to be supportive of the scheme although aside from LEAP, the other groups interviewed had varying degrees of understanding about biodiversity banking and did not have much information specific to the Malua case aside from what was revealed in press releases. They seem to be unanimous in agreement that conservation banking is a useful way of generating funds for conservation projects that might otherwise not secure the necessary resources. Rahim of WWF Sabah said that a lot of time is spent sourcing for donors for conservation projects and the options are decreasing, trading schemes (whether carbon or biodiversity credits) may be the way to go.

Judit Mayer[19] was quick to add that biodiversity offsets do not and probably cannot provide equivalent environmental services especially when the trade off is made between a unique tropical rainforest and monoculture plantations such as large-scale oil palm estates. She is also concerned that companies will use these credits to market their products as ògreenó or òenvironmentally sustainableó when in fact the production phase involves the destruction or degradation of environmental resources. She also feels that environmental trading schemes are òmarketing and political tools with little basis in ecological realityó as they may be used to support state policies and industries in projecting a greener image for their activities. Cynthia Ong from LEAP is aware of the possible ògreen washingó and òlicense to trashó that the scheme may promote but argues that they (the conservation movement) have to start engaging industries in a way that is òreal and collaborativeó and the Malua project could be a step in that direction, otherwise, it will just be òbusiness as usualó. Judit agrees that if oil palm plantations are going to continue expanding anyway, then schemes like the Malua project can channel a portion of profits for ex situ conservation activities but emphasises that the loss of habitats and ecosystem services that are caused by large scale oil palm cultivation can never be fully compensated for at it would be a ògreat fictionó to assume otherwise.

A technical expert from UNEP-GRASP[20] thinks that financial mechanisms are important for sustainable forest management and the conservation of great apes. If successful, he feels that the Malua bank will provide an important model or case study for great ape conservation in other countries.

Gabriel Chong raised concern of possible insecurity regarding the permanence of such schemes. Drawing from previous experience, he said that Wetlands International faced problems trying to qualify their mangrove rehabilitation projects in Sabah for VERs (voluntary emission rights). Apparently there was a lack of confidence in the permanence of the wetlands in questions as they belonged to the state and there was no guarantee that they would not be gazetted for development in the future. Nevertheless, Wetlands International is generally supportive of PES schemes and has recently entered into a partnership with Biox Group to launch a Global Peatland Fund to invest in the conservation and restoration of Indonesian peatlands while generating VERs for sale[21].

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[19] Judit Mayer works with an environmental NGO that does conservation work in Borneo. However her comments are personal and based on her experience as an environmental planner and policy analyst and does not represents the organization she is affiliated with.

[20] The GRASP secretariat have been working with Malaysian government agencies and NGOòs since 2003 on environment and conservation issues.

[21] Gabriel Chong, personal communication, April 2008

At the moment, because there are no indigenous communities living inside the Malua Forest Reserve, and consequently they are considered as a non-issue by most parties[22]. However, LEAP disagrees. Cynthia Ong feels that the rights and interests of those living in the periphery of the reserve should be considered. She adds that the state tends to view indigenous communities as a problem rather then a strong potential ally. She also stresses that LEAP is working to ensure that the rights of the communities living in the periphery of Malua and are somehow dependent on the reserve be considered (and remunerated) fairly in the CMP. She has the support of New Forests who recognises that the people element is an important part of the Malua project to make the credits acceptable to potential buyers[23].

Another thing of interest that came up is the application of SFM as a conservation tool for Sabahôs remaining forest reserves. Both SFD and WWF are keen on using the SFM and FSC certification as a tool to conserve the remaining forest resources. While they are optimistic of the effectiveness of SFM due to the success of Deramakot, LEAP is less so. LEAP acknowledges that there is a lot of land that can be converted into palm oil at the moment and is resigned to the fact that only SFM can save the remaining forests of Sabah. That is the òeconomic realityó of the situation. Initial studies have shown that SFM practices are better than conventional logging in terms of carbon sequestration, biodiversity conservation and long term yield of high quality timber (Pearce, 2003, Mannan *et al.* 2002, Lagan *et al.* 2007). However, conventional logging is still more profitable in the short term as SFM comes at a high cost and with a long pay back period. The Deramakot forest still requires external funding (Mannan *et al.* 2002, Chiew, 2008). As such, it is unlikely that most companies will go for it unless they are compensated in some way (Mannan *et al.* 2002, Pearce, 2003). This is where carbon markets and timber certification systems come in (Pearce, 2003). With the premium timber prices attached to FSC certification and the extra funding from carbon offsets (see INFAPRO), companies are more likely to go for SFM. As such, the Sabah state government would be looking more into SFM opportunities to prevent further degradation of the stateôs forest reserves.

The traditional way of funding conservation projects in Malaysia is basically dependent of government budget or private sector contributions. Rahim from WWF Sabah said that this is increasingly hard to come by and there is a steady decrease of international funding as well as Malaysia slowly loses its status as a developing country. International organisations prefer to send funds to Indonesia instead. As such, the use of market schemes is slowly being recognised as important in funding future conservation efforts. However, Cynthia Ong from LEAP is still cautious on this front due to the lack of knowledge within the NGO community regarding market systems. The Sabah government for the moment is keen to explore future options in voluntary carbon offset projects.

[22] Rahimatsah Amat and Cynthia Ong, personal communication, April 2008

[23] Cynthia Ong, personal communication, April 2008

6 Analysis

6.1 Regulatory or Voluntary?

Taking into account the U.S. experience with biodiversity offsets and conservation banking, it was clear that the main driver for demand of credits was the regulatory requirement of compensatory mitigation. In both the CWA and ESA, whether it is the destruction of wetlands or the loss of species, developers are required to adequately compensate for the impacts of their actions. At the moment, it is difficult to say whether a voluntary or regulatory approach would work best in Sabah as the details of the Malua bank is still preliminary. Even so, a regulatory approach could solve potential conflicts with regards to transparency and permanence. The pros and cons of a regulatory versus voluntary approach towards biodiversity offsets is summarised in Table 6-1.

Table 6-1: Voluntary vs. Regulatory approaches in conservation banking.

Voluntary	Regulatory
Generally driven by public relations or in anticipation of coming regulatory obligation. As such voluntary schemes may not be sufficient to drive demand.	Legally mandated offsets result in strong demand for credits as shown by the U.S. experience in wetland mitigation banking and conservation banking schemes.
Since participation is voluntary, it may be among the first things to be axed in order to save cost when the business hit hard times.	Due to support from proper legislation, requirements are equal across the board. Developers are also clear on the nature, scope and cost of their legal obligations.
Biodiversity offset schemes are potentially controversial. Instead of being welcomed by NGOs, an improperly designed scheme may attract scrutiny and negativity opening up potential risks and liabilities for the company. For this reason, companies may be reluctant to take part in offsets if there is no legal obligation.	Too much regulation may limit the flexibility and of offset design at the expense of what is best for biodiversity.
Legally mandated offsets exist in so few countries that voluntary schemes allow for compensation in a much broader range of countries.	Regulations can stipulate a predefined compensation ratio or weight that could result in larger scale offsets than what was damaged.

Source: ten Kate et al. (2004) and Fox & Nino-Murcia (2005).

With the existence of regulations, there would be proper allocation of responsibility and all participants of the scheme would be clear on the nature of their obligations and liabilities. Regulation can also address the issue of credibility and the òlicense to trashó accusation. If made into a legal obligation, required compensation would be equal to (if not more than) the scale of damage incurred because proper mitigation ratios would need to be calculated. This also adds credibility, uniformity and acceptance to the scheme as conservation groups and concerned customers would be assured that a balanced (or as close as possible) trade off was made. In a voluntary scheme, it would be up to the companies (buyers) to determine the amount of credits to purchase and there is no indication if an appropriate offset was achieved. This is also damaging for the company as the purchase of offset credits does not necessarily buy them the good public relations that they are aiming for.

Having said that, it should be recognised that enforcement and implementation may be problematic even with proper regulations in place. For example, Section 12 of the National Forestry Act 1984 requires that an equal area of land excised from permanent forest reserves

be replaced if suitable land is available. This in effect could allow for the future introduction of a legally mandated offset scheme. However, Section 12 is rarely enforced and the clause òif suitable land is availableó creates a big loophole that allows replacement of excised forests to be ignored[24].

6.2 Challenges

Based on the findings from stakeholder interviews, the potential challenges for the implementation of biodiversity banking in Malaysia are identified as follows:

- Permanence
- Transparency
- Credibility ð risk of greenwash?
- Additionality
- Knowledge Gap
- Social Equity

Like most ecosystem markets, there is a question of permanence as nature is not stationary but always in flux. What happens if there was a natural disaster, spread of disease or a forest fire that severely damages the òbankó? The issue of permanence has been raised in most studies and reports on biodiversity offsets and there appears to be no easy answers to the issue. Conservation banking easements in the U.S. are supposed to be òin perpetuityó but how this actually works out in reality is a challenge especially when the land ownership changes (Fleischer & Fox, 2008). This is also the case in Malaysia. Most forested land falls under state jurisdiction and this may cause problems as state governments tend not to be very transparent when dealing with land issues. Gabriel Chong from Wetlands International mentioned that they faced problems trying to qualify their mangrove rehabilitation projects in Sabah for VERs due to this very issue. There was a lack of confidence in the permanence of their projects as the wetlands in questions are on state land and could be easily gazetted for development.

Transparency with regards to fund management is essential for investor confidence. Documentation has to be clear and an independent third party is most likely required to audit and verify that the conservation objectives are being met. However this author feels that it would be rather difficult to avoid a conflict of self interest when establishing these sort of schemes if the land is owned by the state and the state oversees the management and implementation of the project as well. So far, LEAP is satisfied with the transparency of the discussions leading up to setting up of the bank and the CMP. SFD has also stressed that they view the issue of transparency very seriously and would ensure that all relevant stakeholders would be consulted along the way.

The lack of transparency can lead to problems relating to perverse incentives as well. If the state is not clear on how future sites are chosen for offset schemes, the state can afford to reap the short term benefits of unsustainable logging practices (business as usual) and then

[24] Rahimatsah Amat, Personal Communication, April 2008

conveniently turn the degraded forest into a voluntary offset project to gain external resources to fund rehabilitation and reforestation activities and yet somehow appear to be contributing to conservation. This appears to be win-win for the state, the logging companies and the corporations that require the offset credits but it is definitely a loss where nature is concerned. Furthermore, if future projects for PES continue to take place inside permanent forest reserves like the case of Malua, it does not address the issue of protection of land that lies outside this reserve. So basically, the government is merely conserving what falls under their protection anyway albeit in a more cost effective manner. Consequently, this also raises the question of additionality. Is it still business as usual for the logging concessionaires?

State officials have announced that the purchase of biodiversity credits will be voluntary. However, studies based on the U.S. experience concluded that regulatory obligation was a key factor in driving the demand for credits. If made into regulatory requirement, how will industries and businesses that would be affected by the requirement react? Take the example of palm oil industry who are finding the RSPO certification burdensome (but necessary) in terms of time and resources required. There are already some criticisms regarding the marginalisation of smallholders as they are not able to invest the time and money on the tedious certification process. Will the legal requirement of credit purchase add to that resulting only in large corporations being able to contribute to the trading scheme? On the other hand, without legislative support, will the scheme lack credibility? Who will be held accountable for non-conformance? Will the lack of legislative support bring on more doubts to the issue of permanence and transparency?

Local NGOs lack expertise and in depth knowledge regarding PES (payment for ecosystem services) schemes like biodiversity banking. This means that there is more dependence on external groups (international organizations) that have various agendas. Therefore, NGOs may not be well equipped to critique a certain scheme as in they are not able to ask the right questions. The same thing would apply to government agencies involved. Assuming they have the right intentions ð meaning a genuine interest in conservation ð are they able to make the best informed decision when approving, implementing and monitoring the projects?

Due to the relative newness of the scheme to Malaysia, there appeared to be a lack of knowledge as well among the companies interviewed. The lack of knowledge may result in a lack of interest and possible misconceptions on how biodiversity banking works. In order to attract potential buyers, information dissemination to businesses would be crucial.

The Malua bank is restorative in nature (the land is degraded and rehabilitation will be the key activity to generate credits) and ecological certainty would be more difficult to achieve that banks that just require maintenance. Extensive ecological knowledge is required to be able to meet conservation objectives.

The issue of social equity is somewhat outside the scope of this study. However, from the interviews, there is clearly a difference in opinion on how the rights of local and indigenous communities should be addressed. In the case of Malua, there are no communities living in the reserve hence the perception that they are a non-issue in the bankûs establishment. However, some NGOs may disagree with this.

6.3 What are the possibilities?

An imaginary company called Company X, wished to develop 50 hectares of forested land which has been logged over. The last logging cycle was about a decade ago and since then, the area has been left to regenerate on its own with minimal disturbance. As such, the forest concerned is not in pristine condition but provides a relatively good habitat for a variety of birds and small mammals, several of which are considered threatened species. The forest also serves as a wildlife corridor to a nearby forest reserve. Since the area concerned is 50 hectares, and EIA is required by law. Due to the socio-economic benefits derived from the project, the EIA was approved with some measures to be taken to prevent and/or minimise certain impacts. However due to the ecological value of the site, the project has attracted some negative feedback from the media and local conservation groups.

Based on this hypothetical case and the findings from this study, three possible scenarios are presented in Figure 6-1 to illustrate the effects of a voluntary biodiversity offset scheme like the Malua bank project in a Malaysian context. A fourth scenario which is a òbusiness as usualó scenario is included as a baseline to show the potential additional benefits or drawbacks an offset scheme might bring as compared to not having one. There could be other possible scenarios but for the sake of simplicity, only these ones will be described.

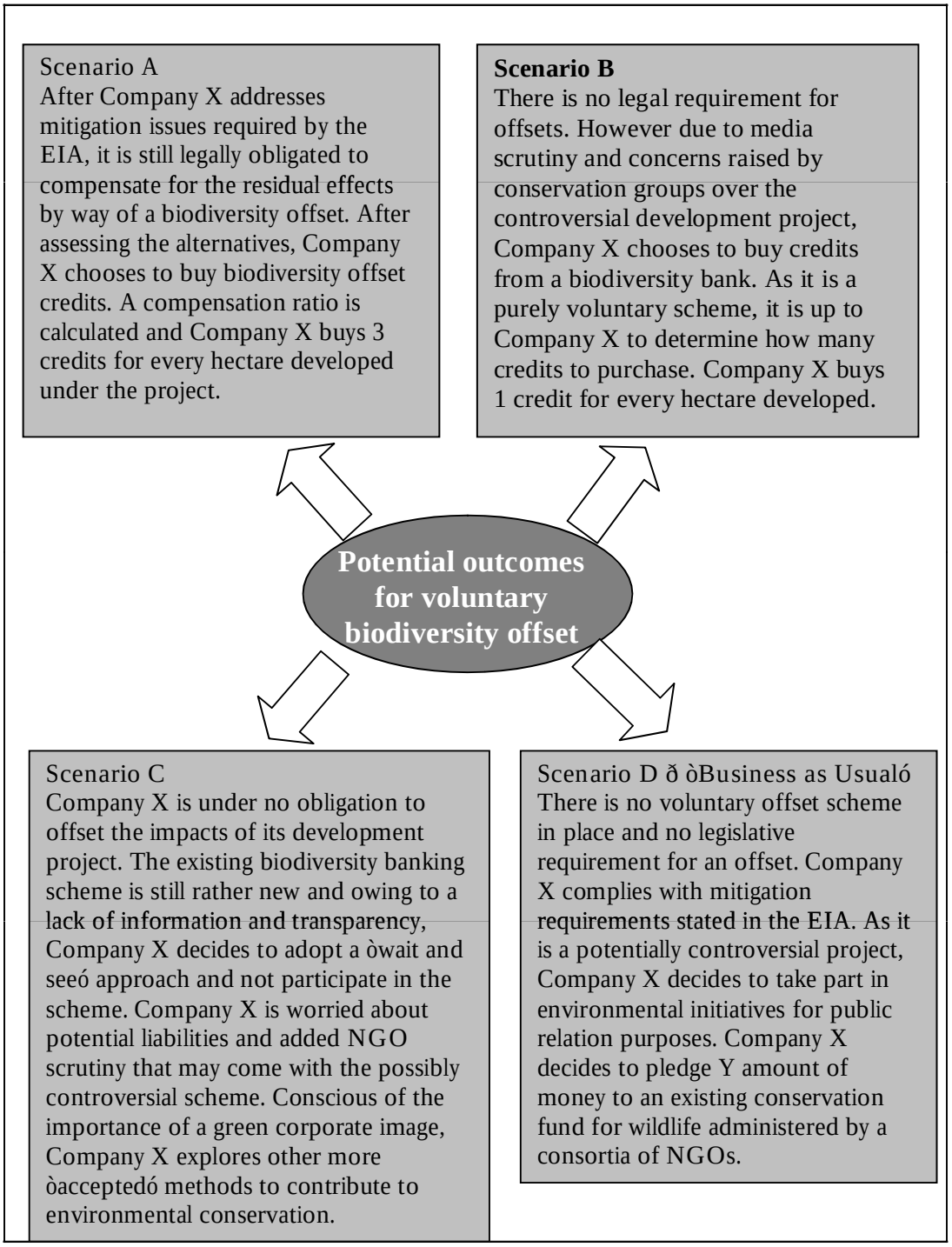

Figure 6-1: Possible scenarios when introducing a voluntary offset scheme.

Scenario A is what one might consider as a win-win situation. Here, compensatory mitigation of habitats adversely impacted by development is required by law similar to ESA in the United States (This is currently not in place in Malaysia at the moment). This would mean that Company X would have to compensate for the residual damage caused by its project in some way. Among other alternatives, this could mean setting aside some land within the 50

hectares for on site conservation or acquiring another piece of land to be set aside for conservation. Faced with a set of alternatives, Company X prefers to purchase biodiversity credits from a bank. This solves many problems as Company X, with one time purchase, is able to pass on its responsibilities to a third party (the bank) and at the same time has the assurance that it has complied with all legal requirements. Since a proper offset need to be made to meet the legal obligations, a compensation ratio is calculated based on a defined set of guidelines. This results in larger scale offsets than what was damaged to ensure òno net lossó and instead achieve ònet benefitsó. Furthermore, because compensation of incurred damages is legally required, it creates demand and it doing so, it becomes profitable to generate supply. Although majority of the land in Malaysia is under the jurisdiction of the state, private landowners like plantation companies may see a benefit in setting aside part of their land as a biodiversity bank. For example, an oil palm plantation company may see a benefit in setting aside a parcel of its own land as a biodiversity bank to generate credits for its operations.

In Scenario B compensatory mitigation is not required by law. As such it is up to the good will of Company X to contribute to biodiversity conservation and to build up its brand image. Company X chooses how many credits it wishes to buy to compensate for its impacts. The resulting compensation may or may not be adequate. However, Company X will be able to use its involvement with the biodiversity banking scheme as having contributed to conservation even though it could be a case of òreplacing apples with orangesó. Even so, the sale of biodiversity credits does channel funds to conserve or restore forests (the bank) leading to an added environmental benefit that may or may not have occurred otherwise. Whether or not the added benefit is sufficient to compensate for the damage or loss of habitat is debatable and there may be a risk that good quality habitat is destroyed only to be compensated with a habitat of poorer quality. The presence of a banking scheme may hide this potential imbalance as all parties perceive that something positive is being done which is the voluntary purchase of credits to compensate or offset damages.

However, if there is a lack of clarity as to how the biodiversity banking scheme is conducted in the absence of regulatory requirements and official guidelines, it could result in decreased confidence in the scheme. Lacking transparency and credibility, Scenario C may occur. Company X may be reluctant to associate itself with a potentially controversial scheme that may attract negative attention and public scrutiny (as pointed out in Table 6-1). Furthermore, in such a situation, NGOs themselves may be dubious as to the effectiveness of the banking scheme. It is simply not worth the risk for Company X if there is no legal requirement to do so. Company X may choose to adopt a òwait and seeó approach before making a decision to participate. Instead Company X may choose to adopt òtried and testedó methods such as certification schemes or conservation funds as these are already accepted and recognised by NGOs and government agencies. Furthermore, due to the voluntary nature of the scheme and the uncertain benefits, Company X may be concerned that engagement in the scheme would put it at a competitive disadvantage as investment in the credits will entail higher operation costs (competitors may choose not to invest in scheme).

In Scenario D, Company X just abides to its current legal obligations which do not require any mitigation offsets. However, conscious that environmental controversy can affect company image and hence business profitability, Company X decides to undertake conservation projects that have high NGO acceptability and therefore improve its own corporate image. Thus, Company X may contribute to one-off contributions to existing conservation funds or engage in active partnerships with local NGOs or state agencies to invest in projects that bring environmental benefits. Alternately, Company X could look into improving its own business operations such as green purchasing, minimizing waste, cleaner

production and so forth as a means of strengthening its commitment towards sustainability. Whichever option Company X chooses may still benefit the environment as a whole depending on the strength and sincerity of the companyôs commitment. However, the extent of benefits to the environment is still debatable. In this scenario, there is a possibility that Company Xôs contribution does not equal the damage incurred. There is also a risk of ògreen washingó as Company X may choose projects that would give it a higher media profile for marketing purposes and not projects that truly bring added conservation benefits.

It would appear that Scenario A would bring the most benefit as the presence of regulatory compliance and a predefined compensation ratio would improve transparency and credibility of the scheme and at the same time create a strong market demand for the credits. It is unclear if legally mandated compensation will be required anytime soon and at the moment it is likely that the Sabah government will take the voluntary approach. As such, there is a possibility of a situation similar to Scenario B.

In the case of Sabah, most of the forest reserves are degraded and PES mechanisms like the Malua banking project can go a long way into ensuring adequate funding for restoration activities that are too taxing on current state budget. Aside from that, market mechanisms like the Malua bank can generate economic incentives that allow it to compete with alternative land uses and thus reduce the likelihood of alienation for oil palm cultivation. In the absence of PES type projects, the degraded land loses both its economic and conservation value. Firstly, it is no longer able to produce good quality timber and secondly, it is also no longer a viable habitat for wildlife. Rehabilitation requires large funds that the government may not be able to spare and this just supports justification for conversion to other purposes.

If successful, the Malua bank may pave the way to other PES projects in Sabah or in Malaysia as a whole. Just like how the Deramakot project has served as a model for SFM initiatives, the Malua bank can serve as a model for an innovative conservation tool for the region. In the event that the banking scheme can effectively channel the benefits down to local and indigenous communities, it could have the extra benefit contributing towards poverty alleviation while maintaining the traditional way of life and thus reducing the need to always rely on industry and cash crop cultivation as a means to overcome poverty.

7 Conclusion

The simple fact is much of the forests in Sabah are degraded. The wildlife suffers from habitat loss and fragmentation caused by agriculture (predominantly oil palm estates) and decades of unsustainable logging practices. One of the main focuses of the SFD is to rehabilitate the degraded forests for SFM projects and wildlife conservation. This would require huge resources and there is a strong need to find other sources of funding aside from government funds and donations from private corporations and environmental organizations. The Sabah government is certainly exploring its options in SFM and voluntary carbon markets as shown by Deramakot, INFAPRO and the RIL project. With the introduction of the Malua Wildlife Conservation Bank, the Sabah government is entering a new territory that can open up huge possibilities in other similar ventures.

Why is it important for Sabah to venture into PES schemes? Economic development is a key priority for the government as highlighted by the 9th Malaysia Plan and the recent launch of the Sabah Development Corridor (SDC). Sabah has one of the highest poverty rates in the country and this will be used as a strong argument for giving development projects the green light in the name of poverty alleviation. Therefore there is a growing necessity to assign economic values to forests and ecosystem services to enable them to compete with other land use alternatives especially oil palm plantations.

Although PES can be seen as a useful conservation tool, it is not without its drawbacks especially in the Malaysian context. Although already in use in many countries such as United States, Australia, Costa Rica and Brazil, knowledge in PES among government agencies, NGOs and the private sector in Malaysia is still pretty low. There is much potential to be tapped but in order to fully make use of it, there is a great need for capacity building among the relevant stakeholders. As pointed out in the Chapter 5, local stakeholders are currently reliant on external expertise in PES. External groups come with various agendas that may not necessarily be in sync with local needs. It is important for relevant government staff and local environmental NGOs to be well informed so that they can be empowered to make decisions that they are comfortable with and to question discrepancies when setting up a PES scheme like the upcoming Malua project.

The Malua project is set up as a voluntary scheme for now. Currently, there is no federal or state regulation that endorses the use of an economic instrument such as mitigation banking. Since the proposed conservation bank is a state initiative, it is unlikely that a federal policy will be drawn up any time soon. The Sabah state government has not indicated any intention to include compensatory mitigation as a legal requirement for development projects. Instead, the Chief Minister merely hinted that the obligation of purchasing credits to offset impacts will be included in contract agreements with palm oil companies. The study by IUCN as well as other studies based on the U.S. conservation banking experience indicated that regulatory obligation is important and voluntary mechanisms may not work. Both wetlands mitigation banking and conservation banking have strong regulatory support in the U.S. in the form of CWA and ESA respectively as well as established guidelines by USFWS. In the case of Malua, whether sufficient demand can be generated sans legislation remains to be seen. Can international market forces play a big enough role to pressure businesses to improve the green image of palm oil for trade purposes? There is most likely a need to extend the market to include other buyers. The challenge here would be to have both a strong and convincing business plan and conservation management plan to attract potential investors.

In the US, majority of the land is privately owned and with strict legislation in place regarding mitigation requirements, landowners are compelled to turn to conservation banking to gain economic returns from their land. The incentive to turn their lands into conservation banks is quite clear. Land in Sabah (including forests), like the rest of Malaysia, is mostly state owned and it is at the prerogative of the respective state governments to set aside forest land as banks. There could be implications in terms of vested interests as most things would fall under government authority. This also brings about the question of permanence. Ownership lies with the state government. This means that the government can choose to strengthen its commitment to conserve the òbankó into òperpetuityó or choose to convert the land to other purposes with relative ease compared to private owners especially in the absence of official guidelines specific to biodiversity banking. In order to build trust and confidence in the system, if the Malaysian government intends to develop similar projects like Malua, it is crucial to first introduce official guidelines.

Transparency in the use of revenue generated by the sale of credits will be a key issue. Potential buyers will need assurance that rehabilitation is indeed taking place and the objectives and targets set out by the Malua CMP are being met. Actual details on how monitoring and verification will be conducted are still unclear. It appears that YS and SFD are the key players in this but due to the poor track record in governance and transparency (as discussed in Chapter 3) an independent third party auditor would be essential to gain confidence and trust.

For conservation to be successful, community participation and engagement is crucial. Benefits from the Malua project should trickle down to indigenous or local communities who are somehow dependent on the Malua forest. For the credits to be acceptable and credible, the rights of indigenous communities have to be acknowledged and respected. This can be rather difficult in Malaysia where indigenous communities are still marginalized and the laws protecting native rights are still weak in structure and enforcement.

When discussing the use of environmental markets, the concepts of ògreen washingó and òlicense to trashó are never far from the minds of detractors. This is probably true in the Malua case as well. The reality is that there is always some sort of a trade-off between conservation and profits. The best anyone can do is to ensure that the environment gets a fair share of the cake. The execution of the banking scheme is important. If there is a genuine commitment from the government to maintain the conservation status of Malua Forest Reserve and all management activities are done in a responsible and transparent manner, then at the end of the day, the environment will still benefit.

The debate over the sustainability of palm oil production and its suitability as a biofuel feedstock will most likely continue for some time. At the moment the palm oil industry in Malaysia is clambering to get their products certified according to RSPO guidelines to meet the environmental requirements of the international market. Although RSPO certification is the top priority at the moment, it is likely that the industry will be open towards any conservation initiative that can further boost their portfolio. However, in terms of using the biodiversity credits (or carbon credits for that matter) may not be sufficient as it only addresses their impact on land use which is the loss of forests and wildlife habitats. There is a lot more to the palm oil industry then just the plight of the orang utans, a favourite attention grabber among NGOs like Greenpeace and Friends of the Earth International. True, oil palm cultivation and deforestation are closely linked but there are other negative impacts that are just as important such as pesticide and fertilizer use, waste and effluent from downstream processing and encroachment into native lands. It would be more constructive at the

moment for the industry to address these issues in relation to RSPO criteria. It is also more relevant for focus to be made in increasing the oil yield per hectare to increase supply instead of plantation expansion.

Only time will tell if the Malua Wildlife Conservation Bank project is a success story or a cautionary tale. Either way, this author feels that the introduction of the Malua project is an important step in shaping future conservation efforts in Malaysia. There appears to be a genuine interest from all sides affiliated with the project for it to succeed. If successful, the Malua bank can serve as a model case for the country and the region as a whole. Even if the bank were to falter and stumble along the way, key learning points can still be gathered for further improvement in future endeavours.

7.1 Potential areas for future research

At the completion of this study, the Malua project is still undergoing negotiations and the details have yet to be finalized. It would be of interest to continue looking at the future development of the project especially once the Conservation Management Plan (CMP) has been released for public scrutiny.

At the moment, it is still unclear if the Malua bank project can or will adequately address the issue of local forest dependent communities. Although this study does not address this issue either, it is recognized that community participation and engagement is important when launching such schemes. This is especially relevant to the Borneon states of Sabah and Sarawak where there are higher incidences of poverty among rural communities. The issue of native rights is also a hot issue in Malaysia and the indigenous communities are still marginalized in many development projects and as a whole have very weak land ownership rights. Therefore, much work can be done on how to actively engage local communities in conservation projects and how they can benefit from PES schemes in Malaysia.

There is an urgent need to effectively protect what is left of Malaysian forests as well as rehabilitate the degraded areas. In terms of rehabilitation, one of the main problems is funding and there is a lot of potential to generate the funds either through CDM carbon sequestration projects or voluntary markets. It could be worthwhile to look into the different kinds of schemes that can be employed and how and which has the highest potential of success and stakeholder acceptance. This of course could vary depending on the States due to local conditions, resources and government objectives.

Another contentious issue would be the regulatory versus voluntary approach. Should the purchase of credits be a regulatory requirement? Although, it is preferable in the sense that it might reflect an òactual offsetó, it could be perceived as burdensome by developers. The readiness of the existing legislative framework and regulatory capacity is another issue in imposing a regulatory requirement. Can existing legislative frameworks support this and how? Would a voluntary approach like the proposed Malua scheme work better for now?

The study was initially designed based on information from press releases as further information was still unavailable at that time. As such, only palm oil related businesses were targeted as potential buyers. It could be interesting to look at other potential players such as government agencies themselves (highway construction), property developers and other industries (e.g. pulp and paper) that involve conversion of land into monocrop plantations.

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Abbreviations

BBOP	Business and Biodiversity Offset Programme
CAC	Command and Control
CDM	Clean Development Mechanism
CHP	Comprehensive Harvesting Plan
CMP	Conservation Management Plan
CPO	Crude Palm Oil
CWA	Clean Water Act
DVCA	Danum Valley Conservation Area
EIA	Environment Impact Assessment
ESA	Endangered Species Act
FACE	Forests Absorbing Carbon Dioxide Emissions
FAO	Food and Agriculture Organization of the United Nations
FELDA	Federal Land Development Authority
FMP	Forest Management Plan
FMPT	Forest Management Planning Team
FMU	Forest Management Unit
FRIM	Forest Research Institute Malaysia
FSC	Forest Stewardship Council
GRASP	Great Apes Survival Project
GTZ	German Agency for Technical Cooperation
ICSB	Innoprise Corporation Sdn. Bhd. (Innoprise Corporation Private Limited)
IIED	International Institute for Environment and Development
INFAPRO	Innoprise-FACE Foundation Rainforest Rehabilitation Project
IPOSC	International Palm Oil Sustainability Conference
IUCN	International Union for Conservation of Nature
LEAP	Land Empowerment Animals People
MIDA	Malaysian Industrial Development Authority
MPOA	Malaysian Palm Oil Association
MPOB	Malaysian Palm Oil Board
MPOC	Malaysian Palm Oil Council
NGO	Non-governmental organisation
PACOS	Partners of Community Organisations
PES	Payment for Ecosystem Services
PFE	Permanent Forest Estate
POIC	Palm Oil Industrial Cluster
PRF	Permanent Reserved Forest
REDD	Reducing Emissions from Deforestation and Degradation

RIL	Reduced Impact Logging
RSPO	Roundtable on Sustainable Palm Oil
SDC	Sabah Development Corridor
SFD	Sabah Forestry Department
SFM	Sustainable Forest Management
SFMLA	Sustainable Forest Management License Agreement
UNEP	United Nations Environment Programme
USFWS	United States Fish and Wildlife Service
USM	Ulu Segama-Malua
WWF	World Wide Fund for Nature
YS	Yayasan Sabah (Sabah Foundation)
YSFMA	Yayasan Sabah Forest Management Area

Appendix A

List of Interviewees

Fredrick Kugan, Head of Forestry Planning Sector, Sabah Forestry Department

Cynthia Ong, Executive Director, LEAP

Judit Mayer, environmental planner & policy analyst

Rahimatsah Amat, Chief Technical Officer, WWF ðMalaysiaös Borneo Programme

Technical Expert, Great Apes Survival Project (GRASP) Partnership, UNEP

Head of Group Communications (Mösia) and Corporate Sustainability, HSBC Malaysia

Responsible Investment Analyst, Company D, member of RSPO Executive Board.

Vengeta Rao, Secretary General, Roundtable on Sustainable Palm Oil (RSPO)

Assistant Vice President, Plantations Sustainable Unit-RSPO, Total Quality & Environmental Management (TQEM) Department, Company A

Senior Manager, Company B

Sivanathan Egalupillay, Director ð Legislation & Enforcement Division, Department of Wildlife and Nature Parks (Peninsular Malaysia)

Gabriel Chong, Communications Officer, Wetlands International Malaysia

Health, Safety & Environment Manager, Company C

Head of R&D Department, Malaysian Palm Oil Association (MPOA)