

Strategic Plan of Action (Sabah) The Heart of Borneo Initiative (2014 - 2020)





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Table of Contents

Executive Summary	2
Introduction	9
Borneo's Current Development Challenges Sabah's Current Development Challenges Transitioning to a Greener Economy in Sabah • Sustainable Forest Management in Sabah • Agriculture and Palm Oil Cultivation • Tourism • Forever Sabah • Spatial Strategic Planning The Heart of Borneo Initiative Forest and Land use within the HoB area (Sabah)	9 11 .14 .15 .16 .19 .20 .20 .20 .24 .27
Background to the Strategic Plan of Action (Sabah)	30
Production of the First Strategic Plan of Action (SPA) Revision of the SPA	30 30
HoB in the context of National and Sabah Policies	31
National Laws, Policies and Plans State Laws, Policies Framework for Sustainable Development Within and Outside HoB	. 32 . 40
Factors Enabling a Green Development Road Map for HoB Sabah	. 53
Major Outcomes Achieved during the First SPA 2008-2012 Issues and Challenges Impacting Existing Conservation and Development Initiatives in Sabah . Issues and Challenges Identified during the HoB Consultation Process	53 56 58
Programs and Plan of Action for the Sabah HoB Initiative (2014-2020)	66
PROGRAM 1: Transboundary Management PROGRAM 2: Protected Areas Management PROGRAM 3: Sustainable Natural Resources Management PROGRAM 4: Ecotourism Development PROGRAM 5: Capacity building	67 69 71 75 77
Management Structure	80
Evaluation and Monitoring of the HoB activities	84
Operationalization: Manpower and Financing	86
References	90

Executive Summary

Sabah is at a crossroads. The State still retains approximately 50% of its original forest, but most of these forests are found in the interior parts of the State and most of them are logged over and devoid of significant timber resources. Around this forested area is a rapidly developing landscape with secondary regrowth, plantations, mines, and the fields and villages where the rural population makes a living. Use of its natural capital has allowed the state to develop quickly, benefiting many of its people. Unfortunately, there are costs to this development. Loss and degradation of forests has led to high species extinction risks and increasingly negative effects on human populations, for example from flooding, freshwater pollution, landslides, and declining fisheries. Unless remaining natural resources, such as forests are managed more sustainably, Sabah could lose an important and internationally recognized asset, and a significant source of income. The choice that the people of Sabah have is to continue along the present path of unsustainable environmental use and cope with the development costs, or to seek some level of stabilization in which development aspirations are balanced with environmental and social sustainability.

Sabah's state government institutions have expressed a desire to reduce the environmental impacts of the current economic development and to seek more sustainable ways to develop and use the land, waters, and natural resources of the island. At the same time, these governments are targeting an expansion of agricultural production, an improved and expanded infrastructural network, hydro-electrical projects, and other developments that potentially clash with the stated goals to maintain forest cover and its environmental services. As a result, Sabah is in urgent need for a holistic and practical development plan that takes ecological concepts into consideration and determines optimal use of resources and minimization of trade-off costs.

Sabah is moving in the right direction with regard to such sustainability goals. In fact, Sabah appears to be ahead compared to other parts of Borneo Island or even in broader South East Asia. The State has the opportunity to be a model for a "Green Economy" throughout the island, as well as in the developing world - a green economy which would results in improved human well-being and social equity while significantly reducing environmental risks and ecological scarcities. What is needed is a development plan for the state, supported by all main government organizations in which any proposed developments are carefully considered in terms of their long-term economic, environmental and social impacts.

The Heart of Borneo Initiative (HoB) has provided Sabah with a framework for state-wide sustainable development plans. HoB is a transboundary collaboration between Brunei, Indonesia and Malaysia to effectively manage and conserve equatorial rainforests included within its boundaries for the benefit of people and nature. The first Strategic Plan of Action (SPA) was produced in 2008, designed to be a roadmap for each country's participation to accomplish the overall HoB vision. Since then, HoB in Sabah has had many successes, including an increase in protected area from about 939,000 ha in 2008 (or about 12.7% of the total land mass of the state) to a staggering 1,300,000 ha in 2013 (19.0% of the land mass). These new protected areas have increased the overall connectivity in Sabah's networks of forests and thus increased the survival chances of endangered wildlife. Other successes include reforestation and restoration efforts that aim to restore forest functionality in over 150,000 ha; the application of reduced-Impact Logging practices in all commercial forest reserves; the development of State Action

Plans (SAPs) for three iconic totally protected species: orangutan, Bornean elephant and Sumatran rhino.

In the spirit of refreshing and recommitting to the common HoB tri-lateral vision, a revised Strategic Plan of Action for the period 2014-2020 was commissioned by the Sabah State Committee, and this document is the result. This document:

- Presents the HoB and green development objectives in the light of national policies, and points out potential for synergy and conflict;
- It presents the major issues and challenges identified during the HoB consultation process that led to the development of this document;
- It provides insight into factors that enable green development in Sabah;
- It provides specific recommendations for follow up action.

1. Potential synergies and conflicts of HoB and green development objectives within the National and State policy context

The analysis in this revised Strategic Plan of Action clearly shows that there are significant opportunities for streamlining different national and state regulatory frameworks that have relevance to Sabah's sustainable development goals. Many existing policies and documents could be used to achieve the HoB vision, for example:

• Sabah Biodiversity Strategy (2012-2022)

This ten-year strategy is part of the Nation's ratification of the Convention on Biodiversity, and offers a comprehensive strategy to engage society in the preservation of biodiversity. Many activities and projects listed under this strategy have been identified as key elements to fulfill HoB's SPA in Sabah.

• Sabah State Structure Plan (2013-2033)

This plan will become an overarching document, which will drive development and land use in the State. It is therefore critical for HoB to be in line with this Plan, as well as for each District Plan to consider the HoB vision during their development.

The potential for synergy, however, appears to be underused, and individual government organizations insufficiently engage others in the development, financing and implementation of their plans. The main stakeholders in Sabah consider the Heart of Borneo initiative primarily as a wildlife conservation tool, and further engagement of stakeholders outside the forestry, wildlife and protected area organizations is obviously needed to increase general buy-in and participation in sustainability programs.

2. Issues and challenges identified during November 2012 HoB consultation process

This Strategic Plan of Action identifies institutional weaknesses and other constraints for implementing more sustainable development program in Sabah.

Institutional weakness

- Lack of transparency
- Lack of inter-agency communication and collaboration
- Weak institutional synergy
- Lack of ownership of HoB concept
- Conflicting policies and strategies
- Poor capacity of stakeholders
- Weakness in regulatory functions
- Weak transboundary cooperation
- Land titles not in favour of biodiversity conservation

Knowledge gaps

- Access to information
- Knowledge of key ecological parameters
- Lack of monitoring and evaluation
- Inappropriate/uncoordinated land use development
- Lack of spatial planning for conservation and sustainable development

Poor awareness

- Relating to HoB and biodiversity conservation
- Poor engagement with HoB communities
- Poor understanding of 'green' concept (i.e. economy, energy, architecture)

Lack of funding and resources

- General lack of funding
- · Lack of specific HoB funding mechanism
- Inadequate human resources



3. Programs and plan of action for Sabah's HoB Initiative: Detailed steps are differentiated by urgency of implementation and the plan identifies the institutions which are best placed to implement the actions and activities.

Programs	Actions	Priorities	Activities
Transboundary	Develop and review master plan within context of national constitution and legislation	1	3
	Provide policy recommendation on conservation efforts and sustainable development in HoB	1	1
Management	Establish a mechanism for coherent and effective information-sharing	1	2
	Undertake collective and/or joint research and studies	1	3
	Undertake joint spatial planning of the HoB area	1	3
	Identify, assess and establish transboundary conservation zones	2	5
Protected Areas Management	Develop and enhance and undertake joint monitoring and evaluation activities	2	1
	Develop and enhance collaborative management program systems and implementation for transboundary protected areas	1	3
	Develop and enhance approaches for improving land and vegetation management	1	4
	Establish a master list of protected areas	2	1
	Promote institutional linkages among the protected areas	1	2
		Forest/ Wildlife 6	Forest/ Wildlife 9
	Enhance and strengthen mechanisms for best practice natural resources management, sustainable use and ecosystem approach in natural resources use	Agriculture 8	Agriculture 14
Natural Resource		Mining/ Water 5	Mining/ Water 7
Management	Develop rehabilitation and restoration programs on the degraded forest areas	0	2
	Promote HoB areas as potential REDD project sites	1	4
	Enhance protection of wildlife	2	15
	Identify, develop and promote transborder ecotourism programs	1	2
Ecotourism Development	Develop networking on ecotourism management	1	3
	Promote community based ecotourism activities	2	4
	Develop new ecotourism attractions	3	2
Capacity Building	Implement capacity building (biodiversity conservation; land use planning; GIS; freshwater, protected area, outdoor recreation, ecotourism management; law enforcement)	1	6
	Establish linkages amongst R & D institution and encourage collaboration	3	5
	Promote public awareness program on the prevention of further loss on forest biodiversity	1	5
	Promote education and awareness on HoB programs	1	5
	Empower local communities to protect and manage their local environment and natural resources	2	11

4. Recommendations for follow up action

To address concerns raised during consultations, the following recommendations are made:

Management Structure

- Establish clear and transparent ToRs for the HoB Steering Committee;
- Establish State-level HoB Secretariat to serve as a clearing-house mechanism for all partners and liasing with other State Secretariats;
- Establish several Technical Committees the HoB Sabah State Steering Committee, with clear ToRs.

Monitoring & Evaluation

Develop clear criteria, taking guidance from the Federal "Key Performance Indicators" through a specific Technical Committee for performance evaluation.

Increasing Skilled Manpower

Potential to sub-contract teams of skilled personnel and technicians to work under close supervision of the responsible agencies without necessarily being in the full employ of the state.

Financing Mechanism

The lack of an overall HoB funding mechanism, or implementation fund has led to a piecemeal approach to funding and implementation. A coordinated approach to fundraising is recommended, and the establishment of a body to manage and disperse funds. Furthermore, some internal and external funding sources are identified (i.e. State and Federal funding; park access and use fees; royalties/taxation; private and public sector support; international funding bodies; conservation trust fund).

To conclude, this Strategic Plan of Action is a key document for all government organizations in Sabah that are directly or tangentially involved in the sustainable development of the state.



List of Abbreviations

CC:	Climate Change
CUZ:	Community use zone
DID:	Department of Irrigation & Drainage Sabah
DGFC:	Danau Girang Field Centre
DLS	Sabah Lands and Surveys Department
DoA:	Sabah Agriculture Department
DoE:	Department of Environment Malaysia
DoFS:	Department of Fisheries Sabah - Malaysia
DVFC:	Danum Valley Field Centre
EE:	Environmental Education
EIA:	Environmental Impact Assessment
EPD:	Environment Protection Department Sabah
FMU:	Forest Management Unit
FPIC:	Free prior informed consent
FRC:	Forest Research Centre
FS:	Forever Sabah
FSC:	Forest Stewardship Council
GAP:	Good Agriculture Practices
GDP:	Gross Domestic Product
GEF:	Global Environmental Facility
Ha:	Hectares
HCVF:	High Conservation Value Forests
HoB:	Heart of Borneo
HoB GI:	Heart of Borneo Global Initiative
IBA:	Important Bird Areas
ITP:	Industrial Tree Plantation
KOCP:	Kinabatangan Orang-utan Conservation Programme
KPI:	Key Performance Indicator
LS:	Lands and Surveys Department
LTLH:	Long-Term License Holder
MAB:	Man and the Biosphere Programme
ME:	Ministry of Education Malaysia
MGD:	Mineral & Geosciences Department Malaysia (Sabah)
MP:	Malaysian Plan
MoF:	Ministry of Finance Sabah
MTCE:	Ministry of Tourism, Culture and Environment Sabah
NEWG:	National Expert Working Group
NFM:	Natural Forest Management
NGOs:	Non-Governmental Organizations
NRE:	Ministry of Natural Resources and Environment Malaysia
NRO:	Natural Resources Office

POME:	Palm Oil Mill Effluents
PWD:	Public Works Department
RE:	Renewable Energy
REDD+:	Reducing Emissions from Deforestation and Forest Degradation "plus"
	conservation, sustainable management of forests and enhancement of forest
	carbon stocks
RIL:	Reduced Impact Logging
RSPO:	Round Table on Sustainable Palm Oil
SaBC:	Sabah Biodiversity Centre
SaBCHM:	Sabah Biodiversity Clearing House Mechanism
SEEN:	Sabah Environmental Education Network
SFD:	Sabah Forestry Department
SFMLA:	Sustainable Forest Management License Agreement
SM:	Sabah Museum
SOM:	Sijil Organik Malaysia
SP:	Sabah Parks
SPA:	Strategic Plan of Action
SPaCE:	Spatial Planning for Conservation and Sustainable Development
SSC:	State Steering Committee
SSL:	Self Sufficiency Level
STB:	Sabah Tourism Board
SWD:	Sabah Wildlife Department
UMS:	Universiti Malaysia Sabah
UPEN:	State Economic Planning Unit (Sabah)
VD:	Sabah Department of Veterinary Services and Animal Industry
WWF:	World Wide Fund for Nature Malaysia
YS:	Yayasan Sabah

INTRODUCTION

Borneo's Current Development Challenges

The South-East Asian island of Borneo is at a crossroads. The island's economies are rapidly developing, fuelled by an abundance of natural resources such as timber; minerals; oil, coal, and gas; land resources that are suitable for industrial-scale plantation development; and a young and relatively cheap labour force. The economic boom has led to rapid urban development, with more and more people moving from rural to urban areas, and with an increasing standard of welfare for most of Borneo's people [1].

Borneo's developments have come at an environmental cost, however. The island has approximately 50% of its original forest left, mostly in the mountainous interior [2]. Surrounding the mountainous centre is a rapidly developing landscape with logged-over forests, secondary regrowth, plantations, mines, and the fields and villages where the rural population makes a living. A recent global analysis [3] identified Borneo and other nearby islands as the most threatened place on Earth in terms of change in overall extinction risk across birds, mammals, and amphibians. Habitat loss, degradation and fragmentation, compression of already shrinking populations, hunting, climate change and its associated impacts on ecosystems and forest productivity are just a few of the many threats facing these species [4].

Loss of forests also has other environmental impacts. Deforestation is often linked to rising local temperatures, increase in floods, soil erosion, landslides and other negative impacts [5]. A recent study of flood events in Indonesian Borneo, indicated that between 2000 and 2013,





up to 360,000 houses were flooded, displacing as many as 1.5 million people, as well as damaging farmlands, plantations, infrastructure (roads and bridges) and many schools and health centres [6]. Similar patterns of severe flooding impacts were found to exist in the Malaysian states of Sabah and Sarawak (Map 1). Flood impacts are thought to be increasing, especially in the middle and lower reaches of Borneo's rivers, both because an increasing number of people are living and working in these areas, but also because deforested areas have a reduced capacity to absorb heavy rains. According to a "Business As Usual" scenario,

the environmental costs of economic growth are expected to outweigh revenues from natural capital by 2020 [7].

Many people, both inside and outside Borneo, are concerned with this situation of environmental degradation as a result of sometimes poorly planned or implemented development. All national and state governments of Borneo's political units have expressed a desire to reduce the environmental impacts of economic **development** and to seek more sustainable ways to develop and use the land, waters, and natural resources of the island. For example, in 1992, Malaysia pledged to maintain 50% forest cover for the country at the Rio Earth Summit [8]. Similarly, Indonesia's President has committed to maintaining at least 45% forest cover in Kalimantan, the Indonesian part of Borneo [9], while the Government of Brunei Darussalam is targeting forest on 75% of its land area [10].

At the same time, these governments are targeting an expansion of agricultural



Decisions and projects implemented today will determine the type of Sabah the future will inherit.

production, an improved and expanded infrastructural network, hydro-electrical projects, and other developments that potentially clash with the stated goals to maintain forest cover and its environmental services. New insights and mechanisms are needed in order to reconcile the various potentially competing objectives and to minimize trade-offs between them. Such approaches could result in more informed land use planning that takes into account the shortand long-term economic, social, and environmental impacts of different development scenarios. Good land use planning decisions and sustainable management of resources require strong and adequate legislation and policies. One such approach could be the incorporation of Ecologically Sustainable Development (ESD) principles into overarching government policy making and legislation (such as the Structure Plan for the State of Sabah – see below). Importantly, the implementation of these plans also needs to be reviewed and strengthened. For example, the Malaysian state of Sabah is proposing to certify all its remaining commercial forest concessions by 2014, but the practicalities of implementing better forest management that would qualify for certification remain to be resolved. Similarly, the development of oil palm estates along major rivers without adequate protection of watershed functions of river banks, leads to hydrological challenges, such as chemical and biological pollution. The costs and benefits of improved management of natural forests, industrial timber estates, oil palm plantations, and open cast mines need to be tested in real-life conditions, so that governments and industrial groups can develop appropriate development and management guidelines that make financial as well as environmental sense.

In this respect, it is important to recognize how different development scenarios are perceived by Borneo's public and private sectors. These perceptions are neither straightforward nor easily captured. Outside observers of Borneo's environmental challenges are quick to point the finger at obvious targets, such as a rapidly expanding oil palm industry, weak local and regional governance, and ineffective management of protected forests. Proposed solutions vary from banning oil palm, logging and mining, or protecting all remaining forests from further use. **The reality is much more complex**, however, and such naïve solutions are unlikely to get much public or political support in Borneo. Human population growth on Borneo varies from 1.1% in Indonesia to 1.7% in Malaysia and Brunei Darussalam, indicating increasing pressure on land and resources. Setting aside all remaining forests on Borneo for conservation and sacrificing development opportunities is unlikely to find much support among community, industry and government stakeholders.

The choice that the people of Borneo and its democratically elected governments have is to continue along a path of unsustainable environmental use, or to seek some level of stabilization in which development aspirations are balanced with environmental and social sustainability. Borneo and its individual political units are in urgent need for holistic and practical development plans that take ecological concepts into consideration, without losing sight of economic and social realities. General Master plans are available for guiding development in the Malaysian and Indonesian parts of Borneo, but these seldom consider strategic and efficient conservation planning at a fine scale, and when available are seldom supported by political, institutional, and other interests.

Sabah Current Development Challenges

The processes described above do also apply to the Malaysian State of Sabah. Compared to the other parts of Borneo, **Sabah has undergone an earlier and more rapid development process**. Not only did commercial logging and plantation development start earlier in Sabah, but this State has also more quickly reached a situation in which most major land use plans have been finalized, and in which the forest frontier has been more or less stabilized, in comparison to Sarawak, the other Malaysian State on Borneo, and Kalimantan, the Indonesian part of the island. Many of the challenges that presently need to be addressed in Sabah will soon be faced elsewhere on Borneo, while, at the same time, possible mistakes that were made in Sabah could potentially be prevented in other parts of the island. Sabah can therefore provide a development model with important consequences for Sarawak and Kalimantan.

Several plans exist at national and state level to guide the economic development of Sabah. For example, the Sabah Development Corridor 2008-2025 (SDC) was initiated by the State Government to enhance the quality of life of the people by accelerating the growth of Sabah's economy, promoting regional balance and bridging the rural-urban divide while ensuring sustainable management of the state's resources. All other policies, plans, and documents that followed the SDC have emphasized the importance of sustainable development as guiding principles, although environment concerns were often trans-sectorial rather than addressed as a specific thrust or program.



Planning for development, community and conservation needs to be carried out holistically at a large landscape level to avoid fragmentation and damage to the whole ecosystem.

Despite the existence of many plans at the State level there is a need to establish the technical information-base that would allow a holistic landscape approach to strategic planning. This would ensure that the benefits of development plans such as the Sabah Structure Plan, Sabah Development Corridor, and other socio-economic development Plans are carefully weighed against the long-term costs for the environment and Sabah's rural and urban communities. Such planning requires a multi-stakeholder integrated approach with a common vision and concerted strategy that focuses on connectivity, viability, complementarity, target-setting, and cost-efficiency. Sabah's various institutions involved in development planning (e.g., Sabah Development Bank Berhad; Sabah Economic Development Corporation; Ministry of Tourism, Culture and Environment; Sabah Forest Development Authority; Ministry of Agriculture and Food Industry Sabah; Town and Regional Planning Department Sabah; Sabah Environment Protection Department; Sabah Lands and Surveys Department; Department of Survey and Mapping Malaysia; Sabah Ministry of Infrastructure Development; and others) need to work together under a jointly agreed framework that maximizes opportunities for individual development objectives and minimizes their costs. Such an approach would require availability of spatial data on 'good quality' forests, flows of forest ecosystem services (such as flood buffering), socialcultural values, the economics of various land uses, and the distribution of biodiversity and threats to it.

Reviews of the state of Sabah's environment, such as those provided in the "Sabah Biodiversity Strategy 2012" indicate that further and urgent improvement is needed to increase the sustainability of Sabah's development and to better manage the natural resources of the state. Some important questions need to be addressed, for example:

• How can economic growth not only be sustainable but also truly equitable - benefitting all the people of Sabah?

Sabah has a high incidence of poverty in Malaysia (although reducing), especially amongst indigenous people in remote rural communities. The desired economic, environmental or social gains through poverty alleviation initiatives failing to deliver have yet to be achieved. For balanced and sustainable development, rural communities need to be assisted and trained in ecologically sustainable and locally sensible ways to diversify and enrich their livelihoods without depleting natural resources they depend on for survival.

• What is a proper balance between natural forests and other types of land-uses (such as agricultural lands)?

An overarching and clear spatial plan showing the different land-uses selected for Sabah needs to be produced and shared with all stakeholders, and incorporated into future policy, regulation and planning for the state. Solutions need to be identified to ensure that palm oil levies maintain the high level of income for the State government without further expansion of the crop. Innovative ways are needed to manage natural forests (fully protected areas, multiple-use forests, commercial timber concession, or industrial timber plantation) to generate financial income to the state and to simultaneously fulfil international or national management criteria.

• How can Sabah maintain current levels of biodiversity while continuing to sustain the State economy?

The biodiversity found in the state is the basis for ecotourism and other economic activities. Its value needs to be mainstreamed and integrated in the promotion of ecotourism. Simultaneously, several emerging issues are jeopardizing the natural capital of the state. Sabah must be prepared to tackle organized wildlife poaching and commercial wildlife trade as well as increased human wildlife conflicts. Indeed, these issues are a major threat to many wildlife and plant species, and will lead to their extinction unless they are dealt with properly. Emerging diseases as a result of the degradation of ecosystem functionality has also a direct impact on public health, such as vector-borne diseases caused by deforestation or resurgence of zoonotic diseases (leptospirosis, etc.). Innovative mechanisms that optimise forest ecosystem services, either 'free' ones (such as flood buffering in forests), or ones traded in markets, (such as carbon sequestration) need to be developed and mainstreamed.

• How to convince and obtain the support of the society in general towards these profound changes?

Sabah has the potential to become a beacon for sustainable development for other parts of Borneo and other tropical areas undergoing similar development processes. However Sabah's government needs to identify ways to obtain support from Borneo's people and businesses as well as the international community for its sustainable development aspirations. All levels of society need to be reached and made aware of the transformations that are necessary to achieve robust and sustainable development. Sabah could also become a leader in enabling decentralised natural resource governance by empowering local-level state and citizen institutions to effectively engage in green economy and biodiversity conservation initiatives.

Realizing these various issues, the state has decided to pursue more sustainable growth and is in the process of developing a "Green Economy".

Transitioning to a Greener Economy in Sabah

The concept of "Green Economy" is a new paradigm that results in improved human well-being and social equity while significantly reducing environmental risks and ecological scarcities. Green economy is an economic development model based on sustainable development and knowledge of ecological economics (see Text Box 1).

Text Box 1: Green development – Who benefits in Sabah?

Sabah Government receives funding for greener development – Under the 9th and 10th Malaysia Plans, the Sabah Government has received funds through the Federal Ministry of Natural Resources and Environment for developing green technology. Additional funding is also obtained from other national and international partners.

Green Development helps national government to meet international commitments – In 2013, Prime Minister Datuk Seri Najib Tun Razak has renewed his pledge for a greener Malaysia. "Firstly, we have a target to ensure that 50 per cent of Malaysia remains permanent forest to protect our country's outstanding biodiversity," he said. Achieving green economy objectives would contribute significantly to these commitments.

Sabah private sector – The tourism sector is expected to contribute RM 5.42 billion to the Sabah economy in 2013, equalling 10 to 15% of the State's GDP. Sabah's green environment is a major tourism asset, attracting more ecotourists than any other part of SE Asia. Improved planning in agriculture and forestry increases revenues and minimizes costs.

Sabah communities – Access to clean water, protection from floods, resilience to climate changes, and healthy fisheries are among the many services provided through more sustainable resource management.

The global community – Sabah offers the World access to incredibly rich biological and cultural resources of true world heritage value.

A green economy should (1) increase human well-being and social equity while reducing environmental pressures; (2) deliver inclusive growth while sustaining natural capital to provide food, water, soil, climate and resource security; (3) deliver on development priorities of local and national governments for the benefits of society; (4) secure more natural stock for future use, enhance the provision of goods for revenue generation opportunities and avoid costs associated with damaged ecosystem services [7]. The Green Economy embraces five dimensions [11]:

- Incorporate contributions of biodiversity and ecosystem services to economic growth and human welfare in economic development strategies. These factors are often omitted from decision making;
- Promote ways to mitigate climate changes and resilience to climate change in order to develop a more stable future;
- Limitation of greenhouse gas emissions;
- Environmental and social dimensions are the priority for sustainable economic growth;
- Social development and poverty alleviation is a central objective of green growth at local, regional and national levels.

However, the important challenge is how Sabah will realize this transition. Best management practices need to be developed and implemented by the government and extractive industries to minimize negative impacts on ecosystem health. Green technologies that facilitate the achievement of green development goals need to be acquired



Sabah has much potential for Green Economy.

and mastered. Human skills need to be acquired to use these new technologies.

Based on the current development trajectory in Sabah and future potential for growth, the major elements for transitioning into a green economy will depend on maintaining the multi-functionality of forests, as well as the sustainable development and management of palm oil cultivation, and tourism.

• Sustainable Forest Management in Sabah

Sabah's forests and their sustainable management is one of the key elements for achieving the State's green development vision. This requires the application of ecologically and scientifically acceptable forest management to the logged-over Commercial Forest Reserves of Sabah. The intent of the Sabah Forestry Department (SFD) is to manage the commercial forest reserves in a way that mimics natural processes for production of low volume, high quality, high priced timber products in a sustainable manner. Sustainability is defined in terms of balanced nutrient cycles, forest structure, biodiversity, forest function and socio-economic needs.

Since 2009, the SFD has made mandatory for all commercial forestry operations to follow Reduced Impact Logging (RIL) practices. The model for sustainable forest management in Sabah is the Deramakot Forest Reserve, which, in 1997, was audited against the Malaysian Criteria and Indicators (MC&I) for Natural Forest Management (NFM) and the Forest Stewardship Council's TM (FSCTM). The goal of the Sabah Forestry Department is to extend the Deramakot model to all long-term Forestry Management Unit (FMU) holders (see Map 2, the different forest status in Sabah). By 2014, according to the SFD, all the FMUs in Sabah must be certified based on one of two schemes recognized internationally: FSC (which is the gold standard) or the Malaysian Timber Council Certification. Today, 900,000 ha of forests are under some form of certification in Sabah (with 806,515 hectares under FSC). The timeframe to develop and to operationalize these procedures is very short, and it is still uncertain whether all FMU holders will be certified by the end of 2014. However, by this time, one of the Standard Operation Practices (SOP) will be the independent third party auditing of "Forest Management Plans" and "Annual Harvest Plans" that need to be developed for each FMU.

One challenge regarding FSC certification is that no more than 5% of any FMU can be developed as Industrial Timber Plantation (if developed after 1994). However in Sabah, most FMU long-term license holders (LTLH) claim that they need to plant more than 5% in order to be economically viable, although we still lack precise independent economic assessment to ascertain this statement. While it is commonly acknowledged that the government can wait for a few years for the FMUs they are in charge of to become viable, it is more difficult for the private sector to do so. In order to obtain some revenues from highly degraded FMUs, the LTLHs demand to develop ITPs over parts of their concessions. The Sabah Forestry Department decides on a case-by-case basis how much a LTLH can be authorized to develop ITPs (up to 30% of their FMU). Under the current scenario, the area under ITP in Sabah should increase from more than 100,000 ha (as of today) to about 400,000 ha.

The situation faced in Sabah exemplifies the challenge of implementing sustainable forest management in tropical forests that have been overexploited in the past. Technically this is not difficult, but the problem is to overcome a lack of timber supply whilst natural forests are left to regenerate and to regain a productive capacity. Irrespective of the driving reason, any conversion of natural forest to other types of land-uses should be subject to "Detailed Environmental Impact Assessment" (DEIA) allowing for public consultation and inputs.

• Agriculture and Palm Oil Cultivation

Agricultural land use in Sabah has expanded at a fast pace in recent decades. The total area of land under various agricultural crops was 263,399 hectares (ha) by 1970; 564,000 ha by 1980; 1,000,000 ha by 1990; 1,182,000 by 2000; and about 1,500,000 ha by 2010. This represents an annual growth rate of 11%, or 31,000 ha per year). A large portion of the fertile soil (estimated to be around 2.2 million ha) is distributed in the lowland areas of the State and was originally covered with forests. Approximately 730,000 ha of largely forested State Lands remain available and designated for conversion to agriculture. Palm oil is one of the fastest growing sectors in Sabah. About 20% of the current land mass of Sabah is covered with oil palm plantations. This industry is the second source of revenue to the state economy, behind services. The agriculture sector has been identified as one of 12 National Key Economic Areas (NKEA) for the Nation and will continue to be developed. This means that oil palm plantations are expected to expand heavily into the remaining 730,000 ha of State Lands.





Almost 19 percent (1.5 million hectares) of the State is under oil palm coverage in 2013.



The loss or degradation of riparian habitat continues to impact both biodiversity and local communities through decreased water quality (pollution, siltation) and degradation of habitat for aquatic life (including fish and prawns).

The palm oil industry depends heavily on healthy natural elements, such as soil and water to sustain the growth of the plants and to process the oil. External costs imposed by the expansion of this production include conversion of natural forests, destruction of water catchment areas, drainage and changes in water flow, water and air pollution through Palm Oil Mill Effluents (POME) and gas emission, loss of biodiversity, etc. The continuing conversion of State Lands to oil palm will further reduce forest cover and increase forest fragmentation. The impacts of habitat loss and fragmentation on biodiversity will be heightened by the extremely limited value of oil palm for wildlife in terms of offering connectivity among increasingly fragmented forest areas. As conversions of State Lands proceeds, forest reserves will bear an increasing responsibility for maintaining connectivity among remaining natural habitats, including protected areas. Additional externalities also include social costs with the creation of new human migration flux to source sufficient manpower from foreign countries. In 2004, the industry and other stakeholders created the Round Table on Sustainable Palm Oil (RSPO) to encourage sustainable production according to accepted criteria and best management practices. However the buy-in by the international market of RSPO certified oil has been rather slow and many companies are moving away from this certification scheme.

A flexible approach to green development targets would require a review of the performance of the plantation sector. For example, large areas of oil palm plantation have been developed in low-lying, swampy areas, where frequent flooding leads to high maintenance costs and reduced yields, or outright failures. Such areas should be identified and where possible land swaps could be considered in which these flood-prone areas would be reforested and oil palm located elsewhere (or financial compensation provided to companies). Potential benefits would be carbon credits from reforestation, improved hydrological functions of river systems and reduced flooding occurrence and severity, and increased availability of wildlife habitats.

• Tourism

Arrivals to Sabah have more than doubled between 2002 and 2010 and are expected to double again by 2020. In 2012, the tourism sector brought more revenue to the state than forestry. This growth results in increased air and road traffic, pollution and consumption. There is today a lack of infrastructure to cater for this increasing number of arrivals, as well as a lack of proper skills to handle international tourists. Community members need to be more actively involved and trained in tourism activities in order to share the revenue equitably. Last but not least, an increased number of tourists places additional pressures on ecosystems and wildlife, and can result in serious deleterious effects and tarnish the image of the State [12]. There is therefore an urgent need to diversify the state's tourism products (location and activities), to develop and implement best tourism practices, to develop mitigating measures for sewerage and solid waste generated by the influx of visitors to ecologically sensitive areas, and to develop more transboundary tourism activities. In order to address these challenges, tourism needs careful planning, cooperation and dialogue among a variety of stakeholders.

Although there will be many challenges to overcome in the greening of Sabah's economy, there are also several new initiatives in Sabah and on Borneo which can be instrumental in its success.

• Forever Sabah

Forever Sabah is a fledgling initiative that intends to assist the Sabah government in the conceptualization and implementation of its green growth objectives. Forever Sabah is a projectbased approach over an anticipated 25 year programme to support Sabah's transition to a diversified, equitable, green economy. It creates a platform for a range of partners to incubate and deliver mechanisms to shift the "business-as-usual" development approach to a greener and more inclusive economic development model. Its operating principles are based on 1) Catalysing positive institutional change through a ground-up, project-based approach; 2) Building capacity to sustainably manage Sabah's natural resources; 3) Further protecting and restoring Sabah's natural habitats; and 4) Enhancing social and ecological resilience in the face of changing climate and land use.

• Spatial Strategic Planning

A strategic approach to sustainable management and green economy objectives requires that for all new and existing land use allocations, a careful consideration is made regarding the benefits (e.g., agricultural production; employment; infrastructure), and costs (e.g., lost environmental services and associated costs, such as loss of flood buffering or sediment plumes affecting coastal fisheries; loss of wildlife habitat). This also requires that different institutional sectors, such as forestry, agriculture, public work, fisheries, tourism and environment work together in their spatial planning.

A collaborative planning process, under the name of "SPaCe" (Spatial Planning for Conservation and Sustainable Development) is currently being developed in Sabah to undertake a rapid systematic conservation assessment for the whole of the State. This assessment aims to capture forest conservation priority areas within Sabah to include into the Structure Plan 2033, and to inform all stakeholders about priority areas for biodiversity in the State. SPaCE intends to promote conservation agendas more thoroughly by firstly capturing spatially explicit information on where conservation priority areas are located, and secondly by provisioning suggestions of policy reform by stakeholders to promote State level conservation and sustainable development agendas.

The rapid assessment used a target based decision support method combining best available data analysis and stakeholder input to identify the conservation features to be included, and quantify how much of these features should be incorporated into the final planning product map. Orangutan, elephant, proboscis monkey and a number of other threatened mammal species were included along with information on a few critically endangered tree species, as well as forest types. The assessment used a conservation planning software called Marxan to generate these conservation priority areas. The analysis is based on a mix of input conservation feature files, targets of how much per feature want to be included, with least cost (costs were calculated using carbon stock, human footprint and species richness information). The final outputs were based only on areas of good forest therefore many severely degraded were excluded. As a result through stakeholder input the final map of 'conservation priority areas' was amended slightly to incorporate corridors, areas of Nipah palm and all remaining forest within the Lower Kinabatangan (see Map 3 for one of the final maps).



Map 3: Map of the final output from Phase I of SPaCe (Spatial Planning for Conservation and Sustainable Development) along with 2013 protected areas and HoB boundary. The 'forest conservation priority areas' (green) are those areas of good forest, that contribute towards meeting conservation targets for threatened species and forest types, with least cost to society and the environment. Additional areas important for connectivity and mangrove non-forest habitat were included.

Phase I of SPaCe was a rapid assessment conducted early 2013, and driven by HUTAN and WWF-Malaysia, in collaboration with many other key stakeholder groups including: NGOs, government departments, research and academic institutions. Phase I provided a knowledge gap and a series of maps providing a visual about the current situation. Phase II of SPaCe however, will undertake a more comprehensive, in-depth land use (spatial optimisation) study. The current Map shows that many conservation forests areas located within HoB are not fully protected and are subject to different types of land-uses (primarily exploitation under natural forest management practices). A refined analysis will indicate what areas are essential to support biodiversity within HoB, either because they appear as HCVF, or because they link fragmented populations together (connectivity). Phase II will assist the development of scale appropriate, State-wide spatial plans to facilitate the government to meet its economic development targets in a sustainable manner while promoting ecosystems and the services they provision, biodiversity conservation and enhancing the livelihoods of rural communities.

We have to acknowledge that many economic and environmental flows cross boundaries (e.g., Indonesian labour in Sabah oil palm, or rivers originating in Sabah but flowing into North Kalimantan, some major wildlife populations, etc.). Effective management of these flows and their sources requires cross-border coordination of planning and implementation of land use (see Text Box 2).

Text Box 2: Borneo Futures

Up until now, much of the geographic focus of the Heart of Borneo initiative (see below) has been on the island's mountainous centre. Protecting this upland "heart" is important, but is not enough in the light of ecological needs of Borneo's wildlife and the provision of forest ecosystem services to Borneo's beneficiaries. In a metaphorical sense, Borneo needs a full complement of ecological and systemic components: in addition to the beating "heart" that drives ecological flows, the island requires a "liver and kidneys" (filtering forests and wetlands), "lungs" (its carbon absorbing, oxygen emitting forests), "blood vessels" (rivers and streams), "guts" (the soils that create productivity), and a "brain" (the people that live in and use the system) [6]. Such broader, more holistic contexts build on the existing HoB framework but extend these to wherever this is relevant in Borneo's green development objectives.

The total approximate area for the HoB "heart" is around 30% of the island's land area. Extending the HoB management principles beyond the boundaries of this "heart" makes economic, social, and ecological sense [13]. A recent study led by "Bonreo Futures" indicated that among various optimization scenarios for achieving competing government targets (on forest cover, wildlife conservation, timber production, and oil palm production), strict adherence to implementing sustainable management within the HoB boundaries, but "business-as-usual" outside, resulted in sub-optimal performance. This scenario would incur much larger opportunity cost to Borneo's governments than other options, because 53% of land in Borneo would be required for protection or reduced-impact logging [14]. A more fluid approach to sustainable management of landscapes and natural resources, especially if it would allow changes to existing land use allocations, could result in an opportunity cost saving of at least US\$9 billion, along with substantially higher achievement of government targets for development and protection [14]. Sustainably managed natural forest concessions would play a major role in such scenarios, which is relevant to Sabah, because of its aim to certify all remaining production forests under the FSC standards or any internationally recognized scheme.

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Borneo Futures is a science initiative that aims to quantify social, economic, and environmental impacts of different land use scenarios for the entire island of Borneo, and provide political decision-makers with science-based information that guides their multiobjective planning. Knowing what the long-term impacts of decisions might be should prevent the implementation of sub-optimal land use. However, new scientific insights will not be enough to engender the kind of major shifts in political thinking and public mindsets required to secure the long-term survival of species such as the Bornean orangutan, and implement sustainable forest and land use management strategies. Indeed, these new findings need to be translated into concise and compelling politically relevant language. Once that language is available a process can be started of implementing political strategies that target specific people or organizations with the ability to translate the science into political action.



Sabah is privileged to be the home of the smallest subspecies of elephant, commonly referred to as the Borneo pygmy elephant.

The Heart of Borneo Initiative

Currently, the most ambitious conservation plan for Borneo is the Heart of Borneo (HoB) initiative. This initiative, initially promoted by WWF, was endorsed by the three countries on the island of Borneo and is currently implemented by the respective states (Annex 1). The HoB envisions that the equatorial rainforests included within its boundaries are effectively managed and conserved through a network of protected areas, productive forests and other sustainable land uses for the benefit of people and nature. This vision will be achieved through international cooperation led by the Governments of Brunei, Indonesia and Malaysia, supported by business and industry and sustained by a global effort. HoB focuses on five major programs: creation of a network of protected areas that is ecologically connected; sustainable management of natural resources; transboundary management initiatives; ecotourism; and capacity building. The HoB initiative has been a considerable success in engendering common thinking amongst the three nations about how forest and natural resources could best be managed on the island.

The imperative for collaboration of this nature extends beyond the political borders of Borneo's provinces and nation states. Active trilateral co-operation at the subregional level already exists, such as the cooperation among Brunei Darussalam, Indonesia, and Malaysia under the Transboundary Biodiversity Conservation Area initiative under the ITTO (International Tropical Timber Organization) projects, SOSEK-MALINDO (Sosial Ekonomi **BIMP-EAGA** Malaysia Indonesia), and (Brunei Darussalam Indonesia Malaysia Philippines-East ASEAN Growth Area). The HoB initiative and its extended principles of sustainable development can provide a

A conservation and sustainable development program aimed at conserving and managing the contiguous tropical forest on the island of Borneo

framework to strengthen tri-lateral co-operation with regard to environmental management.

The HoB Initiative was developed through a series of meetings convened in the region that pledged the importance of having a wider management unit to protect the HoB. These culminated in the tripartite meeting between Brunei Darussalam, Indonesia and Malaysia in Jakarta, Indonesia on 4th December 2006, during which the draft Declaration on the HoB Initiative was discussed and finalised. An expression of commitment through a declaration entitled "Three Countries, One Conservation Vision" was announced and formally signed by government representatives from the three countries, in Bali, Indonesia, on 12th February 2007 (Annex 1). The three countries have committed to build partnerships to secure the future of inland areas of the HoB Initiative. The general objective of the initiative is to carry out collaborative programs on conservation and sustainable development through the implementation of effective management and conservation of a network of protected areas, sustainable management of production forests and implementation of other sustainable land-uses.

Following the Declaration, the three countries established their own National Focal Points for HoB. The Federal Government of Malaysia formed a National Expert Working Group on HoB chaired by the Ministry of Natural Resources and Environment (NRE) with members from the States of Sabah and Sarawak. The Expert Working Group is tasked to monitor the implementation of the HoB Initiative for Malaysia. At the State level, both Sabah and Sarawak have created their respective HoB State Steering Committees (SSCs, chaired by the State Secretaries). The NEWG and SSCs meet regularly to discuss project implementation and emerging issues.

Every year, a trilateral committee composed of senior officials from the National Focal Points for HoB organizes a HoB Trilateral Meeting to report on the progress of HoB activities, to discuss further collaboration, and to provide directions for future actions. These annual meetings provide the mechanism for convening and executing a review of the entire Initiative. The Trilateral meeting is chaired by each country successively, following a rotation system. The National Focal Points of the HoB countries take their turns in acting as regional secretariat to coincide with their country's chairmanship. The Forestry Development Division of NRE serves as the National HoB Secretariat for Malaysia. The creation of a Permanent Trilateral Secretariat is still debated by the three countries (see Text Box 3).

Text Box 3: Is there a need for a permanent trilateral secretariat for HoB?

The need for a permanent trilateral secretariat has been discussed since the inception stages of the HoB initiative and has yet to be established to date. Current practice is for the chairmanship of the HoB Trilateral Meeting and accompanying functions of the secretariat to be rotated among the member countries each year. This system has its advantages of being simple, less bureaucratic and cheaper, and provides ownership to each country during its turn.

However, seven years of experience show that rotating the secretariat slows down the implementation of the HoB vision. This yearly rotation results in weak consistency and lop-sided coordination to prepare the Trilateral Meetings, develop strategic positions on regional and global issues, develop and implement monitoring strategies, and engage with potential development partners and international funders. In addition, weak ownership of the HoB at the regional level fails to reflect the trilateral collaborative efforts and sharing of responsibilities, resources, and benefits. For many, the lack of a permanent secretariat to drive the HoB and to assist in the implementation of its actions is one of the major limitations of the entire initiative.

A Trilateral Secretariat (or Permanent Regional Secretariat) should ensure that all the countries will equally benefit from the gains of the trilateral efforts. It should also engage actively and liaise with other international institutions, including funders, who want to support HoB activities.

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Various multilateral cooperation programs operating in South East Asia could provide a model for a functional HoB Trilateral Secretariat. Basic functions could include (1) technical and administrative support to organize meetings and workshops; to the development and implementation of monitoring activities; and to coordinate activities of the various national focal points and working groups; (2) to serve as regional clearinghouse for information collection and dissemination amongst member countries, development partners, and the general public; (3) to liaise with development partners, regional and international bodies to promote HoB and to seek financial support for its implementation.

The revision of the Tri-Partite HoB SPA offers the opportunity to assess the need for a Permanent Regional Secretariat for HoB and discuss the modalities of its possible creation.

On September 5th 2013, a joint statement between the three countries was made during the Special Ministerial Meeting on HoB held at the 7th Trilateral Meeting in Brunei Darussalam. This statement reaffirms the joint commitment to materialize the HoB vision signed in Bali in 2007; acknowledges and commends the five years' progressive achievements of the three countries under the HoB initiative; enhances the collaboration between the three countries to implement joint programs and activities; encourages green economy and sustainable development through Public Private Partnerships and other schemes; welcomes the assistance of international and regional organizations; reiterates the support to forest relevant processes and frameworks including the United Nations Forum on Forests (UNFF), the United Nations Convention on Biological Diversity (UNCBD), the United Nations Framework Convention on Climate Change (UNFCCC) and other related international multilateral environmental agreements; and finally reaffirms the development of practical programmes, policy and financing solutions to meet the goals of conservation and demands of sustainable economic development based on the five pillars of HoB, and the creation of enabling conditions in the HoB needed to realize an inclusive and balanced development.

On November 11th and 12th 2013, the Sabah Forestry Department organized its 6th HoB international conference themed "Heart of Borneo Natural Capital: Unleashing Their Potential for Sustainable Growth in Sabah". This conference was dedicated to the HoB's natural capital, and the efforts to further unleash their potential, including special focus on promoting economic activities that can be sustainably generated from natural capital. The aim is to identify and implement innovative ventures with responsible financing that could add economic and ecologic value to the HoB. This Conference included discussions on the forthcoming implementation of *Forever Sabah*, a 25-year programme aimed at supporting Sabah's transition to a diversified equitable green economy. The conference additionally presented this HoB Strategic Plan of Action, which describes the next steps to be taken by government agencies and non-governmental institutions to achieve Sabah's green development goals.

26



The importance of healthy and functional forest within Sabah's HoB area is crucial to Sabah's future.

Forest and land use within the HoB area (Sabah)

• Protected areas and land management units within the HoB (Sabah)

Within Sabah the HoB area extends 39,236 km² spanning mainly Sabah's core region. Of this region approximately 19% is composed of protected areas combining Class I Protection Forest Reserves (7,388 km²), Class VI Virgin Forest Reserves (437 km²), both under Sabah Forestry Department (SFD) jurisdiction, and Parks (2,440 km²) under Sabah Parks jurisdiction. A further 50% (19,720 km²) is Class II Commercial Forest Reserves that is made up of Natural Forest Management areas and plantations (mainly industrial tree plantations but with increasing oil palm plantations), under SFD. Class III Domestic Forest Reserves and Class IV Amenity Forest Reserves combined made up less than 1% (46 km²) of the HoB area combined, with both classes again under SFD. The remaining 25% (9,775 km²) of land mass within the HoB boundary will be State land or alienated titled land by the Lands and Surveys Department, such as Native title and Country lease title.

• Forest within the HoB (Sabah)

A preliminary assessment on forest cover from 2013 Landsat 8 images estimates the total forest extent within the HoB in Sabah is approximately 30,238 km². Using forest 'intactness' information derived from [15], intersected with 2013 forest extent data allows the quality of these forests to be estimated (see Map 4).



Map 4: Map showing the forest quality classes (Intact forests, Logged forests, Severely degraded logged forests, mosaic forest) within the HoB boundary area (yellow line) along with the 2013 Protected areas (black hatching). Forest extent outside the HoB area is shown in dark green.

Of the total 2013 forest extent only 8% (2,432 km²) is estimated to be 'intact' forest, i.e., forest that has never been logged by any industry. Within the HoB region, intact forest is largely restricted to Kinabalu Park, The Crocker Range, Maliau Basin, Danum Valley Forest Reserve, SG. Salilir Forest Reserve and Tawau Hills. Forests that have been logged by industry (i.e. have the presence of logging trails) is estimated to be the largest class comprising approximately 78% (23,834 km²) of the forest in the HoB area. Severely logged forests that also have logging trails, but have been so degraded and therefore lack forest spectral signatures within satellite imagery data comprised 8% (2,488 km²) of the forest within the HoB boundary. However, these types of forests may have been excluded from the forest extent altogether if canopy cover for forest was very open. Additionally, around 4% (1,120 km²) of the area was calculated to be under mosaic planting, though this might be an underestimate in some areas due to difficulty in image interpretation of the Landsat 8 images due to high cloud cover. The Agro-forest and forest re-growth includes areas of possible medium to tall agro-forests and forest re-growth with traditional rubber, fruit gardens and land under fallow where forests are regenerating. The remaining extent was classified as plantations or non-forest and one caveat of this preliminary information is that some areas may include industrial tree plantations which are hard to differentiate.

By using forest type data developed by the Forest Research Centre (FRC), that are based on soil and elevation associations, it is possible to identify what forest types are prevalent within the HoB area, as well as estimates of the extent of each forest type using the 2013 preliminary information. Of the 24 forest types found within Sabah, 20 types are found within the HoB area but four of these had extents under 1km². The dominant forest type is Upland Mixed Dipterocarp Forest comprising 46% of the forest extent. Lowland Mixed Dipterocarp Forest, Upland Mixed Dipterocarp & Kerangas Forest, Lower Montane Kerangas Forest and Lower Montane Forest enumerated 20%, 12%, 8% and 6% respectively. For further details, refer to Table 1.

Forest types	km²
Lower Montane Forest	1,692
Lower Montane Kerangas Forest	2,386
Lower Montane Peat Swamp Forest	14
Lower Montane Ultramafic Forest	160
Lowland Mixed Dipterocarp Forest & Kerangas Forest	892
Lowland Mixed Dipterocarp Forest	5,986
Lowland Seasonal Freshwater Swamp Forest	65
Lowland Ultramafic Forest	453
Sub Alpine Vegetation	10
Upland Kerangas Forest	102
Upland Mixed Dipterocarp & Kerangas Forest	3,701
Upland Mixed Dipterocarp Forest	13,827
Upland Mixed Dipterocarp Forest & Limestone vegetation	14
Upland Ultramafic Forest	851
Upper Montane Forest	38
Upper Montane Ultramafic Forest	45

Table 1: Forest types and extent within the HoB boundary.

Production of the First Strategic Plan of Action (SPA)

Following the signing of the HoB Declaration in 2007, it was agreed that as a next step, the three countries would prepare their respective project documents, which would set out the framework for each country's participation in the HoB initiative, and serve as a roadmap for realising the HoB vision. At the second Malaysia National Experts' Meeting, (Johor, July 2007), Sabah and Sarawak were requested to prepare their respective Strategic Plan of Action so that requests for funding could be made under the 9th Malaysia Plan Midterm Review. It was also agreed that state-level project documents, which would eventually be combined to form the project document for Malaysia, should address amongst others: the development objectives, outputs and targets, proposed activities, mechanisms of implementation, roles and functions of project partners, and administrative organisation and financial requirements.

The Sabah project document was formulated through consensus via two state-level workshops in Kota Kinabalu. The two main outputs of the first workshop (7th September 2006) were an agreement on the boundary of the Sabah HoB; and the identification of a set of priorities for the Sabah HoB. The main output of the second workshop (18th January 2008) was the formulation and prioritisation of key projects for Sabah HoB. The first Sabah SPA was produced by merging two documents: the Sabah HoB Project Document and the "Tri-national Strategic Plan of Action to conserve the HoB" that was unveiled in the 9th Conference of Parties to the Convention of Biological Diversity (COP9) (Bonn, 27th May 2008).

A set of targets was formulated for the SPA within nine general sectors that were fully detailed for the period 2008-2012. Resulting actions, targets and projects selected for implementation were regularly discussed with all stakeholders during yearly state-level HoB meetings and during regional forums conducted in Sabah every year since 2009. However the lack of clear indicators to evaluate and to monitor activities proposed in the SPA has been an impediment to assess how much of HoB vision was achieved in the state.

Revision of the SPA

In the spirit of renewing and recommitting to the common HoB tri-lateral vision (as articulated in the Tri-lateral Meeting held in Brunei in 2013), the Sabah State Steering Committee decided to revise the Strategic Plan of Action to encompass the period 2014-2020. This new document is expected to serve as a guideline for the continued implementation of HoB in Sabah.

The revision process of the Sabah HoB SPA was initiated during the International Conference entitled "Heart of Borneo +5 and Beyond: Shaping and Nurturing Sabah's Future Together" held in Kota Kinabalu on 6th and 7th November 2012. Five working groups (forests and biodiversity, agriculture and plantations, infrastructure and energy, community development, tourism) were convened: they identified and discussed issues, recommendations and stakeholder involvement. Results from these discussions were further explored through the organization of two State Steering Committee Meetings held in June and October 2013 in Kota Kinabalu. Several Steering Committee members were also consulted individually during the revision process: Sabah Forestry

Department, Sabah Wildlife Department, Department of Irrigation and Drainage, Department of Agriculture, Sabah Parks, Natural Resources Office, Department of Town and Regional Planning, State Economic Planning Unit, and WWF Malaysia. Results of these discussions formed the backbone of the production of the revised SPA for the period 2014-2020.

The revised Strategic Plan of Action for Sabah's HoB Initiative intends to present:

- 1. Potential synergies and conflicts of HoB and green development objectives within the National and State policy context;
- 2. Issues and challenges identified during November 2012 HoB consultation process;
- 3. Insight into enabling factors for green development in Sabah;
- 4. Specific recommendations for follow up action.



HoB IN THE CONTEXT OF NATIONAL AND SABAH POLICIES



Malaysia, and Sabah more specifically, have developed a number of laws, policies and plans with regard to the use of natural resources and aspects related to its utilization. In order to achieve the objectives of the HoB Declaration an assessment is needed of the synergies and possible conflicts between the different instruments – which is essential in enabling the various agencies involved in the implementation of HoB in Sabah to develop a coordinated plan of action that would be harmonised with national and state instruments, and ultimately, act as an overall guiding document for sustainable development in Sabah. This will ensure that the HoB initiative is in harmony with, and shall complement many of the existing laws, policies, plans and programmes pertaining to sustainable development, land use and conservation, at both the state and national levels. The key relevant legal, policy and planning instruments for both Federal and State are outlined below.

National Laws, Policies and Plans

(i) Environmental Quality Act, 1974

This national law on the environment aims at securing a clean and healthy environment for future generations, conserving the country's unique and diverse cultural and natural heritage by involving all sectors of society, and developing sustainable lifestyles and patterns of consumption and production. This Act introduces 37 subsidiary environmental regulations that addresses
specific issues including agro-based and manufacture industries, air emissions from mobile and stationary sources, noise, waste, and environmental impact assessments. Importantly, various programmes to monitor air and water quality are introduced under this Act, which is implemented by the Department of Environment.

Potential synergies with HoB: Regular monitoring of water and air quality is needed to ensure that the dual goal of economic development and sustainable use of natural resources remain compatible within HoB. In addition, this Act introduces the Environmental Impact Assessment mechanism, which is a key element to achieving a balanced and sustainable development within HoB.

(ii) National Environment Policy, 2002

This policy was formulated and adopted in 2002. The policy aims at continued economic, social and cultural progress and enhancement of the quality of life of Malaysians through environmentally sound and sustainable development. It integrates the three pillars of sustainable development: economic development, social and cultural development, and environmental conservation. It is based on eight inter-related and mutually supporting principles set to harmonise economic development goals with environmental imperatives: (1) stewardship of the environment; (2) conservation of nature's vitality and diversity; (3) continuous improvement in the quality of the environment; (4) sustainable use of natural resources; (5) integrated decision-making; (6) role of the private sector; (7) commitment and accountability; and (8) active participation in the international community.

Potential synergies with HoB: The principles of green development captured in the HoB Declaration are firmly in line with the sustainable development principles enshrined in the National Environment Policy.

(iii) National Policy on Biological Diversity, 1998 (revision pending)

Malaysia is a signatory to the UN Convention on Biological Diversity (CBD). The CBD vision is that "by 2050, biodiversity is valued, conserved, restored and wisely used, maintaining ecosystem services, sustaining a healthy planet and delivering benefits essential for all people". The National Policy on Biological Diversity was formulated in 1998. It aims to "conserve Malaysia's biological diversity and to ensure that its components are utilised in a sustainable manner for the continued progress and socio-economic development of the nation."

The national policy contains a set of principles and objectives for the sustainable utilisation and conservation of the nation's biological diversity, together with 15 strategies and action plans to meet these objectives.

The Ministry of National Resources and Environment (NRE) is in the midst of producing the 5th National Report to the CBD. Although Malaysia has yet to officially adopt the Aichi Biodiversity Targets 2011-2020 (a set of 20 strategic targets within the CBD framework), some of these targets are used to ascertain the progress of the country towards the five strategic goals of CBD which are: (1) to address the underlying causes of biodiversity loss by mainstreaming biodiversity across government and society; (2) to reduce the direct pressures on biodiversity and promote

sustainable use; (3) to improve the status of biodiversity by safeguarding ecosystems, species and genetic diversity; (4) to enhance the benefits to all from biodiversity and ecosystems services; (5) to enhance implementation through participatory planning, knowledge management and capacity building.

Many components of the HoB initiative correspond with the National Policy on Biological Diversity, which is being revised over the course of 2014-2015. It is imperative that a strong synergy be sought between the revised National Policy and the implementation of this HoB SPA (2014-2020) to ensure that both approaches to fulfil the CBD and the HoB visions.

Potential synergies with HoB: The relevance of HoB to Malaysia's National Policy on Biological Diversity is obvious. Borneo is a global center of species diversity and endemism, and good management of these assets will make a highly important contribution to global biological diversity objectives.

(iv) National Highlands Policy, 2007

The National Highlands Policy provides the framework for an integrated approach towards the conservation and sustainable use of the highlands of Malaysia. The overall objective is: *"to promote and commit to a pragmatic and progressive approach and stewardship towards conservation and sustainable use of the highlands that protect the fragile ecosystems and their productive contributions to the country and society, and in particular, the highland communities"*. This policy was developed in 2007 by the Economic Planning Unit (EPU) of the Prime Minister's Department, in collaboration with the Sabah and Sarawak State Governments. As part of formulating this study, the EPU commissioned a study on conservation and sustainable use of the highlands of Sabah and Sarawak, which resulted in the document Policy Strategies for the Conservation and Sustainable Use of the Highlands of Sabah and Sarawak (2007). This document is addressed in the following section on State laws, polices and plans relevant to HoB.

Potential synergies with HoB: All Sabah's highlands are found within the current HoB boundaries. Therefore, this policy contains objectives, principles and strategies that are directly relevant to HoB in the State. However not all of the sections that were developed under this policy apply to Sabah.

(v) National Ecotourism Plan, 1996 (revised version in preparation)

The first National Ecotourism Plan was completed in 1996 to provide an integrated approach for ecotourism to achieve national objectives described in the Malaysia Five Year Plans. The Plan adopted and promoted a clear definition of ecotourism, a clear policy to develop ecotourism in Malaysia (including planning procedures for ecotourism development, management plans, guidelines for ecotourism and marketing strategy). The Plan also reinforced "Eco" and "Agro-Tourism" Implementation Committees, strengthened national and local skills to upgrade ecotourism standards in Malaysia, and called for local community participation in ecotourism activities. The Plan also established monitoring and evaluation programmes. A revision of the National Ecotourism Plan is currently ongoing to update the Plan by taking into account contemporary issues and views of the government and various other stakeholders, and to reflect the new developments and potential ecotourism destinations.

Potential synergies with HoB: Tourism is one of the five key programmes needed for achieving the HoB vision. It is therefore important for the current and future ecotourism products found within HoB to be included within the revised National Ecotourism Plan. This Plan could also promote the actions identified in this HoB Sabah SPA as key elements to strengthen community involvement in tourism activities, to develop new destinations and best management practices. Tourism is one of the possible avenues that could be used to develop transboundary projects between the two Malaysian states of Sabah and Sarawak, and between the three HoB signatory countries.

(vi) National Policy on Climate Change, 2009

This policy recognizes that climate change (CC) is cross-sectorial in nature, transcends all levels of society and needs to be mainstreamed into development plans. It aims at ensuring climate-resilient development to fulfil national aspirations for sustainability. Through the policy, the government established several research themes under the "MyCLIMATE" umbrella encompassing CC policy responses and national security, CC and resources sustainability, CC adaptation and disaster risk reduction, CC and public health, CC awareness, CC and biodiversity.

Potential synergies with HoB: Results of the research undertaken under MyCLIMATE are relevant to HoB and need to be considered to develop strategic planning for the area. HoB could also build on the awareness efforts led by the government to familiarize agencies, private sector and the general public about the impacts of CC and best practices that need to be developed in order to minimize adverse impacts of CC on the future development of the country.

(vii) National Green Technology Policy, 2009

This policy states that green technology shall be a driver to accelerate the national economy and to promote sustainable development. Its objectives are (1) to minimize growth of energy consumption; (2) to facilitate the growth of green technology industry; and (3) to increase national capability and capacity for innovation in green technology development. Programmes developed under this policy target primarily four major sectors: energy, building, water and waste management, and transportation. Its strategic thrusts incorporate strengthening institutional frameworks, providing a conducive environment for green technology, and intensifying human capital development, research and innovation, as well as public awareness. The Green Technology Council is chaired by the Prime Minister of Malaysia.

Potential synergies with HoB: This policy gives a framework to develop the technology and expertise needed for Malaysia to move from a conventional economy to a green economy. Green growth within HoB could benefit from the technical expertise and guidance provided by this policy.

(viii)National Renewable Energy Policy and Action Plan, 2010

The vision of this policy is to enhance the utilisation of local renewable energy (RE) resources to contribute towards national electricity supply security and sustainable socio-economic development. The objectives are to increase RE contribution in the national power generation mix, to support the growth of the RE industry, to ensure reasonable RE generation costs, and to enhance awareness about RE. This policy is supported by an Action Plan that proposes activities to implement the recommendations and propositions developed in the policy document.

Potential synergies with HoB: Promoting renewable energy is one of the transformations needed to achieve a sustainable green economy within HoB. HoB could capitalize on this policy and Action Plan to stimulate the development of RE within HoB.

(ix) National Biofuel Policy, 2006

The National Biofuel Policy promotes the use of environment-friendly, sustainable and viable alternative sources of energy to reduce dependency on fossil fuels. In doing so, it seeks to enhance prosperity and well-being of all stakeholders in the agriculture and commodity-based industries through stable and remunerative prices. Its approach is based on five thrusts: (1) use of biofuel for transport; (2) use of biofuel for industrial sector; (3) development of adequate biofuel technology; (4) production of biofuel for export; and (5) promoting biofuel for a cleaner environment. Palm oil is the major source of biofuel for the country. Initially the government decided for 5% biodiesel blends of biodiesel ("B5"), and is currently looking beyond this level to reduce greenhouse gas emissions and provide support to the palm oil industry and for the wellbeing of small holders. Once the B5 program is implemented nationwide in July 2014, the total target palm biodiesel consumption is expected to reach 500,000 tons per year.

Potential synergies with HoB: The increase of biodiesel production to reduce greenhouse gas emissions and to support the palm oil industry needs to be accomplished through increases in yields and not through new changes to land-uses or increases in forest conversion to agriculture. A balance needs to be achieved between areas dedicated to agriculture and to other types of land-uses.

(x) National Biomass Strategy, 2011

The National Biomass Strategy was launched at "BioMalaysia" in November 2011 based on the fact that Malaysia is the world's largest exporter of palm oil, and in recognising that its waste alone holds tremendous potential for the creation of high value industrial applications. The primary objective of this strategy is to maximize the use of palm oil biomass to sustain the Gross National Income of the country within the 2011-2020 timeframe. This strategy looks at ways to use biomass for high-value downstream activities (bioenergy, biofuels, biochemicals), starting with palm oil biomass. This strategy is led by the private sector.

Potential synergies with HoB: The eastern part of Sabah has the potential to generate the cheapest palm oil biomass throughout the entire country. Increased biomass production does not require increased conversion of forested lands to agriculture.

(xi) Second National Mineral Policy, 2009

The objectives of the second National Mineral Policy (released in 2009) are to (1) ensure the sustainable development and optimum utilisation of mineral resources; (2) promote environmental stewardship that will ensure the nation's mineral resources are developed in an environmentally sound, responsible and sustainable manner; (3) enhance the nation's mineral sector competitiveness and advancement in the global area; (4) ensure the use of local minerals and promote the further development of mineral-based products; and (5) encourage the recovery, recycling and reuse of metals and minerals. This policy is supported by nine thrusts, one of them being environmental stewardship (thrust 3) requesting all mineral development to comply with existing laws, codes, guidelines and best mining practices, to implement recommendations produced in EIAs and other environmental management plans and audits, and to promote recycling of metals and minerals.

Potential synergies with HoB: Exploiting and extracting mineral resources that are found within HoB will have a deleterious impact on the landscape and on the ecosystem services offered by HoB. Although most of the mineral resources contained within HoB are not currently exploited, this policy gives strong guidance about ways to mitigate and to minimize the ecological costs of mineral resources extraction.

(xii) Vision 2020

Vision 2020 (Wawasan 2020) is the overarching vision for Malaysia that aims to place the country within the group of "*developed nations*" by the year 2020. "Developed" in this context is not limited to an economic sense, but also considers national unity and social cohesion, social justice, political stability, system of government, quality of life, as well as social and spiritual values.

The main emphasis of the Vision is economically related. To realize the Vision, an annual growth rate of 7% is required, which effectively translates to the doubling of the Gross Domestic Product (GDP) every 10 years. During the first six years after the announcement of the Vision, Malaysia recorded an 8.5% growth rate annually before the Asian financial crisis. The projection of Vision 2020 culminated in the popular phrase of '*Malaysia Boleh*' (Malaysia can), which sought to foster a stronger sense of unity and common purpose amongst the people. Vision 2020 is not purely a goal for economic development but also requires the development of a mature Malaysian society.

Potential synergies with HoB: Three of the nine Vision 2020 challenges, (1) establishing a scientific and progressive society; (2) establishing a fully caring society; and (3) ensuring an economically just society, in which there is fair and equitable distribution of the wealth of the nation, require the science-based planning inherent in the sustainability and green development principles of HoB. Fulfilling HoB objectives will make a major contribution towards achieving Vision 2020.

(xiii) Economic Transformation Programme, 2010-2020

The Economic Transformation Programme (ETP) is a comprehensive, 10 year programme beginning in 2010, that is designed to achieve the transformation of Malaysia into a high income nation by 2020. The ETP aims to lift Gross National Income (GNI) per capita from RM23,700 in 2009 to RM48,000 per capita in 2020, by spurring investment of RM1.4 trillion across 12 National Key Economic Areas (NKEAs) through 131 Entry Point Projects, and is set to create 3.3 million jobs across Malaysia in the process.

Key NKEAs that will work hand in hand with HoB Programmes in the future will be the Palm Oil, Agriculture, Tourism, and Education NKEAs; with other NKEAs such as Oil, Gas and Energy, Financial Services, Business Services, Healthcare, and Communications Content and Infrastructure NKEAs all playing a vital role in the overall development of Sabah.

The Palm Oil NKEA, for example, focuses investments upstream to increase yield per hectare and productivity through mechanisation, and enforcing best practice; while downstream investments focus on up-scaling the manufacturing of high value oleo-derivatives, biofuels, and selected pharmaceuticals, thus increasing the net economic growth returns from current landuses, reducing the pressure on land conversion, and reducing dependence on foreign labour in the process.

The Agriculture NKEA emphasises transforming Malaysia's traditional agriculture sector into the agribusiness sector of the future. Investments in this area will focus on developing biodiversity assets, diverse natural nutraceuticals and collectively integrated agriculture that increases economies of scale, improves output and returns per hectare, improves farm-gate profit margins and incentivises the highest quality standards and sustainable agricultural practices.

At the heart of the Tourism NKEA is the emphasis on growing yield from visitors rather than growing visitor arrivals alone. To achieve this, large scale investment will focus on the development of high-end resorts and attractions across Sabah to accelerate local job opportunities, increase the economic returns from natural assets, instil best practices, actuate low impact eco-design principles, engender increased conservation ethics and value for wildlife and biodiversity, and promote Sabah as a biodiversity centre of major global significance. Of direct relevance to Sabah is Entry Point Project 5: Developing an Eco-Nature Integrated Resort, which is expected to generate RM706 million by 2020 and 7,733 jobs.

Potential synergies with HoB: No NKEA specifically addresses conservation and sustainable management of the environment and the country's biodiversity. The environment is to be embraced as a global approach within the ETP and is expected to be kept in mind when NKEAs are implemented. Guiding the development of agricultural NKEAs and ensuring their environmental and social sustainability will help improve the global image of commodities such as palm oil, and thus facilitate better access to markets and global competitiveness. Malaysia's tourism NKEA depends greatly on well-managed environmental and ecological assets. A decline in those assets (wildlife, clean river and seas, air quality, etc.) will divert tourism to other areas in South East Asia and elsewhere. Trade-offs between potentially competing NKEA objectives need to be identified early and resolved through timely consensus based planning.

(xiv) Tenth (2010-2015) and Eleventh Malaysia Plan (2016-2020)

The 10th Malaysia Plan (MP) promises to translate the government's Economic Transformation Programme and the new economic model launched in 2010 into action. The key message of the 10th MP is that change is critical if Malaysia is to benefit from the shift of economic power from the West to Asia. The target is to achieve a high income and developed nation in just 10 years. This Plan is built in five strategic thrusts: (1) creating the environment for unleashing economic growth; (2) transforming government to transform Malaysia; (3) moving towards inclusive socio-economic development; (4) developing and retaining a first-world talent base; (5) building an environment that enhances quality of life.

The 10th MP has targeted a GDF growth of 6% per annum during the period 2010-2015. This growth will be led by the private sector and underpinned by the services sector. GNI per capita is projected to rise from about RM25,000 in 2010 to about RM40,000 by 2015.

One focus of the 10th MP is the maintenance of forest connectivity through the physical linkage of existing protected areas and the restoration of newly created protected areas. The Plan also emphasizes the need to enhance transboundary cooperation. About RM20 million was secured under this Plan for HoB to develop community forestry projects, forest restoration projects and ecotourism projects.

The 10th MP foresees rapid urbanization in Malaysia, requiring that inland environments keep providing services to expanding urban communities as well as remaining rural ones. New thinking requires that urban projects account for the environmental cost of development.



Figure 1: Evolution of the proportion of rural and urban population in Malaysia over a 30 years period.

Potential synergies with HoB: To date, most of the funding allocated to the HoB Initiative by the Government of Malaysia has been through successive Malaysia Plans, and remain the major financial resource for the successful realization of the HoB vision in Sabah. One of the 10 big ideas in the 10th Malaysia Plan is *"Valuing Our Environmental Endowments"*, as part of the goal to *"Build an Environment That Enhances Quality of Life"*. Better linkages between growing urban communities and rural communities that supply urban needs require carefully planned infrastructural developments that do not negatively impact environmental service provision. Increased funding opportunities will be made available to fulfil the HoB vision within the 11th Malaysian Plan.

(xv) Malaysia's AFFIRM framework, 2009

At the United Nations Framework on Climate Change Conference in December 2009, the Prime Minister of Malaysia pledged that Malaysia would make an ambitious attempt to reduce the country's carbon dioxide emissions by as much as 40% compared to 2005 levels, conditional upon transfer of technology and finance from developed nations. The Prime Minister emphasized that environmental sustainability can only fully materialize if there is a complete and holistic ecosystem that allows for it. For this reason, the government has identified six major components of the ecosystem that, when combined, form the acronym AFFIRM: 1) Awareness; 2) Faculty; 3) Finance; 4) Infrastructure; 5) Research, Development & Commercialisation; and 6) Marketing.

Potential synergies with HoB: The creation of "green collar" jobs, envisaged under Malaysia's AFFIRM framework, will spur the transformation of a "green economy". The government is providing effective financial incentives for businesses to explore green technology and adopt green practices with a fund amounting to RM1.5 billion. There is also consideration of tax incentives such as tax deductions for contribution towards environmental funds and tax breaks for buildings and designs that work harmoniously with nature. Finally, with regard to forestry and agriculture in the HoB, the government is embarking on developing eco-labelling for local products to be internationally recognized in terms of the green procurement initiative and export to overseas markets.

State Laws, Policies and Plans for Sustainable Development Within and Outside HoB

An area of 3,923,600 ha or about 53 % of the State of Sabah falls within the Heart of Borneo boundary. According to the HoB Declaration, *"effective management of forest resources and conservation of a network of protected areas, productive forests and other sustainable land-uses"* is required in this area. Sabah's legal and policy framework an ensemble of existing plans and programme , however, has a much broader remit, providing a basis for sustainable development both within HoB and extending beyond its boundary. The existing legal and policy framework, as well as key plans and programmes for sustainable development in Sabah are outlined in this section.

(i) Sabah Biodiversity Enactment, 2000

The Sabah Biodiversity Enactment (SBE) 2000 provides the legal framework for safeguarding the biodiversity and biological resources of the State. The Enactment provides an institutional framework through the establishment of the Sabah Biodiversity Council and the Sabah Biodiversity Centre (SaBC). The Council has an advisory function with SaBC serving as the secretariat to the Council. The mission of SaBC is to ensure that a close coordination and communication between all relevant stakeholders is maintained in order to efficiently manage biodiversity in the State. SBE 2000 provides guidelines for (1) the establishment of the Council, the SaBC, and the Biodiversity Centre Fund; (2) access to biological resources; (3) legal proceedings, offences and penalties for violating these provisions.

More recently, SaBC developed the Sabah Biodiversity Strategy, a document that aims to align Malaysia's commitment to the stated goals of the Convention on Biodiversity (see section xiv below).

Potential synergies with HoB: this Enactment is a key instrument for managing the biodiversity in the State and within HoB. It determines policies, guidelines and procedures to (1) undertake and conduct any kind of scientific research with biodiversity components (plants, animals); (2) grant access and use of biological resources – and traditional knowledge related to biological resources – for specific purposes such as medicinal, pharmaceutical, ethnobotanical, and etc.; (3) develop biotechnologies and biotechnological products; (4) to establish linkages with other institutions and bodies to further enhance preservation and research of biodiversity and traditional knowledge related to biological resources of Sabah's indigenous peoples. Any fieldwork activities (research, surveys, interviews, etc.) that occur within HoB needs to be proposed to and approved by SaBC. SaBC additionally acts as the clearing house mechanism for the State, and can play a key role to collect, gather and share information about HoB.

(ii) Sabah Environment Protection Enactment, 2002

The Sabah Environment Protection Enactment 2002 repealed the Conservation of Environment Enactment 1996. Consequently, the Environmental Conservation Department was renamed Environment Protection Department and was tasked to implement the provisions of the Environment Protection Enactment 2002 under the auspices of the Ministry of Tourism, Culture and Environment. The major aims of this Enactment are to: (1) carry out any action necessary to protect, conserve, rehabilitate, restore or maintain sound environmental quality; (2) incorporate environmental protection into any development activity; (3) protect sensitive areas for the conservation of biodiversity; (4) promote cooperation between Federal, State and Local Authorities on the formulation and implementation of environmental protection policies and programmes. The Enactment details activities that may have significant adverse effects on the environment and are therefore forbidden or restricted under the law. This includes land-based activities (tunnelling, alteration, drilling, destruction of wildlife habitat, discharge of pollutants, etc.); coastal-based activities; freshwater-based activities (damming, draining, discharge of water pollutants, etc.); and introduction of genetically modified organisms.

The Department plays a major role in ensuring that environmental considerations are adequately incorporated into the planning, implementation and control of development activities and the exploitation of natural resources. The Department identifies the types of development activities and exploitation of natural resources that are potentially damaging for the environment and should be subjected to mandatory Environmental Impact Assessments (EIAs). Parties responsible for such activities are required to avoid, remedy or mitigate these adverse effects; a license issued by the Director of the Environment Protection Department must be obtained before initiating any of the activities and must adhere to the recommendations issued in EIAs.

Potential synergies with HoB: EIAs are one of the major regulatory tools that promote and ensure best management practices within HoB. For projects and activities that take place within

HoB, EIAs need to explicitly consider the HoB goals and objectives. All EIAs should be thoroughly reviewed by implementing agencies, fulfill requirements for public consultations, and strictly adhered to by developers without any exception.

(iii) Sabah Forest Enactment, 1968

The principal forestry law in Sabah is the Forest Enactment 1968. The Forest Enactment provides for the gazettement of forest reserves, their use and management as well as for control of cutting and removal of forest produce from State Lands. Whereas the Sabah Land Ordinance deals with alienation of State Lands, the Forest Enactment regulates the removal of forest products on said lands. The Forest Enactment contains extensive provisions for creation and abolition of forest reserves. The Enactment stipulates that none of the listed reserves can be degazetted except when needed for a park, or a game or bird sanctuary. Forest reserves may be designated on any State Land, which is not already reserved under law. The designation must classify the reserve as one of the seven categories: Protection, Commercial, Domestic, Amenity, Mangrove Forest, Virgin Jungle Reserve, or Wildlife Sanctuary. The Forest Enactment also has provisions for forest management, and is therefore a key legal tool for the implementation of sustainable forest management in Sabah.

Potential synergies with HoB: The Sabah Forest Enactment is crucial for achieving sustainable forest management goals in the HoB and other parts of the State, as well as for the allocation of forested land to different reserve types. It is indeed one of the key tools for achieving green development goals in the State.

(iv) Sabah Parks Enactment, 1984

The Sabah Parks Enactment of 1984 is enforced by Sabah Parks, which is a statutory body administered by the Sabah Parks Board of Trustees under the Ministry of Tourism, Culture and Environment. The Enactment deals specifically with the gazettement and management of State Parks. The location and extent of each park is clearly delineated, and a land title for each park in perpetuity is vested in the name of the Board of Trustees of Sabah Parks. Under the Enactment, three terrestrial State Parks have been gazetted covering a total area of 243,216 ha —Kinabalu, Crocker Range and the Tawau Hills Parks. These parks contain important highland and lowland forest ecosystems and immense biodiversity. Parks additionally facilitate tourism, especially Kinabalu Park.

SP's priority is to ensure the long-term ecological integrity of parks, through strict protection over the core conservation areas. Given the immense pressure on, and competition for, resources SP recognizes the need to work beyond the statutory boundaries of parks to achieve biodiversity conservation goals. However, the Parks Enactment does not provide Sabah Parks with jurisdiction outside of the statutory boundaries. Therefore, SP is partnering with other agencies (e.g. SaBC, Sabah Forestry Department, District Councils, etc.) to fulfil its mandate. SP envisions that part of the future work to be invested in the Indigenous Community Conserved Areas (ICCA) where local communities are supported to establish their own conservation areas. These conservation areas, located outside of parks, will act as buffer and protect the core areas.

Potential synergies with HoB: The three above mentioned State Parks are important components of the HoB and the State's protected forest areas. The management of these parks provides important insight into the practical and financial challenges of the sustainable management of protected areas in the State. Also, Sabah Parks (together with the Sabah Forestry Department) are involved in the development of the Kinabalu EcoLincwith funding from the EU-REDD+ project. This is expected to be a unique landscape comprised of two state protected areas (Kinabalu and Crocker Range Parks), in addition to nine proposed community conserved areas managed by the respective local communities. The EcoLinc will be guided by nine objectives which address issues pertaining to the conservation and protection of the forests and its wildlife, while supporting sustainable community livelihoods and safeguarding the cultural values of this area. Although no funding from HoB was obtained for this project, the EcoLinc goals fully support the HoB vision. Other projects undertaken by Sabah Parks that consolidate Hob's goals include the establishment of Community Use Zones (CUZs) within the Crocker Range Park, the proposed nomination of the Crocker Range Park as a UNESCO Man and Biosphere Reserve, and the development of a rural resort in Mahua developed together with the Tambunan District Council and run by local community members.

(v) Sabah Wildlife Conservation Enactment, 1997

The aim of the Wildlife Conservation Enactment is to protect the endangered species of fauna and flora in the State as well as control international trade of these species. It also details specific punishments for parties who violate the rules and regulations put forth in the Enactment. The Enactment is enforced by the Sabah Wildlife Department (SWD), which is under the Ministry for Tourism, Culture and Environment. The objectives of the Enactment are to: (1) conserve the flora, fauna and nature of Sabah so as to ensure the perpetuation of all species within their natural habitats; and (2) manage the State's wildlife resources for the benefit of the people of Malaysia in general and of Sabah in particular.

Potential synergies with HoB: The importance of the Wildlife Conservation Enactment is clear in the mission statement of the Sabah Wildlife Department: "*To conserve the integrity and diversity of nature and ensure the sustainable and equitable use of the state's wildlife resources.*" Sustainable management of wildlife resources in Sabah needs to be guided through this Enactment and through the schedules of protected and totally protected species, as well as species for which licensed use is permitted. A pivotal provision within this Enactment is the possibility for SWD to appoint members of society at large as "Honorary Wildlife Wardens" (HWWs). HWWs are empowered by the Enactment and can therefore support the SWD's efforts to protect wildlife within and outside HoB.

(vi) Sabah Water Resources Enactment, 1998

The Sabah Water Resources Enactment 1998 allowed for the appointment of the Director of the Department of Irrigation and Drainage (DID) as Sabah State Water Resources Director, thus making DID the principal agency responsible for managing the state's water resources. The Enactment also establishes the Sabah Water Resources Council, chaired by the Sabah Chief Minister, with the Natural Resources Office as its Secretariat. DID is also mandated by the Drainage and Irrigation Ordinance 1956.

The Water Resources Enactment provides for the sustainable management of the water resources of Sabah, so as to promote the orderly, equitable and efficient use of water and to maximise its economic, social and environmental benefits for the future. Under the Enactment, DID can gazette Water Protection Areas (fully protected) and Water Conservation Areas (no change in land tenure but land use is regulated on through best management practice guidelines that are derived through extensive consensus building processes).

Potential synergies with HoB: This Enactment is relevant to HoB and green development in its relationship to the management of river water quality, catchment and land use management, flood control and prevention, river corridor management, wetlands management, management of aquatic and stream biodiversity, and management of ground water flows. A better understanding of the functional relationships between land-use, land cover and hydrological flows would allow the effective integration of water management in Sabah's overall land management. DID is currently establishing three Water Conservation Areas in Babagon, Liwagu and Tandulu and aims at developing an additional site in the Tawai area; all sites fall within HoB.

(vii) Sabah Inland Fisheries and Aquaculture Enactment, 2003 (not yet in force)

This Enactment provides a framework to sustainably exploit, manage and preserve inland freshwater fisheries throughout the State. This regulation specifically gives the Director of the Department of Fisheries Sabah the authority to manage and regulate all fisheries activities in the State's inland waters. This Enactment intends to provide guidelines to (1) prepare fisheries plans and aquaculture development plans (including the design of aquaculture zones, licensing and permits); (2) manage riverine fishing and fisheries (listing of legal and illegal activities); (3) declare community fisheries management zone; (4) regulate trade of live freshwater fish; (5) list and document the status of protected species; (6) control fish diseases; (7) protect and manage fish habitat and to create fish sanctuaries. At the time of writing, this Enactment is not yet in force.

Potential synergies with HoB: Freshwater fish resources and fisheries are threatened and are declining in many areas within HoB. Under this Enactment, important fish habitats can be designated as fish sanctuaries and protected by law, which would contribute to the recovery of these resources. Furthermore, the Enactment prohibits the use of destructive fishing practices, and offers a method of control for invasive fish species. Community-based fisheries resource management (also called "Tagal System") is being promoted by empowering local communities based on Section 58 of the Sabah Native Court Rules of 1995 and Section 36 of the Inland Fisheries and Aquaculture Enactment. The Tagal System was developed to address the problems of depleted freshwater fishery resources. Today, the Tagal System has been developed as an ecotourism product, and for small-range populations of freshwater fish species. The Tagal System has the potential to protect a wider range of species over basin-wide areas.

(viii) Sabah Mineral Enactment, 1999

This Enactment provides the conditions that apply to (1) land prospecting; (2) lands over which mining lease may be granted; (3) mineral water exploitation (with specific requirements for preserving riverbanks and to maintain water quality).

Potential synergies with HoB: Although mining in general is not a major concern for HoB in Sabah, this Enactment is important to mitigate negative side-effects linked to mineral water exploitation and other water-based activities that currently occur within HoB.

(ix) Sabah Antiquities and Treasure Trove Enactment, 1977 Sabah Cultural Heritage Conservation Enactment, 1997

The Antiquities and Treasure Trove Enactment 1977 provides for the control and preservation of ancient and historical monuments, archaeological sites and remains, antiquities and other cultural properties of national interest.

The State Cultural Heritage Council was established to advise the State Government on matters of policy, administration and management of cultural heritage conservation areas. These two Enactments reserve the right to declare any area of significant cultural heritage importance as a conservation area.

Potential synergies with HoB: HoB contains unusual and very diverse cultural values, and cultural and heritage sites that could be protected under these two Enactments.

(x) Town and Country Planning Ordinance for Sabah, 1950

For the State of Sabah, the development control process is governed by its Planning Act known as Town and Country Planning Ordinance 1950, often referred to as "Sabah Cap 141". The Act requires developers to apply for planning permission from the local planning authorities. According to Sabah Cap 141, local planning authorities may grant planning permission subject to certain terms and conditions in respect of the development, for the part or whole area, where planning permission has been approved. In addition, there is a list of general conditions stated in the provision of planning scheme documents that need to be fulfilled by the applicants when applying for planning permission.

Potential synergies with HoB: The Sabah Cap 141 is especially relevant to the HoB and the State's green development goals with regard to guiding road, industry and housing development. Presently, the Central Town and Country Planning Board is constituted by a range of government representatives, including high-level staff from the Ministry of Industrial Development, the Ministry of Tourism, Culture and Environment, Department of Lands and Surveys, Public Works Department, Health Department, Department of Agriculture, State Economic Planning Unit, Department of Mineral and Geosciences, and Department of Irrigation and Drainage. Better integration of key HoB and green development-related agencies with the Central Town and Country Planning Board is needed to ensure that synergies are maximized and conflicts minimized. Review of the planning system that would integrate views from all government agencies and highlight the major environmental values that need to be considered to achieve sustainable development need to be undertaken and integrated into a thorough planning scheme at both local and regional levels.

(xi) Sabah Land Ordinance - 1930

The Sabah Land Ordinance deals with State Lands and alienation of State Lands. Land matters in Sabah come under the jurisdiction of the State Government where claims to land ownership have to be registered with the State. Property rights fall into three categories: *state property rights*, which cover forest reserves; *private property rights*, which covers lands that have been alienated by the State, as well as individual Native Titles; and *communal property rights*, which cover Native Reserves and Native Communal Titles. Sabah's Land Ordinance provides protection for Native Customary Rights, stipulating conditions that must be met in order to assert a native customary land claim.

Potential synergies with HoB: The Sabah Land Ordinance is very relevant to green development because it translates land use planning into actual land titles and use rights, thus formalizing long-term land use in any particular part of the State. Effective implementation of green development policies requires that each decision to grant land title and ownership is reviewed in terms of the likely social and environmental impacts this would have. This is important for major industries, such as palm oil plantations, rights for which should only be granted after likely impacts have been reviewed in the light of sustainable development.

The granting of Native Title to lands, a key aspect of the social sustainability component of green development, is also controlled through the Sabah Land Ordinance, emphasizing its considerable importance for HoB. A better synergy between all agencies and the Lands and Surveys Department is therefore crucial to ensure that new land developments are not conflicting with the general goals of HoB.

(xii) Sabah Environment Policy (to be endorsed)

This policy on the environment marks an important milestone since it is the first State-level Environment Policy in the country. This policy recognizes that "maintaining a healthy environment based on clean air, healthy rivers, vibrant forests, productive land, bountiful seas, and cohesive communities significantly contributes to the prosperity of the State and its people". This policy provides a vision of the environmental conditions and standards for sustainable development of Sabah; an environmental framework to guide the development of environmental regulatory mechanisms to be used by decision makers and implementing agencies in the execution of their mandates and duties. This policy is based on the following five principles: maintenance of the living environment as a strategic pillar of sustainable development; and global environment conservation.

Potential synergies with HoB: Acknowledging the value of ecosystems for society is key to developing a sustainable green economy. This policy offers a framework that can be used to support HoB programmes. What is required for its implementation is a much improved understanding of the functional relationships between land cover, topography, environmental factors (e.g. climate, soils) and ecosystem service delivery, scientific insights that can be gleaned through the implementation and monitoring of the HoB activities in Sabah.

(xiii) Second Sabah Agricultural Policy, 1999-2010

The Second Agricultural Policy for Sabah for the period 1999-2010 sets strategic directions for agricultural and forestry development in the State. It ensures the agricultural sector's strategic role in the development of the State and focuses on new approaches to increase productivity and competitiveness. As the Department of Agriculture does not have its own Enactment, it therefore depends on other agencies to enforce its regulatory functions and ensure that the Department's recommendations are binding.

Potential synergies with HoB: a suitable and stable balance between agricultural land and land under other types of uses is needed within HoB. A special emphasis needs to be given to focus on palm oil consolidation and productivity instead of palm oil expansion; diversification and maximization of agricultural production; organic farming; and best management practices in order to align better agricultural practices with green agriculture. However, the lack of legislative backing weakens the role of DoA.

(xiv) Sabah Biodiversity Strategy, 2012-2022

The Sabah Biodiversity Strategy (SBS) is a ten-year strategy that charts the State's commitment to support Malaysia's national pledge to implement the Convention on Biological Diversity (CBD). Critically, this policy document recognises the real issues and challenges on the ground such as habitat degradation, habitat fragmentation, hunting and illegal wildlife trade, human wildlife conflicts, overfishing, climate change, invasive species, as well as knowledge gaps and the limits to the capacity of stakeholders. This comprehensive strategy focuses on practical solutions and achievable targets revolving around five key themes including:

- a. Engaging the peoples of Sabah; through a comprehensive communications program, environmental education at schools, volunteer programs, private sector partnerships and the recognition of community based resource management models;
- Reducing pressures on biodiversity; through improving agricultural yields, RSPO certification, Good Agriculture Practices, improving catchment management, mitigating wildlife conflicts, and incentivising green business;
- c. Building ecosystem resilience; through increasing connectivity and coverage of protected areas to include threatened species and high conservation value forests, ensuring adequate legislation is in place to protect biodiversity assets, controlling invasive species and ensuring strategic day to day management is in place on the ground;
- d. Improving our understanding; through enhanced research capabilities, and a more detailed focus on lesser known species and long-term monitoring across a wide spectrum of species, ecosystem and environmental indicators;
- e. Strengthening our capacity to manage biodiversity through the development of improved monitoring and management of data, skills training, enhancing enforcement capabilities, enhancing revenue collection mechanisms (such as entrance fees, eco-taxes, payments for ecosystem services, and carbon credits), and open international dialogues and exchanges of scientific knowledge.

Potential synergies with HoB: This strategy aims to tackle the biodiversity crisis that we face in Sabah. It presents practical solutions that were identified during in-depth stakeholder

consultations and complements the targets identified for HoB in Sabah. Many activities and projects listed under the SBS have been identified as key elements to fulfill the HoB SPA in Sabah.

(xv) State Action Plans for Orangutan; Elephant and Rhinoceros, 2012-2016

These three Species Action Plans (SAPs) were developed for the period 2012-2016. They are comprehensive directives that emphasize the need for immediate, practical and adaptive conservation actions to ensure the long-term survival of three iconic species living in the State (orangutan, elephant and rhinoceros). These plans present a consensus of recommendations arrived by the major stakeholders who are involved in the preservation and management of these species. The decline of these species is attributed to recent habitat losses, poor land-use planning, aggressive agricultural practices, poaching and changes in ecosystem characteristics. Identification of these threats resulted in the development of a series of actions that will, if implemented, secure the long-term survival of viable populations in the State.

Potential synergies with HoB: these three SAPs provide guidance for managing populations of orangutans, elephants and rhinoceros found in Sabah as well as their key habitats. Implementing these recommendations will greatly improve the chances of long-term survival of these three iconic species within HoB.

(xvi) Policy Strategies for the Conservation and Sustainable Use of the Highlands of Sabah and Sarawak, 2007

The study to formulate the Policy Strategies for the Conservation and Sustainable Use of the Highlands of Sabah and Sarawak commenced in 2005 through a commission by the Economic Planning Unit of the Prime Minister's Department. The study was expected to lead towards the formulation of a sustainable development strategy for the highlands of Sabah and Sarawak – the findings of this study, together with findings from the sister study on the highlands of Peninsular Malaysia, were combined to formulate the National Highlands Policy of 2007.

Various surveys and stakeholder consultations were held as part of this study, resulting in the identification of set of challenges and opportunities facing the sustainable development of Sabah's highlands, including the need to enhance management of biological resources, improving quality of life for highland communities, promotion of sustainable highland agriculture, enhancing scientific knowledge and promoting responsible tourism in the highlands. Ten strategies were formulated to provide a holistic approach to achieving the key objectives of conservation and sustainable development of the highlands of Sabah and Sarawak, which were accompanied by a series of short, mid and long term interventions. Overall, the strategies and interventions sought to implement a coordinated plan of action that would bring together multiple stakeholders in government, private sector, civil society and local communities.

Potential synergies with HoB: The highlands of Sabah fall almost entirely – if not completely – within HoB. In addition to its immense biological diversity and intact ecosystems increasingly rare elsewhere on the island of Borneo, the highlands of Sabah is also home to a rich cultural diversity and heritage, making the strategies and interventions identified in this policy a crucial part of realizing the HoB vision. Several interventions identified in this policy were incorporated into the first HoB Sabah SPA and the Sabah Biodiversity Strategy, and is also largely reflected in the activities proposed for this SPA.

(xvii) Integrated Coastal Zone Management, 1999, and Sabah Shoreline Management Plan, 2005

The purpose of the Integrated Coastal Zone Management (ICZM) Plan was to document the shoreline management issues and strategies that were essential for the effective management of the State's coastal zones. The ICZM was followed by the development of the Sabah Shoreline Management Plan, which was completed in 2005 and is implemented by the Environment Protection Department. These documents present a very good analysis and overview of the issues and threats that impact Sabah's coastal areas. Many of the negative impacts that arise at the shoreline result from actions outside the shoreline area (a "Ridges to Reefs" functional connectivity). The classical example of this being the increase in the suspended sediment load entering the coast from riverine sources. This leads to negative impacts on the shoreline.

Potential synergies with HoB: There are clear environmental links between land cover in the interior of Sabah and environmental functioning of coastal zones. Coastal and catchment hydrology (e.g. flood-related processes), water quality, and sediment load (affecting coastal reef systems and fisheries) are all important economic factors that directly relate to how the land is used in the HoB. Land uses planned and implemented on Sabah's land area must consider their long distance impact on the lowland and shoreline areas as well as marine ecosystems of the State. Additional downstream areas that are directly or indirectly impacted by activities implemented within HoB include the Coral Triangle Initiative (see Text Box 7), the Sulu-Sulawesi Marine Ecoregion , the Lower Kinabatangan Segama Wetlands RAMSAR Site, and the Kinabatangan Corridor of Life. Most of these initiatives have developed their own plans and strategies - their long-term viability needs to consider possible impacts arising from changing land-uses from within the HoB area.

(xviii) Sabah Tourism Masterplan, 2011-2025 (to be endorsed)

Sabah is among the few states in the country that has a master plan for Tourism. The second Sabah Tourism Master Plan pending endorsement by the State. Its principal objective is to formulate a strategic plan for tourism in Sabah to bring the industry to the next level of value added and long-term sustainable growth. This involves the utilisation and management of Sabah's tourism resources to benefit a wide range of stakeholders, including tourism players and rural communities, and also to contribute significantly to Sabah's economy. The tourism sector is the 6th highest contributor to Sabah's economy and contributes more than 10% of its GDP. A consistent increase in visitor arrivals and receipts has spurred job opportunities and economic growth and could bring RM 16 billion in revenue to the State in 2020. Recognizing the risks associated with mass tourism, the main goal of this master plan will be to increase the yield per visitor rather than targeting a large increase of tourists.

Most tourists in Sabah come for the State's pristine and easily accessible natural environments [12], both marine and terrestrial. In the region, Sabah is not the only place offering these attractions. Competing destinations are Penang and Taman Negara in Malaysia, while overseas are Sentosa Island in Singapore, Bali, North Sumatra and Batam in Indonesia and Phuket in Thailand. These destinations possess a mix of cultural and natural attractions, resorts, nightlife and entertainment, shopping and handicrafts and other supporting infrastructure. While Sabah may not be competitively placed in all of these areas, Sabah's advantage is in having a unique mix

of natural attractions, with short travel distances from international airports and an expanding road network.

Potential synergies with HoB: Tourism is one of the five major programmes identified for HoB. The Sabah Tourism Master Plan recognizes several initiatives to promote tourism in rural areas within HoB and thus bring direct benefits to local communities. An obvious synergy exists between securing the future of tourism in HoB, generating financial benefits for the people living within HoB, and ensuring the long-term sustainability of the environmental resources that draw people to Sabah.

(xix) Sabah State Structure Plan, 2013-2033 (pending completion)

The Sabah Structure Plan is an overarching spatial policy document that is being developed by the Town and Regional Planning Department (TRPD) and overrides the existing State Structure Plan which was to continue until 2020. The new Plan was considered to be warranted due to recent and rapid changes facing Sabah, and there was thus a need to address emergent issues by providing effective spatial planning management for Sabah in the long term. This strategic document will provide the TRPD with a planning document that advocates orderly, progressive and sustainable development of land uses across Sabah. The document recognises eight crucial sectors (Population, Economy, Manufacturing, Agriculture, Fisheries, Oil & Gas, Forestry and Tourism) with a further eight supporting sectors (Health, Education, Housing, Utilities, Communication, Town Centres, Open Space & Recreation and Transport), with the Environment being the impacted sector for all 16 identified sectors. This document emphasizes environmental impact issues and also highlights the impacts of Climate Change for Sabah.

The Sabah Structure Plan is a statement of strategic policies for the protection of the environment and the control of development over the next 20 years. The Plan also plays a key role in delivering environmentally sustainable development strategies by providing a framework for the systematic appraisal of development trends and environmental pressures. It provides a basis for investment decisions by local authorities, businesses and individuals, and for the plans and programmes of other organisations.

The Structure Plan will become a key policy instrument for Sabah and therefore should recognize specifically how green development objectives set up in other policies and strategies are going to be met within this new framework. This Plan should clearly identify (1) departments in charge of its implementation; (2) changes (political, organizational, financial and scientific) that are needed to prevent conflicts between non-compatible or partly compatible objectives set up in other policies and strategies; and (3) what and how to obtain financial resources needed to achieve the vision.

The Sabah Structure Plan provides the broad and strategic context for District and Local Plans, prepared by Local Authorities, which set out detailed policies and site-specific proposals on a larger scale map base (e.g. 1:5,000). Local Plans are required to conform generally to the overarching Sabah State Structure Plan.

Potential synergies with HoB: The Structure Plan will set out the strategic framework for the use of land and show the scale and direction of development required to meet the needs of the State

for jobs, houses and services, in a manner that safeguards and enhances the environment. This Plan is seen as the overarching document that will provide a framework for the development of District Plans for the 24 Districts in the State. It is therefore crucial for HoB to be in line with this Structure Plan and for each District Plan to consider the HoB vision during their development. Ideally, a "Green Development" committee in Sabah would review all development proposals with regard to their short and long-term sustainability impacts.

(xx) Sabah Development Corridor Blueprint, 2008-2025 (Greater KK Cities Transformation Programme)

The Sabah Development Corridor (SDC) is a comprehensive development programme. Beginning in 2008, the SDC is designed to quadruple Sabah's GDP by 2025 and create more than 900,000 jobs in the process. It is underpinned by three core principles: (a) capture high value economic activities; (b) promote balanced growth and distribution of wealth; and (c) ensure sustainable growth via strong environmental conservation.

The SDC emphasis is on the development of physical infrastructure, in core logistical areas, such as ports and roads, but also in water and power generation, to create an environment that is a magnet for investments in large scale downstream processing and manufacturing, spurring job creation and high value adding across a variety of sectors, while at the same time creating access and sustainable business opportunities for remote rural communities. In parallel, the SDC places an equally strong emphasis on human capital development, to provide higher value job opportunities, and foster major shifts in research and development, innovation, and business enterprise establishment, as well as up-skilling to meet the technical needs of the jobs of the future.

The SDC is highly focused on sustaining the natural resource base of Sabah, while maximising the economic opportunities from biodiversity through research, biotechnology, nutraceuticals, and tourism. A number of programme strategies are supported under SDC such as mainstreaming ongoing conservation programs, supporting efforts to increase protected areas and ecological corridors, reversing the impacts of industrial pollution, and the acceleration of adoption of good agriculture practices such as through the appropriate use of chemicals across all agricultural activities.

The SDC focuses investments on programs that reduce Sabah's food deficit and moves Sabah away from an over reliance on a single commodity such as palm oil, which currently dominates 90% of the agricultural landscape of Sabah. The SDC recognises the potential of global oversupply of palm oil from neighbouring Indonesia, and the critical importance of developing value-adding downstream product development, and diversification, to build human capacity and high economic return ventures through the entire palm oil value chain, and to alleviate the economic risks of the top heavy upstream nature of this sector. Through the modernisation of collection, packaging and distribution centres, the SDC focuses on sustainable agricultural practices, yield enhancement and increasing the productivity of palm oil and other crops, as well as on the generation of food self-sufficiency and food security. At the core of SDC's implementation strategy is a clustered approach to development. This concentrates the benefits of infrastructure, and facilitates synergies to evolve between logistics providers, product manufacturers, energy suppliers, and technical expertise. Examples of this include the education hubs in Sandakan, the Palm Oil Industrial Clusters (POIC in Sandakan and Lahad Datu), the integrated agrotech cluster at Kimanis Sabah agro-industrial precinct (SAIP) at Kimanis, the Keningau Integrated Livestock Centre, permanent food production parks (east and west coast), crop clusters, irrigation and rice cultivation centres, the Sabah herbs trading centre and agropolitan projects.

Present SDC plans are mostly concentrated in coastal urban areas. These include: 1) Tourism Development in Semporna; 2) Bandar Baru Titingan; 3) Kinarut South Satellite Township; 4) Sandakan Integrated Exchange Terminal; 5) Kudat Deep Water Oil & Gas Support Services; 6) Lahad Datu Hotel; and 7) Apas Industrial Estate. Several infrastructural projects in the interior of Sabah are also considered.

Potential synergies with HoB: Although most projects being developed under the SDC are located outside the HoB boundaries, several projects fall within the HoB range (Keningau Integrated Livestock Center, agropolitan, Tenom Agricultural Park, etc.). These developments should consider and align with HoB targets during the implementation and exploitation stages.



It is crucial to synergies various State policies and strategies to ensure sustainable development for Sabah in the long term.

Major Outcomes Achieved during the First SPA 2008-2012

Over the past 20 years, Sabah has seen an increase in initiatives and projects that aim to preserve the natural assets of the state and promote wise and sustainable development. These initiatives illustrate the overall collaboration that has been established between government, industry players, communities and NGOs alike, and that allow for the development of smart partnerships (see Text Box 4). These initiatives pave the way for the development of a green economy in Sabah. The absence of a sound monitoring system in the previous SPA makes difficult to gauge how much HoB really contributed to the major outcomes achieved in Sabah during this period of time. Although most of these achievements were not directly supported by HoB, they contribute to its implementation and reinforce its goals and vision. Below are a few examples of these efforts (note that this list is far from being exhaustive).

- The size of protected areas in Sabah has increased from about 939,000 ha in 2008 (or about 12.7% of the total land mass of the state) to a staggering 1,300,000 ha in 2013 (19.0% of the land mass);
- The creation of new protected areas has increased connectivity between forests and protected areas in the central parts of the State;
- Studies to use non protected areas to connect protected areas have been conducted: the Ecolink Assessment study about possible linkage between Crocker Range and Kinabalu Parks has been finalized;
- Crocker Range Park was proposed as a Man and Biosphere reserve under UNESCO;
- Reforestation and restoration efforts aim at restoring forest functionality over 150,000 ha are undertaken by various stakeholders in the most degraded parts of the state (roughly more than 500,000 ha of land need still to be restored);
- Reduced-Impact Logging practices are generalized to all commercial forest reserves and are subject to third party independent audit;
- New funding mechanisms to protect the rich biodiversity of the state have been identified and developed, such as the REDD + roadmap by the SFD for Sabah with the identification of three pilot sites, and the development of a Biodiversity Credit Initiative with the Malua Biobank project;
- Numerous field expeditions were carried out by various partners to increase knowledge about biodiversity components in protected and non-protected areas (Telupid complex, Imbak Canyon and Maliau Basin expeditions; Kinabalu and Crocker Range; etc.). These expeditions led to the discovery of new species of plants and animals, some of them endemic to Borneo (*Shorea acuminatissima, Dyospiros fusiformis*, etc.);
- The Bornean elephant was recently listed as a totally protected species under Annex 1 of the Sabah Wildlife Enactment, 1997;
- State Action Plans (SAPs) were developed for three iconic totally protected species: orangutan, Bornean elephant and Sumatran rhino. These SAPs provide clear and practical solutions to address immediate threats to these three iconic species;
- The Bornean Sun Bear Conservation Centre (BSBCC) was created in 2008 under a partnership between the SWD, SFD and the NGO Land Empowerment Animals People (LEAP). The center is located outside HoB boundaries but the facility is creating capacity to rehabilitate and relocate orphaned and ex-captive bears originating from HoB;



- Infrastructure improvement with the building of 17 field outposts by the SFD to better monitor and protect biodiversity in various forests located within the HoB boundaries;
- Development of a wildlife monitoring field manual and capacity building of rangers from the SFD and other agencies together with the NGO HUTAN to further enhance security of large areas within the HoB;
- Support to wildlife protection with the training of more Honorary Wildlife Wardens (collaboration between SWD, private companies, NGOs and local communities), the creation of the Wildlife Rescue Unit, etc.;
- Empowering communities in the management of local natural resources: promotion of Indigenous Community and Conserved Areas based on tagal system, Community Use Zoning in Crocker Range etc.;
- Development of a sustainable livelihood strategy and guidelines for Best Management Practices for farming with the communities of Liwagu catchment in Kundasang (inter-agency initiative between Department of Agriculture (DoA), Department of Drainage and Irrigation DID, Town Planning and the Pesticide Board;
- Community forest conservation carried out by the local community at Bundu Tuhan that can serve as a working model for other areas where conflicts exist between communities and protected areas;
- Development of community-based water quality monitoring in several villages within the HoB highlands;
- The Sabah Environmental Education Network (SEEN), launched in 2005, is successfully connecting various Government, Non-Governmental Organisations (NGO), educational institutions (from kindergartens to universities) and the private sector in order to carry out a variety of Environmental Education programmes throughout the State. SEEN is helmed by the Environmental Protection Department (EPD). Other states in Malaysia are still attempting to replicate this model;
- Launching of the "Sabah Biodiversity Clearing House Mechanism" (SaBCHM) that aims to provide a central databank for the State's biodiversity records under the Sabah Biodiversity Centre. The SaBCHM is presently under development and involves key agencies such as SFD, SWD, Sabah Fisheries Department, UMS, etc. This data base will be accessible online to Sabah State Government agencies and UMS;
- The Sabah Land Information System is hosting land-based data and is being currently developed by Lands and Surveys Department. It aims at serving both government agencies and the public. It is additionally designed to cater for both Government-to-Government (G2G) and Government-to-Business (G2B) protocols. The portal hosts integrated land-based data, including land title records, revenue, valuation, cadastral surveys, land development and land use data. However most of the information developed under this portal is not accessible vet;
- In 2008, the Chief Minister used the Sabah Development Corridor (SDC) as the reason for the State Cabinet's rejection of a 300 MW coal fired power plant to be located within the Darvel Bay as it would be in conflict with the policy's principle of sustainable growth via environmental conservation.

Text Box 4: Two initiatives that span across borders in Borneo

K@Borneo Initiative: launched on the 6th of April 2010, this initiative is a collective effort of 14 Libraries, Museums and Universities that aim to identify and preserve Borneo materials with participating institutions from Brunei Darussalam, Indonesia and Malaysia. The first phase of this initiative intends to identify, acquire, maintain and make accessible all types of information resources about Borneo, particularly those that are held in various locations throughout the island. The second phase will compile information/items originating from Borneo and found throughout the world. Currently, the Sabah State Library is heading K@ Borneo with support from the Sabah Foundation. The main objectives are: to establish regional co-operation on developing and sharing of information on Borneo; to provide training, organize workshops and meetings, share financial implications and information on Borneo; to cooperate in accordance with basic principles of sharing of resources, complementing each other strengths to develop a comprehensive database on Borneo.

MyGeoBioD (Projek Pangkalan Data Geospatial Bersepadu Biodiversiti Kebangsaan) is a national-level initiative under the Malaysian Remote Sensing Agency (MRSA) to develop a centralised geospatial biodiversity database. Once fully operational, it is envisaged that MyGeoBioD will be an internet-based geographic database with surveyed samples and distribution data of wild flora and fauna through back-end data processing. It will be accessible online to the public.

Issues and Challenges Impacting Existing Conservation and Development Initiatives in Sabah

Despite all the progress that gears to the development of a greener economy within HoB and Sabah in general, serious challenges and emerging threats to biodiversity remain within and outside the HoB boundaries. Globally, biodiversity loss and degradation increase with land-use changes and economic development. The challenge is to find a sustainable approach addressing the threats to biodiversity faced within HoB.

The threats to Sabah include:

- Habitat loss: conversion of natural habitat (forests) to other types of land-uses (mostly agriculture) is a major threat to biodiversity. Industrial landscapes have more simplified and homogenized characteristics than original forests and cannot support as many species. Conversion to different types of land-uses is still responsible for the destruction of forest every year within HoB;
- *Habitat degradation*: forest degradation primarily results from unsustainable forest exploitation. Although some species can adapt and thrive in degraded forests, many species will decline or go extinct when forest degradation is too prevalent. Degradation also decreases ecosystem functionality and resilience to external factors like climate change;

- Habitat fragmentation: agriculture and infrastructure development, as well as urbanisation and human population growth, result in the fragmentation of the overall landscape. By dividing wildlife populations in smaller sub-populations, habitat fragmentation is an emerging threat to most species. Isolated forest patches are also subject to "edge effects" and cannot retain fully their ecological functionality if they are too small. Re-establishing forest connectivity throughout the global landscape is currently a priority in the State;
- *Pollution*: destruction of riparian and buffers areas along rivers result in increased siltation and chemical run-off within the rivers [15]. This affects all species depending on freshwater systems [16], including local communities. Sources of pollution are countless: chemicals used for agriculture, oil palm mills, untreated waste from villages and cities, etc. [17];
- Wildlife poaching and wildlife trade: trade of animals and animal's parts for the domestic and international market is an increasing threat to biodiversity in Sabah. This trade is primarily organized to supply food, traditional medicine, pets, ornamental artefacts for tourists, collectors and else, etc. This trade targets an endless number of wildlife and plant species and is fuelling local and global extinction. International wildlife trade is well organized and intelligence about traders is difficult to obtain. Therefore tackling this growing issue requires a strong collaboration between state agencies and other stakeholders within and outside of Sabah;
- Invasive species: non-native plant and animal species introduced for economic reasons (acacia, tilapia, etc.), ornamental purposes (water hyacinth, water ferns, aquarium fish) or involuntarily (snails and etc.) can compete and replace native species occupying narrow niches and surviving in an already distressed environment. The Global Invasive Species Database listed 141 invasive species for Malaysia in 2011, with several dozen found in Sabah. Urgent actions need to be decided and implemented to limit the spread of these species.
- *Human wildlife conflicts*: human activities increasingly encroach into natural habitats and create more and more conflicts with wildlife. Conflict mitigation following forest conversion to agriculture has resulted in the loss of thousands of orangutans [18-19] and other animals. The recent poisoning of 14 elephants in the forest of Gunung Rara shows that conflict mitigation techniques used by people can be highly detrimental to conservation efforts and wildlife survival, and detrimental to the international image of the State;
- *Pressure from socio-economic drivers*: biodiversity is directly affected by the socio-economic factors around us. Population growth, income disparities, economic activities, education and access to information, health, employment, migration patterns and resource consumption have a major influence on the integrity of our biodiversity;
- Low economic value of existing timber resources: most forests in the State have been so heavily exploited in the past that their timber resources cannot contribute any revenue to the state economy. A recovery time of several decades will be necessary for these forests to rebuild a significant stock of exploitable timber;
- Decline of the self-sufficiency level (SSL) in the State: with a SSL for rice below 30%, Sabah ranks far below the national average (around 75%). There is an urgent need to focus efforts on livelihoods and self-sufficiency in the limited lands suitable for small-scale agriculture.



Sabah is the stronghold for the Malaysian orang-utan population with 80 percent of the population occurring here.

Issues and Challenges Identified during the HoB Consultation Process

Five working groups were convened during the International Conference, held in Kota Kinabalu in November 2012, to identify issues that hampered the implementation of the previous HoB SPA, and to provide recommendations to move forward:

- Group 1: Forest and Biodiversity
- Group 2: Agriculture and Plantation
- Group 3: Infrastructure and Energy
- Group 4: Community Development
- Group 5: Tourism

Generic issues that were identified by these five groups were further discussed during the subsequent stakeholder consultation process that led to the development of this SPA (see above). The results of these discussions provide a general framework to identify the new targets and projects that are listed in the current SPA. The major issues identified as being key impediments to HoB implementation were:

Institutional weaknesses

• Lack of transparency: many people who were consulted mentioned that the general lack of transparency was an impediment for implementing and enforcing agencies. This lack of transparency goes along with the absence of objective performance evaluation of government practices;

- Weak institutional synergy: the Ministry of Natural Resources and Environment (NRE) is chairing the National Expert Working Group on HoB, based on the assumption that international cooperation requires a strong Federal leadership. However, forest and most of the natural resources of Sabah are directly under the State's jurisdiction, weakening decisions that can be taken by NRE during HoB trilateral forums. Bearing in mind the legal and political realities of the Federation of Malaysia, a more functional mechanism between Federal authorities and State agencies for HoB would assist in its development;
- Conflicting policies and strategies: despite the number of policy and strategy documents and enactments available in Sabah, there remain gaps in jurisdiction and legislation. There is a need to develop an overarching document that would guide all development activities and would settle all the differences existing between all this policies. The new Sabah State Structure Plan is proposed to fill this gap. All agencies need to acknowledge the value and the strength of this Plan and comply with it;
- Weakness of the regulatory functions of several agencies: several key agencies cannot enforce regulations on their own and depend on other partners to implement the HoB recommendations. For example, recommendations for agricultural practices identified as being suitable in a given area by the Department of Agriculture should be recognized and respected by other stakeholders. The role of DID in water protection and water conservation areas within HoB is pinned on the simple idea of "water quality" as the fulcrum for mainstreaming biodiversity in land uses and livelihoods. HoB should support the application and adoption of DID's approach and methodology in all "conservation as usual" initiatives implemented by other agencies;
- Land titles are not in favour of biodiversity conservation: since land is becoming scarcer, the value of this commodity is increasing constantly. There is no proper land use policy for alienated lands that would promote conservation activities on gazetted lands, including on lands alienated to native people (Native Title; Communal Title and the gazettment of Native Reserves). There is also a lack of strategic and transparent planning for land-use allocation of the remaining State Lands in the State;
- Lack of communication and collaboration between agencies: there is a need to coordinate activities and initiatives between agencies and to avoid duplication to gain in efficiency. For example decisions made by a department can be ruled over by another department. Several parties consulted during the development of this SPA recognized that they were not aware of the current SPA and of what they were supposed to do under the SPA. Better communication between government stakeholders is needed;
- Lack of ownership of the HoB concept: HoB is seen as either an NGO (WWF) or a Sabah Forestry Department driven initiative, resulting in a lack of ownership and responsibility by other agencies. The whole HoB concept is unclear to many partners. For example, the role and functions of the Steering Committee need to be clearly stated and explained to all relevant agencies and partners. The State interagency meetings should be called more often than once every year. A proper Master Plan for HoB describing roles and functions of the different stakeholders would facilitate the vision's achievement;
- Poor capacity of stakeholders: it is recognized that human capital is a core element to the success of the HoB initiative. However, the shortage of technical expertise in the fields of wildlife monitoring, biodiversity assessment, taxonomy, ecology and ecosystem management, awareness and education, is a major shortcoming for all agencies in charge of

natural resources. The inadequate capacity of stakeholders to effectively protect, evaluate and manage biodiversity within HoB remains a major concern. HoB needs to enable and favor the employment of technically competent senior staff in the fields of conservation biology, ecology, environmental economics, environmental anthropology, bioinformatics, etc. Additional staff doesn't need necessarily to be directly employed by the state agencies. Skilled staff could be contracted to conduct and implement the tasks that are assigned to them and supervised by the state agencies. This model is increasingly used by several agencies, such as SFD and SWD. The Sabah Biodiversity Council could be the central platform where these skills would be developed;

• Weak transboundary cooperation: although transboundary cooperation is key to the success of HoB and is one priority of the previous SPA, very little progress has been made to date (except for a few initiatives such as the establishment of a technical Committee on GIS or on the transboundary protected areas management and ecotourism). The cultural heritage of the numerous ethnic groups within HoB could be used as a connector across borders. A common approach based on the "FORMADAT approach" could strengthen the transboundary cooperation.

Knowledge gaps

- Knowledge gaps: current knowledge of Sabah's biodiversity is still highly parsimonious and fragmented, except for a few iconic species such as the orangutan or the elephant. This lack of information hampers the design of wise strategies. It is essential to develop baseline data for biodiversity within HoB (see Text Box 5). An area of special concern is the poor documentation of some key ecological parameters, such as wildlife population dynamics, range and status, and some key socio-economic parameters, such as community livelihood patterns (e.g. hunter gatherers, swidenners, fishermen, etc.), cultural landscapes and traditional ecological knowledge (TEK);
- *Poor access to information*: accessibility to information about HoB is generally poor and needs to be improved. Information acquired within HoB needs to be centralized in an easily accessible central database to mainstream biodiversity in order to promote the HoB vision;
- Lack of monitoring and evaluation: there are numerous opportunities to increase the profile, knowledge and active support of the HoB within the three member countries. However, a coordinated strategy needs to be prepared around a set of clear objectives, and targets with appropriate Key Performance Indicators (KPI) for review on an annual basis (for example, during the annual tri-partite HoB working party meetings);
- Lack of proper spatial planning for conservation and sustainable development: up to now, conservation and development planning in the State have always been carried out separately and mostly on a piece meal approach (i.e. in a local context without focusing on the overall landscape of the State). Mapping of important areas for connectivity that would link highland, lowland, marine ecosystems and other key habitats need to be undertaken at the State level by using the latest spatial and remote sensing tools available (Borneo Futures and SPaCE initiatives: see above). Similar exercise has recently been completed for Kutai Barat, one of the newly formed districts in East Kalimantan in the Indonesian part of Borneo where a detailed land use plan has been developed by WWF in conjunction with government and other partners (the plan will be revealed in 2014). The HoB boundaries should be more explicit in order to know how many and what are the districts concerned with HoB activities;

 Inappropriate and uncoordinated land use development: an in-depth strategic land-use planning of the entire HoB that would take into account environmental values as a priority would be necessary to inform decision on land use optimisation. For example, proper spatial planning methods could identify land that is not suitable for agriculture or degraded lands that could be used to incentivize the oil palm industry to develop oil palm plantations.

Text Box 5: UNDP GEF Project on Biodiversity Conservation in Multiple-use Forest (2010-2018)

This project, executed following the UNDP guidelines for National Implementation is an integral part of the UNDP Country Programme Action Plan 2008-2012 signed between the government of Malaysia and the UNDP. This project is executed by the SFD as the representative of NRE. SFD works in collaboration with two governmental agencies (NRE and the State Economic Planning Unit) to facilitate the project. A project board chaired by the Natural Resource Office under the Chief Minister of Sabah and composed with SFD, Yayasan Sabah, NRE, EPU, SaBC, UMS, UNDP, and WWF is in charge of monitoring and evaluating the project progresses and coordination with various stakeholders that are involved in the delivery of the proposed outcomes [20].

The proposed 261,264 ha project landscape forms an important connecting landmass to three renowned protected areas in Sabah; the Maliau Basin Conservation Area (58,840 ha) to the West, the Danum Valley Conservation Areas (43,800 ha) to the East, and the Imbak Canyon Conservation Areas (16,750 ha) to the North. The objective of the project is to bring the landuses in the connecting landscape and protected areas under a common and integrated management umbrella strategy in order to mainstream biodiversity, ecosystem functions and resilience, while enabling ongoing sustainable uses. The project will meet this objective by achieving three interconnected outcomes: (1) provisioning of an enabling environment for optimized multiple use planning, financing, management and protection of forest landscapes; (2) demonstration of multiple-use forest landscape planning and management system, and (3) demonstration of innovative sustainable financing methods for multiple-use forest landscape management.

The final land-use decided for the entire project is still discussed by various stakeholders. It will ultimately be a complex combination of forest areas exploited under natural forest management (around 52,000 ha), areas converted to integrated mosaic planting (around 52,000 ha), areas under industrial tree plantations (around 14,000 ha), areas of agroforestry (oil palm plantations: around 30,000 ha) and class 1 forest reserves (about 120,000 ha).

The site lies within HoB boundary and a major challenge of the project is to justify and to align the goal for forest conversion with the HoB vision. A major emphasis needs to be given to identify and respect High Conservation Value Forests, corridors sufficient in size and number to allow for large mammals and other species to move across the landscape, buffer areas, as well as proper mitigation methods to minimize conflicts between wildlife and human activities.



Government of Malaysia - UNDP-GEF Biodiversity Conservation in multiple-use forest landscapes in Sabah.

Poor Awareness

- Poor awareness about HoB and biodiversity conservation in general: the widespread poor awareness about HoB (including its boundaries) and its unique biodiversity is a major impediment to involve the different societal levels in sustainable and less destructive practices than business-as-usual. A clearer sense of ownership of the whole concept by state agencies could improve the situation (see Text Box 6);
- Poor engagement with communities living within HoB: since managing forests and biodiversity is about managing people, there is a need to engage more with local communities within HoB (as illustrated by the efforts of SP to involve community members in conservation and sustainable management activities). Representatives from villages need to be involved in major decision processes in order to relay the information to local communities;
- *Poor understanding of the concept of green economy, green energy or green architecture:* • many policies in Malaysia and in Sabah (among them, the SDC and HoB) acknowledge that embracing a green economy will result in improved human well-being and social equity, while significantly reducing environmental risks and ecological scarcities." To develop this green economy requires the development of a Net Gain policy "in respect of environmental impacts from development projects, thus ensuring development overall contributes to environmental improvements. When assessing gains and losses, all environmental values will be taken into account and a no-development option will be included as a basis for the assessment" and the need to identify economic strategies "that can be applied to the production, protection and utilisation of environmental values. These economic values may be utilised as drivers of incentives, generators of revenues, and priorities for protection and management". Guidelines and examples to promote green growth and realize the full potential of a green economy are already available [7]. Financing schemes such as payments for ecosystem services are cited as an example. However, it is unclear whether there is deeper understanding of green economy as a holistic transformation to a mode of production and consumption that is low eco-footprint, socially just and equitable, and profitable. The three elements of green economy: planet, people, profit are often spoken of, but there does not seem to be a clear translation of these into the mechanism and actions of State agencies, i.e. how to actually do this. Immediate steps need to be taken to better inform stakeholders about the concept and how it can assist ensuring Sabah has a sustainable future.

Text Box 6: Why a successful HoB must involve local communities?

Eighteen districts in Sabah partly or fully overlap with the HoB, which represents a significant part of the human population living in the State. The precise number of people who live in HoB and the associated population growth rate are key parameters to consider how Sabah wants to implement this SPA. However, community participants at the breakout session during the 2012 HoB Conference expressed no knowledge of HoB and did not feel engaged in the business of development planning or biodiversity conservation inside HoB. At the same time, they also expressed a genuine interest to be involved in HoB activities and saw the relevance of the HoB concept to their communities.

It is not clear which State agency will step-up to coordinate community engagement activities in HoB. Placing the responsibility solely in the Rural Development Ministry (i.e. District Offices) has been the norm. This has clearly not been effective or meaningful on the ground. Community engagement is the primary thrust of the Sabah Biodiversity Conservation Strategy, and should also be adopted in HoB. In addition to the activities recommended under the Strategy, the principal HoB agencies (SFD, SWD, DoA, SP) must establish community engagement units that are advised by third party community engagement experts. Focus in HoB should be on:

- a. reinforcing and explaining the moral jurisdiction of agencies about the cultural aspects of biodiversity (including those within and outside protected areas). Agencies should not only also consider the basic needs of communities that are located inside protected areas but also communities living outside (but close) to the boundaries. The moral jurisdiction of agencies should include a human buffer¹ to all protected areas and production zones (commercial forest reserves, agricultural zones, etc.);
- b. agencies implementing mechanisms for meaningful FPIC protocols that relate to how the agency engages with communities;
- c. agencies being trained in how to work respectfully with communities (participatory planning, participatory action research toolkits) so that activities implemented on the ground speak directly to the needs of communities and will achieve an effective and meaningful "capacity building of communities";
- d. agencies to develop a clear, time-delimited plan of action for resolving human rights conflicts in HoB, including steps for ensuring the protection of social justice (i.e. not just environmental justice);
- e. HoB to adopt a bilingual approach, making HoB materials (documents, plans, online, workshop and conference materials) available in Bahasa Malaysia, from the start (i.e. not only when the need arises).

¹ The term "human / social buffer" refers to the human populations that live adjacent or close to a protected area (forest reserve, park, wildlife sanctuary or other conservation areas) that provide added support to the conservation and integrated management of a protected area. A vibrant human or social buffer seeks to reinforce peoples' positive attitudes towards conservation of protected areas (for example, by optimizing the benefits of ecosystem services on local livelihoods to encourage stewardship over resources and landscapes), while actively minimizing the negative impacts of human activities on the natural resources we want to protect.

Lack of funding and resources

- General lack of funding: the major agencies in charge of environmental resources in Sabah (SaBC, SWD, SP, DoA, DID, SFD and etc.) have inadequate human and financial resources to fulfill their respective missions. During the consultation, many agencies (but not all) recognized that current funding available for managing conservation areas was not enough and not committed for the long-term. Unless a serious effort is made to better understand the real economic value of forest, biodiversity and ecosystem services, creating sustainable financing mechanisms will remain challenging;
- No specific mechanism for HoB funding: a revolving and sustainable funding mechanism, such as a Trust Fund, is lacking for HoB. The absence of specific funding for HoB makes it difficult to assess and to quantify its success. However, being a national priority, HoB has already received some funding under RMK 9 and 10. Activities identified in the current SPA need to be aligned with RMK 11 in order for willing agencies to apply and to obtain additional funding under RMK 11 (see the financial section of this SPA);
- Lack of capacity to apply for funding: all agencies should be able to apply for funding under RMK 11. However, only a few regularly do so through NRE. Other agencies lack capacities or time to prepare the proposals required to request significant funding under RMK. The State Economic Planning (UPEN)could collaborate with agencies to equip them with skills to apply for funding from the Federal government, and other funding sources such as the European Union, the Global Environmental Facility (GEF), and etc. Such a vision will be achieved only if sufficient skilled human resources are allocated and trained to these tasks.



To ensure HoB's long term success, it is crucial for genuine engagement and participation with local communities.

PROGRAMS AND PLAN OF ACTION FOR THE SABAH HOB INITIATIVE

Sabah is in a transitional phase with economic targets driving the state towards high-income status at a rapid pace. This development will bring much benefit to the State and its population. Natural resources are Sabah's strengths. They need to be carefully managed and accounted for since the development of the state relies on their wise exploitation and on the ecosystem services they provide to us. As such, we have to encourage a healthy balance between development and sustainable use of natural resources. On the above basis, the five programs that were identified for the tri-national SPA are the backbone of this State SPA: (1) Transboundary Management; (2) Protected Areas Management; (3) Sustainable Natural Resource Management; (4) Ecotourism Development; and (5) Capacity Building. The HoB programs and actions should be based on spatial plans that take into account the needs for development and conservation together in a single process.

Within the five programs, the most pertinent priorities for Sabah identified at the state level Workshop held in September 2006 were:

- maintenance of forest connectivity through the strengthening of the Protected Area network;
- the establishment of sustainably managed forested corridors connecting these areas;
- enhanced transboundary cooperation.

These priorities remain the same in the revised SPA. This revised SPA is based on the consultation process initiated at the 2012 Conference "Heart of Borneo +5 and Beyond: Shaping and Nurturing Sabah's Future Together", and a series of stakeholder consultations conducted

Transboundary management Protected Areas Management Sustainable Natural Resource Management Ecotourism Development Capacity Building

in 2013 (see above). The list of targets, projects and activities identified during the consultation is completed with relevant projects identified in the Sabah Biodiversity Strategy. We recognize that the State of Sabah may not have the resources required to implement in isolation all the activities proposed in this SPA, and that some of these activities may extend beyond the time frame of this SPA (2020). Therefore a strong collaboration with a range of international partners (financial, organizational and structural) is needed to achieve the HoB vision in the State. Three time categories are also distinguished:

- short-term: 2014-2016
- medium-term: 2017-2020
- long-term: beyond 2020

PROGRAM 1: TRANSBOUNDARY MANAGEMENT

The three countries are aware of the different land use activities along the border. Therefore it is important for the three participating countries to enhance transboundary collaboration through the HoB Initiative for a better management of the forest and other land uses. Agricultural pressures, proposals for road building, the timber industry, the economic development at the border areas and fulfilment of subsistence needs of local people are also amongst the complex issues that threaten the forests and their wildlife in the area covered by the HoB Initiative of the three countries.

Program Objective: To address issues of management of natural resources and socio-economic welfare of local people on the border areas

No	Actions	Priority	Lead agencies
1	Develop and review master plan and to consider the HoB Initiative to be in line with country's constitution and legislation.	MEDIUM	All
2	Provide policy recommendation on conservation efforts and sustainable development in HoB area.	HIGH	All
3	Establish a mechanism for coherent and effective information-sharing.	MEDIUM	NRO
4	Undertake collective and/or joint research and studies, especially on the areas of biodiversity and socio-economic including social and demographic assessment.	MEDIUM	SFD SWD SP UMS
5	Undertake joint spatial planning of the HoB area.	HIGH	SFD LS

No	Action	Priorities	Code	Projects / Activities	Org.
1	Develop and review Master Plans and to consider the HoB Initiative to be in line with country's constitution and legislation.	 Strengthen the Protected and Conservation areas network 	1.1.a	 Review and standardize the management plans for HCVF areas, conservation zones, forest reserves or national and state parks within the HoB area across the different countries. 	NRE - All
			1.1.b	 Formulate management plans for forest reserves that border Kalimantan and Sarawak. 	SFD
2	Provide policy recommendation on conservation efforts and sustainable development in HoB area.	 Establish a clear policy for conservation 	1.2.a	 Strengthening National and International Cooperation; work closely with Sarawak on trans-boundary issues to support the implementation of the Sabah Biodiversity Strategy. 	NRO
3	Establish a mechanism for coherent and effective information-sharing.	 Establish a joint committee for enforcement and monitoring 	1.3.a	Enlarge the concept of MyGeoBioD to other countries in Borneo.	NRE
			1.3.b	 Assess scope for transboundary networking and cooperation in capacity building for protected areas management. 	NRE-SFD- MTCE

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No	Action	Priorities	Code	Projects / Activities	Org.
4	Undertake collective and/or joint research and studies, especially on the areas of biodiversity and socio-economic including social and demographic assessment.	 Establish a joint management committee for research and biodiversity assessment 	1.4.a	 Develop a road map for monitoring, documenting and researching lesser known species – trans-boundary - in collaboration with Sarawak, Brunei and Indonesian counterparts. 	SaBC-UMS
			1.4.b	• Undertake further research into biocultural diversity in collaboration with local indigenous communities at the transboundary zones: undertake collaborative research to document TEK of tribes living and ranging in Sabah and surrounding countries.	SaBC-SM
			1.4.c	• Improve our understanding of the birds, insects and plants by expanding our research to lesser-known species with trans-boundary range: large mammals, birds, fish.	UMS-SWD- SFD
5	Undertake joint spatial planning of the HoB area.	1.5.a	 Develop a comprehensive eco-region planning at the landscape level indicating all major habitats and biodiversity hotspots of the HoB, including pathway for connectivity, produced as a baseline tool for the development of the HoB Master Plan. This Masterplan for HoB landscape-level conservation will zone High Conservation Value Forests, protected areas, corridors, buffer areas and exploitation area throughout the entire HoB. 	All	
			1.5.b	• Develop the necessary mechanisms for spatial data to be shared with trans- boundary counterparts in Sarawak, Brunei and Indonesia (Support to the GIS working group).	All
PROGRAM 2: PROTECTED AREAS MANAGEMENT

The role of protected areas becomes increasingly important to withstand the high pressure on the Borneo rainforest. Thus, effective management of protected areas is vital to conserve the biological richness in the protected areas not only in HoB areas but in areas that have been declared as such.

Program Objective: To enhance and promote effective management of protected areas within the HoB area, with the emphasis on those situated along common border, in order to conserve and maintain forest biodiversity and the ecological linkages.

No	Actions	Priority	Lead agencies
1	Identify, assess and establish transboundary conservation zones in order to strengthen the management of these protected areas based on their cultural and natural heritage values, water catchments capacity and biodiversity richness.	HIGH	NRO MTCE All
2	Develop and enhance standard operating procedures and systems for monitoring and evaluation of the trans-boundary conservation area management, and undertake joint monitoring and evaluation activities if necessary.	HIGH	MTCE SP SFD
3	Develop and enhance systems and implementation for transboundary protected areas collaborative management program, to include local community and other stakeholders.	HIGH	MTCE SP SFD
4	Develop and enhance approaches for improving land and vegetation management on areas cultivated by local communities, within or adjacent to protected areas.	MEDIUM	DoA DID SP SFD
5	Establish a master list of protected areas within the HoB with information on the management objectives, special feature and the relevant agencies and personnel involved as well as the respective country categories.	LOW	MTCE SP SFD
6	Promote institutional linkages among the protected area within the HoB	HIGH	ALL

No	Action	Priorities	Code	Projects / Activities	Org.
1	Identify, assess and establish transboundary conservation zones in order to strengthen the management of these protected areas based on their cultural and natural heritage values, water catchments capacity and biodiversity richness.		2.1.a	 Formulate the "Ulu Padas – Pulong Tau – Gunung Mulu-Brunei connectivity project". 	SP-NRO
		Strengthen the Protected	2.1.b	Assess scope for trans-boundary conservation between Sabah and Sarawak (Maligan Forest Reserve).	All
		 and Conservation areas network Establish buffer zones for PAs 	2.1.c	 Assess scope for trans-boundary conservation between Sabah and Kalimantan (Ulu Padas, Kalabakan Serudong, watershed management). 	NRE
			2.1.d	Manage the Kuala Maga-Bukit Rimau Conservation Area.	All
			2.1.e	Establish and maintain critical corridors.	All
2	Develop and enhance standard operating procedures and systems for monitoring and evaluation of the trans-boundary conservation area management, and undertake joint monitoring and evaluation activities if necessary.	 Formulate management plans for PAs Establish a clear policy for conservation 	2.2.a	• Develop or revise, and implement management Plans for all Protected Areas that are not currently covered by such documents (see 2.5.a).	All

No	Action	Priorities	Code	Projects / Activities	Org.
			2.3.a	• Support the establishment of an Indigenous and Community Conserved Area (ICCA) Network among the three countries.	NRE-All
3	Develop and enhance systems and implementation for transboundary protected areas collaborative management program, to include local community and other stakeholders	 Identify mechanism of networking between agencies and local communities 	2.3.b	Collaborating with Indigenous Communities within Protected Areas and Forest Reserves: implement the Community Uses Zone (CUZ) at Crocker Range Park.	SP
	Stakenoluers.		2.3.c	Conduct training and awareness programmes on intellectual rights and "Free, Prior and Inform Consent" (FPIC) for local communities.	SaBC
	Develop and enhance approaches for improving land and vegetation management on areas cultivated by local communities , within or adjacent to protected areas.		2.4.a	Review land-related legislations to identify opportunities for improvements: Encourage conservation on alienated land and native reserves.	LS
		 Focus on human dimension (i.e. environmental awareness /education) 	2.4.b	Establish the Kinabalu ECOLINC.	SP
4			2.4.c	Transform AGROPOLITAN in sustainable projects by developing adequate and relevant development plans and BMP guidelines.	DoA-DID- EPD
			2.4.d	Development of sustainable livelihoods with Crocker Range Park MAB pilot villages.	SP-DoA
5	Revise and update the master list of protected areas within the HoB with information on the management objectives, special feature and the relevant agencies and personnel involved as well as the respective country categories.	 Formulate management plans for PAs at a global perspective Establish a clear policy for conservation at the landscape level 	2.5.a	• Revise the Masterplan for Protected Areas that was developed in 2006 under BBEC II and zone all protected areas, corridors, buffer areas and exploitation area throughout the entire HoB (see 1.1.a).	All
6	Promote institutional linkages	Identify mechanism of	2.6.a	• Obtain the UNESCO "Triple Crown" which is (1) World Heritage, (2) Man and Biosphere, (3) Global Geo-Park.	NRE-SP NRE-MTCE
0	among the protected area within the HoB.	agencies	2.6.b	Nominate the Maliau Basin, Danum Valley and Imbak Canyon as a UNESCO World Heritage Site.	SFD-YS- MTCE

There are a number of forestry concessions which cover a portion of the total area of the HoB Initiative. The HoB area covers the source of 14 of Borneo's 20 major rivers. The complex soil and terrain, together with altitudinal sequence, give rise to a particularly wide range of habitats for plants and animals. It is therefore in the interests of all the three participating countries to have extensive forests in adjacent areas in order to ensure the mitigation and adaptation to climate change, management of watersheds, conservation and benefit sharing of biodiversity richness, carbon stocks, and other environmental services. The HoB Initiative vision supports the maintenance of such forests and other sustainable land use already in place, either unexploited or managed under sustainable harvesting practices.

Program Objective: To manage the natural resources outside the protected areas network through the development and implementation of sustainable land uses.

No	Actions	Priority	Lead agencies
1	Enhance and strengthen existing mechanism and guidelines to ensure the implementation of best practices natural resources management, sustainable use principle and ecosystem approach in all natural resources uses, including forestry, agriculture/plantation, mining and water resources within the HoB area.	HIGH	All
2	Develop scheme for rehabilitation and restoration programs on the degraded forest areas in the HoB.	LOW	SFD
3	Promote HoB areas as potential Reduction of Emission from Deforestation and Degradation (REDD) project sites.	LOW	SFD NRE
4	Enhance protection of wildlife through appropriate programmes and application of legal and management tools	HIGH	SWD
5	Land use analysis and strengthening of planning scheme ¹ control to ensure appropriate land uses	HIGH	SFD-LS-DoA-DID

¹Scheme has here a slightly different meaning than in the Sabah Structure Plan.

Forest - Wildlife Enhance and strengthen existing mechanism and guidelines to ensure the implementation of best practices management, sustainable approach in all natural resources uses, including forestry, agriculture/ plantation, mining and water resources within the HoB area. • Very clear functions for all seven forest classes • Improve FMU management plans (third party certification in HoB promoted and adopted) of best practices management, sustainable all natural resources uses, mining and water resources within the HoB area. • Very clear functions for all seven forest classes • Improve fMU management plans (third party certification in HoB promoted and adopted) promoted and adopted) promoted and adopted) of best practices management, sustainable all natural resources uses, mining and water resources within the HoB area. • Improve fMU management plans (third party certification in HoB promoted and adopted) 0. Develop a Forestry Policy in FMU area (all forestry operations within all natural resources uses, mining and water resources within the HoB area. • Increase research on freshwater species and ecosystems in Sabah. • Increase research on freshwater species and ecosystems in Sabah. UMS-DID- DoFS 3.1.d • Identify suitable areas (idle land) for appropriate forest plantations outside protected areas and identified HCVFs. SFD 3.1.d • Identify suitable areas (idle land) for appropriate forest plantations outside protected areas and identified HCVFs. SFD 3.1.f • Develop regulation with strict control on forest reserve conversion, that provides for public consultancy/scrutiny. SFD 3.1.h	No	Action	Priorities	Code	Projects / Activities	Org.
Enhance and strengthen existing mechanism and guidelines to ensure the implementation of best practices management, sustainable use principles and ecosystem approach in all natural resources uses, including forestry, agriculture/ plantation, mining and water resources within the HoB area. • Very clear functions for all seven forest classes 3.1.a • Prepare a Sabah Red Data Book for threatened plants animals. SFD-SWD- UMS-SP 1 • Improve management, sustainable use principles and ecosystem approach in all natural resources within the HoB area. • Very clear functions for all seven forest classes • Increase research on freshwater species and ecosystems in Sabah, particularly highland swamps and peatlands: Establish aquatic life fish inventory for important rivers in Sabah. • Increase research on freshwater species and ecosystems in Sabah, particularly highland swamps and peatlands: Establish aquatic life fish inventory for important rivers in Sabah. 0.1.C • Identify suitable areas (idle land) for appropriate forest plantations outside protected areas and identified HCVFs. 0.FS 3.1.d • Develop responsible harvesting • Develop reteria, leading resources uses, including forestry, agriculture/ plantation, mining and water • Develop reteria, leading to legislation for forest reserve conversion to ITP community-based forest • Increase the number of forestsr trained in FSC and other certification standards. SFD 3.1.h • Provide multiple-use forest areas for community livelihoods and recreation. SFD				Foi	rest - Wildlife	
existing mechanism and guidelines to ensure the implementation of best practices management, sustainable use principles and ecosystem agriculture/ plantation, mining and water resources within the HoB area. Seven forest classes FMU management plans (third party certification in HoB prove FMU management plans (third party certification in HoB proved and adopted) 3.1.b • Ensure protection of rare, threatened and endangered plants in forest management plans and incorporate the conservation and re-introduction of rare, endangered and threatened indigenous plants. All 1 • Improve to ensure the implementation of best practices management, sustainable use principles and ecosystem and cosystem and cosystem an		Enhance and strengthen	Very clear functions for all	3.1.a	Prepare a Sabah Red Data Book for threatened plants and animals.	SFD-SWD- UMS-SP
Implementation of best practices natural resources management, sustainable use principles and ecosystem all natural resources uses, including forestry, agriculture/ plantation, mining and water resources within the HoB area.promoted and adopted) Forestry Develop a Forestry Policy in FMU area (all forestry operations within HoB are committed to or/are sustainable/ responsibly managed)3.1.cIncrease research on freshwater species and ecosystems in Sabah, particularly highland swamps and peatlands: Establish aquatic life fish inventory for important rivers in Sabah.UMS-DID- DoFS11Image: Committed to or/are sustainably/ responsibly managed)3.1.dImage: Committed to or/are sustainably/ responsibly managed)Image: Committed to or/are sustainable to or/are sustainableImage: Committed to or/are sustainable to or/are sustainableImage: Committed to or/are		existing mechanism and guidelines to ensure the	xisting nechanism nd guidelines b ensure the mplementationseven forest classes• Improve management plans (third party certification in HoB promoted and adopted)•f best practices atural resources nanagement, ustainable se principles nd ecosystem proach in II natural esources uses, ncluding forestry, griculture/•Improve management plans (third party certification in HoB promoted and adopted)•Develop aaForestry Policy in FMU area (all forestry operations within HoB are committed to or/are sustainably/ responsibly managed) ••Guidelines for responsible harvesting to legislation for forest reserve conversion to ITP ••Community-based forest	3.1.b	• Ensure protection of rare, threatened and endangered plants in forest management plans and incorporate the conservation and re-introduction of rare, endangered and threatened indigenous plants.	All
1 sustainable use principles and ecosystem approach in all natural resources uses, including forestry, agriculture/ plantation, mining and water resources within the HoB area. HoB are committed to or/are sustainably/ responsibly managed) 3.1.d Identify suitable areas (idle land) for appropriate forest plantations outside protected areas and identified HCVFs. SFD 3.1.e Guidelines for responsible harvesting Guidelines for responsible harvesting Identify suitable areas (idle land) for appropriate forest plantations outside protected areas and identified HCVFs. SFD 3.1.e Guidelines for responsible harvesting Identify suitable areas (idle land) for appropriate forest plantations outside protected areas and identified HCVFs. SFD 3.1.e Develop criteria, leading to legislation for forest reserve conversion to ITP Increase the number of foresters trained in FSC and other certification standards. SFD 3.1.h Increase the number of forest areas for community livelihoods strengthened SFD 3.1.i Formulate state-wide strategy for forest fire management. SFD		implementation of best practices natural resources management,		3.1.c	 Increase research on freshwater species and ecosystems in Sabah, particularly highland swamps and peatlands: Establish aquatic life fish inventory for important rivers in Sabah. 	UMS-DID- DoFS
and ecosystem approach in all natural resources uses, including forestry, agriculture/ plantation, the HoB area.responsibly managed) Guidelines for responsible harvesting3.1.e• Enforce Reduced Impact Logging Rules under the Forestry Enactment.SFD3.1.e• Develop criteria, leading to legislation for forest reserve conversion to ITP strengthened3.1.f• Develop regulation with strict control on forest reserve conversion, that provides for public consultancy/scrutiny.SFD3.1.f• Develop regulation with strict control on forest reserve conversion, that provides for public consultancy/scrutiny.SFD3.1.g• Increase the number of foresters trained in FSC and other certification standards.SFD3.1.h• Provide multiple-use forest areas for community livelihoods and recreation.SFD3.1.i• Formulate state-wide strategy for forest fire management.SFD	1	sustainable use principles		3.1.d	 Identify suitable areas (idle land) for appropriate forest plantations outside protected areas and identified HCVFs. 	SFD
an natural indivesting resources uses, including forestry, agriculture/ plantation, mining and water resources within the HoB area. • Develop criteria, leading to legislation for forest reserve conversion to ITP 3.1.f • Develop regulation with strict control on forest reserve conversion, that provides for public consultancy/scrutiny. SFD 3.1.f • Develop regulation with strict control on forest reserve conversion, that provides for public consultancy/scrutiny. SFD 9 • Community-based forest management programmes strengthened 3.1.h • Increase the number of foresters trained in FSC and other certification standards. SFD 3.1.i • Provide multiple-use forest areas for community livelihoods and recreation. SFD		and ecosystem approach in		3.1.e	Enforce Reduced Impact Logging Rules under the Forestry Enactment.	SFD
agriculture/ plantation, mining and water resources within the HoB area. reserve conversion to ITP • Community-based forest management programmes strengthened 3.1.g • Increase the number of foresters trained in FSC and other certification standards. SFD 3.1.h • Provide multiple-use forest areas for community livelihoods and recreation. SFD 3.1.i • Formulate state-wide strategy for forest fire management. SFD		resources uses, including forestry, agriculture/ plantation,		3.1.f	Develop regulation with strict control on forest reserve conversion, that provides for public consultancy/scrutiny.	SFD
mining and water resources within the HoB area. management programmes strengthened 3.1.h • Provide multiple-use forest areas for community livelihoods and recreation. SFD 3.1.i • Formulate state-wide strategy for forest fire management. SFD				3.1.g	• Increase the number of foresters trained in FSC and other certification standards.	SFD
the HoB area. 3.1.i • Formulate state-wide strategy for forest fire management. SFD		mining and water resources within	management programmes strengthened	3.1.h	• Provide multiple-use forest areas for community livelihoods and recreation.	SFD
		the HoB area.		3.1.i	Formulate state-wide strategy for forest fire management.	SFD

No	Action	Priorities	Code	Projects / Activities	Org.	
		A	gricultu	re/Plantations		
			3.1.j	 Develop sustainable farming through MyGAP and organic certification through SOM (Sijil Organik Malaysia), including educational outreach and support for auditing. 	DoA	
			3.1.k	Train farmers in organic farming and composting.	DoA	
		 Actively implement good agriculture practices 	3.1.1	• Promote the development and the maintenance of the Tenom Agricultural Park.	DoA	
	Enhance and	 Existing plantations are sustainably managed or operating according to best practices 	3.1.m	 Build capacity to achieve sustainable livelihood with the pilot villages located within the Crocker Range MAB to increase productivity and maximise value of agriculture products 	DoA-SP	
	strengthen existing mechanism and	 All companies involved in producing palm oil from within or around HoB are working towards implementation of RSPO principles, criteria and standards Agriculture and Forestry policy integrates and compliments each other New and higher value crop for the local farmers are introduced 	3.1.n	 Develop bee farming and apiculture as a new agriculture product in acacia or rubber plantations and within HoB. 	DoA	
	guidelines to ensure the implementation of best practices natural resources m a n a g e m e n t,		3.1.0	Promote GAP in livestock management (centralise, downstream processing, training).	DoA-VD	
			3.1.p	 Promote GAP in any aquaculture development (SPLAM Skim Pensijilan Ladang Akuakultur Malaysia). 	DoFS	
1	sustainable use principle and ecosystem approach		policy integrates and compliments each other • New and higher value crop	3.1.q	 Support and expand community-based fisheries management (Tagal System) within HoB and its waterbasins. 	DoFS
	uses, including		3.1.r	• Ensure that the Agropolitan Projects are sustainable within the HoB context.	DoA	
	plantation, mining and water resources	 Organic farming practices and products widely implemented and marketed 	3.1.s	Provide incentives and undertake awareness programme to encourage RSPO certification.	EPD-DoA	
	within the HoB area.	 Capacity building to maximize value of local 	3.1.t	 Increase enforcement to ensure that agriculture does not encroach into high conservation value areas. 	SFD	
		agricultural products implemented • Sustainable inland fisheries	3.1.u	 Systematically rehabilitate areas that have been encroached by agriculture, paying particular attention to the problem of encroachment into riparian areas, steep slopes and forest reserves. 	DoE	
			3.1.v	 Reduce water pollution from various sources through more coordinated enforcement and by imposing deterrent penalties. 	DID-EPD- DoE	
			3.1.w	 Establish the palm oil mill rating system and initiate third party audit. 	DoE-MPOB	

No	Action	Priorities	Code	Projects / Activities	Org.
		Mir	ning & V	/ater Resources	
		Infrastructures are	3.1.x	Carry out Water Catchment Management Study for Sabah HoB area.	DID
	Enhance and strengthen existing	improved and maintained: roads, solar power, emergency responses (beliande)	3.1.y	 Compile information on community dependence on water catchments in areas under long term logging concessions. 	DID
	mechanism and guidelines to ensure	Improve eco-friendly practices: solar power,	3.1.z	Develop and support community-based water monitoring programmes.	DID
	of best practices natural resources m a n a g e m e n t.	mini-hydro, biodegradablewaste disposalAll water catchments in	3.1.a.a	 Gazette the water protection and conservation areas at Babagon (Penampang), Liwagu (Ranau) and Tandulu (Tambunan). 	DID
1	sustainable use principle and	the HoB are well protected and the water quality is maintained at acceptable	3.1.a.b	 Feasibility study of creating a water conservation area at Tawai. 	DID
	ecosystem approach in all natural resources uses, including forestry, agriculture/ plantation, mining and water resources within the HoB area.	 term approach tural resources including agriculture/ on, mining ater resources ne HoB area. Application of Environmental Impact Assessment (EIA) for projects in HoB areas is strengthened Enabling policies to support sustainable management of natural resources in place 	3.1.a.c	 Enforce the two successive cabinet decisions regarding the protection and rehabilitation of riparian reserves, as well as the control of water pollution at point sources. 	DID-DoE-LS
			3.1.a.d	Identify unique geological features with tourism potential.	MGD
			3.1.a.e	Develop Best Management Practices Standards for Mineral Extraction in HoB.	MGD
			3.1.a.f	Review EIA requirements from time to time and strengthen the review process.	EPD
			3.1.a.g	All implementing agencies to observe EIA requirements.	All
			All	sectors	
	Develop scheme for rehabilitation and restoration programs	 Restore the resilience and functionality of terrestrial 	3.2.a	 Identify degraded areas in key protected areas and source funding for their rehabilitation. 	SFD-All
I	on the degraded forest areas in the HoB.	ecosystems that have been degraded	3.2.b	 Engage indigenous communities in programmes to restore degraded natural areas and jointly learn from research initiatives and pilot projects. 	SFD
	Promote HoB areas		3.3.a	 Conserving Traditional Ecological Knowledge: undertake the collection and storage of local crop that have been domesticated and other traditional cultivars. 	DoA
2	as potential Reduction of Emission from	Economic instruments to achieve self-sufficiency	3.3.b	Develop economic instruments and markets such as carbon trading and other ecological services markets.	NRE-All
2	Deforestation and Degradation (REDD) project sites.	(revolving funds)	3.3.c	 Position Sabah to capture opportunities in innovative environmental market mechanisms such as carbon credits and biodiversity banking and offsets. 	NRE-All
			3.3.d	Implement the Sabah REDD+ roadmap.	SFD-All

No	Action	Priorities	Code	Projects / Activities	Org.
			3.4.a	 Establish the Sabah Wildlife Enforcement Network and the Wildlife Enforcement Unit. 	SWD
			3.4.b	Enhance honorary wildlife wardens programme.	SWD
			3.4.c	Implement the Bornean portion of ASEAN-Wildlife Enforcement Network.	SWD
		3.4.d • Implement the Elephant State Action Pla	Implement the Elephant State Action Plan within HoB.	SWD	
			3.4.e	• Implement the Orangutan State Action Plan within HoB.	SWD
			3.4.f	• Implement the Rhinoceros State Action Plan within HoB.	SWD
		Species concentration	3.4.g	Produce guidelines for SFMLA holders to integrate wildlife within Forest Management Plans.	SWD-SFD
		 orgrammes are developed and implemented HoB breeding populations 	3.4.h	 Strengthen efforts to mitigate conflicts that may arise between protected areas, neighbouring communities and human activities. 	SWD-All
	Enhance protection of wildlife through appropriate programmes and application of legal	of protected species are secured • Successful enforcement and prosecution on wildlife crimes • Conflict management programmes and protocols established and implemented in HoB	3.4.i	• Formulate and implement State action plans for the Clouded leopard.	SWD
3			3.4.j	• Formulate and implement State action plans for the Sun bear.	SWD
	and management tools.		3.4.k	• Formulate and implement State action plans for the Banteng.	SWD
			3.4.I	 Undertake study of comprehensive inventory of bird species in Sabah. 	UMS
	wildli	wildlife hotspots	3.4m	 Identify Important Bird Areas (IBAs) in Sabah: formulate management plans for key IBAs and Implement IBA bird populations monitoring programmes. 	SWD-UMS
			3.4.n	Formulate and implement hunting sustainability plan for Sabah.	SWD
			3.4.0	Formulate and implement a State Action Plan on invasive species.	SWD-SFD- DoA
			3.4.p	Implement Sabah Inland Fisheries and Aquaculture Enactment 2003.	DoFS
			3.4.q	 Develop and implement ecosystem approach to fisheries management (EAFM) for inland fisheries. 	DoFS

PROGRAM 4: ECOTOURISM DEVELOPMENT

Development of ecotourism is an important driver and is a main focus for socio-economic development within the HoB areas. Relating to this, the development of the ecotourism in the HoB area has to be developed in accordance with the respective countries' tourism plan.

Program Objective: To recognize and protect the value of special natural and cultural places or sites within the HoB area.

No	Actions	Priority	Lead agencies
1	Identify, develop and promote transborder ecotourism programs.	HIGH	MTCE
2	Develop networking on ecotourism management in relation to the management of protected area system.	MEDIUM	SP SFD
3	Promote community based ecotourism activities in the HoB area.	HIGH	MTCE STB
4	Develop new ecotourism attractions in HoB.	HIGH	STB MTCE

No	Action	Priorities	Code	Projects / Activities	Org.
1	Identify, develop and promote	HoB branded as an	4.1.a	 Identify and develop trans-boundary ecotourism products and packages that match the resources, infrastructure and human capacity in the trans-boundary or protected area zones of HoB. 	MTCE -STB
	transborder ecotourism programs.	ecotourism destination	4.1.b	 Conduct trans-boundary tourism resource assessments, studying connectivity, cluster potential, local capacity and infrastructures. 	MTCE
2			4.2.a	Formulate best management practices for eco-lodges.	MTCE
	Develop networking on ecotourism management in relation to the management of protected area system.		4.2.b	• Formulate and implement guidelines for wildlife watching.	SWD
		Cross-border tourism	4.2.c	 Establish a round table working group between industry groups, businesses, governments and NGOs to develop an ecologically sustainable tourism certification system (a RSPO for tourism). 	MTCE
			4.3.a	 Develop a community-based tourism capacity building institute in collaboration with Forever Sabah. 	FS
		 Tourism services at the district level as well as the 	4.3.b	 Improve the quality and the marketing of existing products of homestays and guesthouses, local handicrafts and food. 	MTCE-STB
3	PromotecommunitybasedecotourismactivitiesintheHoBarea.	 involvement of the local community is improved Enhance opportunities for community participation in 	4.3.c	• Enhance the documentation of traditional knowledge, local festivals and handicrafts, and cultural practices.	SM
		ecotourism	4.3.d	 Create a recognized framework and online presence to support the participation of national and international visitors in volunteer efforts: Streamline volunteer and research tourism programmes (as an independent clearing house). 	MTCE- SaBC

No	Action	Priorities	Code	Projects / Activities	Org.
4			4.4.a	 4.4.a Establish/improve tourism information centres in all districts in HoB (particularly in protected areas) with quality "interpretation materials" to ensure (enable) that the tourists, students and general public gain awareness and appreciation for the value of biodiversity and natural resources. 4.4.b Develop biking and cycling trails around 	
	Develop new ecotourism attractions in HoB.	 Tourism services at the district level as well as the involvement of the local community is improved New tourism products in the HoB are introduced and existing products 	4.4.b	 Develop hiking and cycling trails around Kundasang to connect the main attractions and services, with quality signage and interpretation materials to highlight special features, raise awareness, ensure sustainable conduct and improve the visitor experience. 	District Office-PWD
		 enhanced Tourism sector to support wildlife conservation 	4.4.c	.4.c • Introduce new areas for tourism such as Long Pa Sia & Eastern corridor (Ulu Segama, Malua).	SFD-YS
			4.4.d	 Promote trekking activities and heritage tourism. 	SP
			4.4.e	 Introduction of conservation levies for tourism operators (where appropriate) to support conservation activities in selected areas. 	All

PROGRAM 5: CAPACITY BUILDING

Borneo Island is home to about 16 million people and big percentages of the populace are heavily dependent on agricultural products and forest produce for their livelihood. Recognizing the importance of managing the forest resources in a sustainable manner, it is very important to increase the capacity building activities of relevant stakeholders - management, technical and operation level, in order to ensure the success of this HoB initiative.

Program Objective: To ensure the effective implementation of HoB initiative at all levels, both public & private sectors and at the local community.

No	Actions	Priority	Lead agencies
1	Implement [national] capacity building on biodiversity conservation, freshwater management, land use planning, geographic information systems, protected area management, outdoor recreation, ecotourism management and law enforcement on combating illicit international trafficking in forest products including timber, wildlife, and other forest biological resources.	HIGH	ALL
2	Establish linkages amongst research and development R & D institution and encourage collaboration including attachments of researchers working on conservation and sustainable development areas in the HoB.	MEDIUM	UMS SaBC
3	Promote public awareness program on the prevention of further loss on forest biodiversity including timber and wildlife products.	HIGH	SFD SP SWD DoA DID
4	Promote education and awareness on HoB programs.	MEDIUM	AL
5	Empower local communities with the means to protect and manage their local environment and natural resources	HIGH	SFD SWD SP

No	Action (SPA 2009)	Priorities (Table 2 SPA 2009)	Code	Projects / Activities	Org
1	Implement [national] capacity building on biodiversity conservation, freshwater management, land use planning, geographic information systems, protected area management, etc.	 Financial and human resource capacity for parks enhanced 	5.1.a	 Introduce a training module on FPIC and community engagement for government staff from the relevant agencies. 	MTCE- NRO-SFD- FRC
			5.1.b	• Develop training modules for mainstreaming biodiversity.	SaBC
			5.1.c	 Implement biodiversity capacity building programme for Department of Agriculture, Department of Lands & Survey, Department of Town & Regional Planning and Public Works Department and to agencies involved in land matters, agriculture and infrastructure. 	SaBC
			5.1.d	 Enhance and continuously update our knowledge on freshwater fish species diversity: Establish aquatic life fish inventory for important rivers in Sabah. 	DID-DoFS- UMS
			5.1.e	 Develop training programs and short-courses at local institution (e.g. UMS / DVFC etc.) tailored to target industry and government personnel, making them accessible, practical for working people (e.g. part-time, night school, modular short courses, online learning etc), and enable human capital to be more mobile, capable, and enable potential for personnel to be allocated to areas where it is most needed. 	SaBC-All
			5.1.f	Support and create green employment opportunities and green businesses in Sabah.	NRE-All

No	Action (SPA 2009)	Priorities (Table 2 SPA 2009)	Code	Projects / Activities	Org
2	Establish linkages amongst research and development R & D institution and encourage collaboration including attachments of researchers working on conservation and sustainable development areas in the HoB.	 Strengthen the Sabah Biodiversity Council Strengthen research and development Strengthen knowledge in biological resources 	5.2.a	Develop Sabah Biodiversity Clearing House Mechanism.	SaBC
			5.2.b	 Ensure that information on biodiversity is consolidated and made available for all the people of Sabah to raise awareness and appreciation for these resources (on line platform). 	SaBC
			5.2.c	 Produce an Annual State of the Environment report (with collaboration with a leading NGO and academic institution). 	NRE
			5.2.d	 Produce a report card for each watershed within HoB to detail the health of the catchment, including water quality. 	DID-EPD
			5.2.e	 Establish formal network and network program that enables collaboration, sharing of information and knowledge between research organizations (e.g. FRC, DOA research, DOF freshwater fisheries research, UMS, DVFC, DGFC, etc). 	SaBC-All
			5.2.f	• Expand Sabah's reputation as a Centre of Excellence in Tropical Biology and expand research facilities at field sites across Sabah.	All
			5.2.g	Establish Geospatial Mapping Unit and Information and Communication Unit.	SaBC
3	Promote public awareness program on the prevention of further loss on forest biodiversity including timber and wildlife products.	 The conservation importance and economic potential of Sabah HoB's biological resources are clearly identified and understood 	5.3.a	 Develop programmes, curricula and campaigns to engage students and teachers at all educational levels to understand and protect Sabah's biodiversity. 	ME
			5.3.b	 Expand scope of the Sabah Environmental Education Network: make this one of the core co-curriculum activities from P1-6 at all schools across the State, phasing out other non-functional co-curriculum activities and replacing it with Junior Rangers, and other EE programs. 	SEEN-ME
			5.3.c	 Establish a Mobile Environmental Education Unit that would reach remote villages that are at the interface with forests and protected areas. 	SEEN
			5.3.d	• Establish Nature Centres throughout Sabah; with quality "interpretation materials" to ensure (enable) that the tourists, students and general public gain awareness and appreciation for the value of biodiversity and natural resources.	ME-All
			5.3.e	 Develop a high profile (TV/Radio/Web/Social Media/ Performance Art) publicity awareness campaign to educate the public on the impacts of poaching and enlist public participation in reporting illegal wildlife trade: Implement a public awareness campaign on illegal hunting and wildlife trade. 	ME-SWD

No	Action (SPA 2009)	Priorities (Table 2 SPA 2009)	Code	Projects / Activities	Org
4	Promote education and awareness on HoB programs.	 Public awareness of HoB increased 	5.4.a	• Develop a clear communication strategy to increase HoB branding power potential across all avenues of communication.	NRE-All
			5.4.b	Conduct baseline survey on level of public awareness.	UMS
			5.4.c	Develop training modules for mainstreaming HoB plans and programmes.	All
			5.4.d	Plan and implement an Arboretum in the HoB.	SFD
			5.4.e	• Establish Sabah as the regional centre for biodiversity training, research and education: Establish Sabah Regional Biodiversity Training Centre.	SaBC-All
	Empower local communities to with the means to protect and manage their local environment and natural resources.	 Income generating opportunities of local community from sustainable management (of natural resources and their services) are increased Community participation in decision-making at the district level is enhanced 	5.5.a	 Pilot project on community livelihood improvements (community-based natural resource management/ integrated conservation and development). 	SP-All
			5.5.b	• Pilot project on access and benefit sharing for local communities in HoB.	YS
			5.5.c	Carry out road shows to build capacities of smallholders in good agriculture practices.	DoA
			5.5.d	Carry out training and support programmes for communities involved in ecotourism.	STB
5			5.5.e	 Document biological resources and traditional ecological knowledge (TEK) of biological resources and ensure the necessary training and capacity building is provided for communities. 	SaBC-SM- UMS
			5.5.f	• Expand and strengthen the Honorary Wildlife Warden Programme (and other programmes which engage local communities in conservation activities).	SWD
			5.5.g	Carry out capacity building for communities to implement Tagal (some institutional support).	DoFS
			5.5.h	Strengthen the socio-economic component in the EIA procedures for major projects in the HoB.	EPD
			5.5.i	Conduct training and awareness programmes on intellectual rights and FPIC for local communities.	SaBC
			5.5.j	 Develop and support community involvement in REDD + programmes. 	SFD
			5.5.k	• Promote the development of local handicraft and support the creation of new markets for it.	STB

MANAGEMENT STRUCTURE

In addition to its multiple accomplishments, the first phase of HoB implementation has also revealed areas for improvement. The physical and political breadth and scope of the initiative require effective coordination and strong leadership.

A framework management structure for HoB in Malaysia was designed at the inception of the initiative, which established two State-level Steering Committees for Sabah and for Sarawak (Figure 2).



Figure 2: Management structure for HoB in Malaysia.

The State Steering Committee for HoB in Sabah is chaired by the Sabah State Secretary, with the Natural Resources Office presently serving as secretariat. Members of the Steering Committee (current and proposed) are listed below:

- Chair: Sabah State Secretary
- Secretariat: Natural Resources Office
- Members:Department of Environment Malaysia
Department of Fisheries Sabah Malaysia
Internal Affairs and Research Office Sabah
Mineral & Geosciences Department Malaysia (Sabah)
Ministry of Finance Sabah
Ministry of Tourism, Culture and Environment Sabah
Ministry of Agriculture & Food Industries Sabah
Ministry of Rural Development Sabah
Sabah Agriculture Department
Sabah Biodiversity Centre
Sabah Department of Irrigation & Drainage
Sabah Forestry Department

Sabah Lands and Surveys Department Sabah Museum Sabah Parks Sabah Tourism Board State Attorney General State Economic Planning Unit (Sabah) Public Works Department Sabah Town & Regional Planning Department Sabah Wildlife Department Universiti Malaysia Sabah Yayasan Sabah

In order to achieve more effective management and implementation of the HoB vision in Sabah, the Sabah State Steering Committee will consider the following recommendations, in the course of its first meeting:

- To establish clear Terms of References (ToRs) for the HoB State Steering Committee, and to make them available to all agencies. These ToRs would state the composition of the HoB Sabah State Steering Committee, determine its roles and functions, as well as the scope of its responsibilities. If such document already exists, it needs to be reviewed with inputs from all agencies. A framework for performance evaluation should also be developed within these ToRs. The Steering Committee should meet at least once or twice a year to inform all committee members of the progress achieved during the reporting period, and discuss emergent and pressing issues or opportunities that may have arisen during this period.
- To consider the establishment of a state-level HoB Secretariat that would be staffed specifically for the purpose of facilitating the implementation of the HoB SPA (2014-2020). It would serve as a clearing-house mechanism for all partners, collating and disseminating information among agencies, assisting with proposal development (see financial section), coordinating meetings and Technical Committees, etc. This Secretariat would play a crucial role in liaising regularly with other State Secretariats (Sarawak, Indonesia, Brunei), as well as with the HoB Global Initiative (HoB GI) in order to maximize the flow of information between the three countries, to enhance opportunities for transboundary collaboration and opportunities for financing. Decision about where to base this secretariat, its functions and roles, as well as funding need to be discussed and agreed upon at the Sabah State Steering Committee level. A decision needs to be made whether the Secretariat remains under the Natural Resources Office (as it has been the case until now), whether it becomes embedded within the Sabah Forestry Department (given the lead role taken by this Department in the development and implementation of the first SPA), or if it is allocated to another agency. This Secretariat could be staffed via deployment by stakeholder government agencies or by a freshly recruited team that would be sub-contracted for this specific task.
- To consider the establishment of Technical Committees under the Sabah State Steering Committee. These Technical Committees would operate under and report to the HoB Sabah State Steering Committee based on ToRs developed and agreed upon at the State Steering Committee level. Technical Committees would be of smaller membership than the State

Steering Committee and headed by a competent technical agency (SFD, SWD, SP, DoA, DID, etc.). NGOs and other relevant non-government bodies may be appointed as invitational members of Technical Committees. These Committees would meet on a more regular basis than the State Steering Committee and would be in constant liaison with the HoB State Secretariat for assistance and coordination. Technical Committees would be responsible for implementing and ensuring progress within the Sabah HoB programmes on the ground. A minimum of five Technical Committees, one for each Programme identified in the SPA for Sabah, should ideally be created. Additional Technical Committees may include a "Funding Committee" responsible for assisting agencies to develop funding proposals, to ensure relevance and effectiveness of the proposed project design, and to liaise with potential funding sources (see section on financing below). Another Technical Committee could focus principally on operationalizing a monitoring and evaluation mechanism for the HoB Sabah Programme, which could include developing a set of "Key Performance Indicators" (KPIs) in order to monitor the progress made by various agencies in the implementation of the SPA (see section on evaluation and monitoring below).

• Each member of the Sabah State Steering Committee should specifically appoint a focal point for HoB in order to maintain continuity over the long-term. This focal point will be responsible for promoting the HoB vision and activities within his/her department.

Establishing clear and accepted ToRs for the Sabah State Steering Committee is the crucial first step to be undertaken in strengthening the organizational and management structure for HoB in Sabah. Following on from this, the State Steering Committee will need to resolve the establishment of Technical Committees, including ToRs, composition and invitational memberships, functions and frequency of meetings.

Existing multi-partite international programmes developed in the region and ratified by Malaysia and Sabah, such as the Coral Triangle Initiative, could provide some insight for operationalizing these recommendations (see Text Box 7).

Text Box 7: The Coral Triangle Initiative on Coral Reefs, Fisheries and Food Security

The Coral Triangle is the region of the world's oceans with the highest levels of marine biodiversity, covering and area of 647 million hectares and depended upon by 364 million inhabitants. In 2007, the six countries within this 'triangle' (Indonesia, Malaysia, Philippines, Papua New Guinea, Solomon Islands and Timor-Leste) formed the Coral Triangle Initiative on Coral Reefs, Fisheries and Food Security (CTI-CFF), a multilateral partnership to jointly safeguard and manage the marine and coastal resources through "people-centered biodiversity conservation, sustainable development, poverty reduction and equitable benefit sharing".



Through a 10-year Regional Plan of Action, the CTI-CFF countries have committed to achieving the following 5 goals: (1) Design and effectively manage priority seascapes; (2) Implement Ecosystem Approach to Fisheries Management (EAFM); (3) Establish and effectively manage Marine Protected Areas; (4) Achieve climate change adaptations; (5) Improve status of threatened species.

Implementation of the Regional Plan of Actions is guided by National Plans of Action (CTI-NPOA) developed by each participating country.

The CTI-CFF encompasses a large area and broad scope, and its success relies upon effective coordination mechanisms. The CTI-CFF Council of Ministers is the highest level of decision making, and each Minister heads the primary implementing agency at the national level. The CTI-CFF Committee of Senior Officials makes technical decisions and provides direction to the Regional Secretariat. The CTI-CFF Regional Secretariat coordinates the RPOA implementation, and provides support to CTI National Coordinating Committees (NCC). These NCCs are the implementors of the RPOA and NPOA at the country level. In Malaysia, the NCC is led by the National Oceanographic Directorate (NOD) under the Ministry of Science, Technology and Innovation (MOSTI).

The Initiative works also with international supporters that provide funding and technical support: US Agency for International Development (USAID); Australian Government; Asian Development Bank; Conservation International; The Nature Conservancy; World Wide Fund for Nature.

EVALUATION AND MONITORING OF THE HoB ACTIVITIES

Monitoring and evaluating activities and outputs of a programme is essential in ensuring its effectiveness. The lack of monitoring and evaluation indicators in the first SPA was identified as a major weakness that hampered the implementation of the HoB vision. Although many activities were undertaken by agencies during the first SPA (see above), it is extremely difficult to estimate the outcomes attributable to HoB directly. Indeed, a proper performance evaluation should extend beyond a list of activities and products developed within a given timeframe. It is critical to remedy to this weakness and to develop a clear and workable monitoring framework to promote effective and transparent implementation of the HoB vision.

In 2005, the Federal government of Malaysia adopted the usage of Key Performance Indicators (KPIs) as standard practices for all Government agencies to measure the performance of their work (see Text Box 8). As a result, it is expected that each agency has the necessary skills to develop its own sets of KPIs. Successive steps to develop and use KPIs could include:

- Step 1: it requires the agency to identify what should be measured and quantifies the targets that need to be achieved (for example, to fully enforce Reduced Impact Logging rules under the Forest Enactment);
- Step 2: it establishes baselines (in our example: only half of the companies are using RIL at the start of the exercise; this result would be taken as the baseline for this activity);
- Step 3: it is the regular monitoring of the variable under consideration (in our example, the agency determines the number of companies that start to adopt RIL practices as a result of increased awareness, enforcement, etc.);
- Step 4: in this final step, one analyses the data collected during the monitoring period and compares the current indicator with the baseline indicator identified at the beginning of the monitoring process (e.g., increased/decreased/no change for the target) (in our example, the number of companies using RIL techniques compared to the baseline which was 50%).

It is beyond the scope of this SPA to develop a set of criteria for the HoB evaluation. Indeed, these monitoring and evaluation criteria need to be carefully considered by the implementing agencies. We strongly recommend for the Sabah State Steering Committee to establish a technical group on performance evaluation: this group could assist agencies in the development of proper criteria for monitoring the progress of HoB's activities, and could also be charged with leading the evaluation process. This technical group could be embedded within the State Secretariat, or created as a specific Technical Committee. A framework for monitoring and evaluation should be developed in the first year of the SPA in order for performance indicators to be assessed and reviewed on a yearly basis thereafter.

The indicators selected for Sabah should ideally align with the set of spatially explicit targets selected by the HoB Global Initiative at the landscape level over the short-, medium- and long-term horizons. The list of indicators and targets could assess whether, and to what extent, specific initiatives contribute to green growth [7]. Such a monitoring and evaluation program would promote transparency and be a key element to attract investments from private and institutional sources nationally and internationally.

Text Box 8: Key Performance Indicators (KPIs)

By definition KPIs provide "a framework consisting of processes, measures, and targets that are used to communicate, monitor and manage performances as well as align resources to achieve the objectives of the organisation". KPIs allow for reporting of financial and non-financial components of a project or agency as they progress to achieve their targets for individual projects or for an agency as a whole. They use a performance framework as shown in the figure below.

A proper selection of relevant KPIs relies upon a good understanding of the goals and of what is important for implementing the activities. These assessments often lead to the identification of potential improvements, so performance indicators are routinely associated with "performance improvement" initiatives. KPIs define a set of values (called indicators) used to measure against in order to measure success towards strategic goals. KPIs need to be defined in a way that is understandable, meaningful, and measurable (they can follow a SMART approach: Specific purpose; Measurable; Achievable; Relevant; Time phased). The underlying idea is to estimate input and output data before and after performance, and compare the ratio Output/Input of the targeted KPI against the actual KPI. A full description of the methodology can be found in [21].



OPERATIONALIZATION: MANPOWER AND FINANCING

To achieve the overall HoB vision, and reap the benefits of sustainable development of a green economy in Sabah, adequate intellectual, physical and financial capacity is imperative. The majority of HoB activities in 2008 to 2012 have been financed through HoB specific Federal funds, as well as daily departmental operational budgets. However, various other internal and external financing opportunities exist.

Elevating capacity

Many agencies suffer a lack of skilled manpower and expertise to implement the activities under HoB. Under the current situation in Malaysia, it is unlikely that these agencies will obtain the necessary operating budget to either significantly increase the number of staff within their department and/or hire additional personnel with needed specialist skills. An option would be to sub-contract teams of skilled personnel and technicians who could be contracted to do the work efficiently under the close supervision of the responsible agencies without necessarily being in the full employ of the state. Such models are currently developed by SFD (for HoB) or SWD (Wildlife Rescue Unit with funding from MPOC and Rasa Ria), and some other departments.

Funding HoB activities and transitioning to a Green Economy

The lack of an overall HoB funding mechanism, or implementation fund has led to a piecemeal approach to funding, and subsequently, implementation. A solution to this would be a coordinated approach to fundraising, and a body to manage and disperse funds based on the programs, actions, priorities and activities set out in this SPA. As difficult as it may be, it would allow for more harmonized implementation as well.

Significant sustainable financing is needed to implement the HoB vision and to successfully operate a transition towards a green economy. A variety of potential sources are able to assist in the implementation of the vision. The HoB GI has developed several documents and guidelines to identify potential sources of funding that could support and promote the implementation of the HoB vision: [7–22–23]. Several internal and external funding opportunities are outlined below.

• State and Federal Funding

Apart from the funding opportunities available to each agency based on its mandates, other financing opportunities exist at the State and Federal government levels. The Economic Planning Unit (UPEN) is an opportunity for government agencies to obtain Federal funding. UPEN has clear guidelines and protocols to be used by agencies when they apply for federal funding, and regularly sends circulars to inform agencies about funding opportunities (see Text Box 9 for practical example for requesting HoB funding through UPEN). However, during the first SPA, no funding proposal that specifically mentioned HoB was received by UPEN (the only exception being a proposal submitted by Sabah Parks for the EcoLinc feasibility study that received funding under the Sabah Development Corridor). It is a reality that most agencies involved in the implementation of HoB in Sabah face a shortage of competent staff to prepare funding proposals and to design strategic projects that could successfully compete for funding.

Another example of funding opportunities at the Federal level is the ScienceFund grants from the Ministry of Science, Technology and Innovation (MOSTI). This grant opportunity provides funding to Government Research Institutions for research and development.

Text Box 9: Funding Potential through Technical Committees and Economic Planning Unit

A mechanism that would boost HoB funding would be the development of clear ToRs for the Steering Committee, and the establishment of Technical Committees (see Management Structure section). An example of the potential funding benefits would be the development of funding proposals in collaboration with UPEN. The Technical Committees would assist implementing agencies to develop funding proposals, ensuring that they are competent and strategic. Finalized proposals could be submitted to the Sabah State Steering Committee for review. Approved proposals would be sent to UPEN that would be in charge of seeking funding for the proposals. Once funding is obtained, the Technical Committees would be responsible for project implementation and monitoring, as well as reporting at the microlevel. UPEN could assist in building capacity within agencies that are in need of support.

• Financing from Park Access and Activities

The HoB area encompasses several protected areas, including two recreational parks, namely Kinabalu Park and Crocker Range Park. Although these parks already charge a low entrance or conservation fee, studies have shown that they can be increased [24]. For example, the Galapagos Islands National Park collects a USD 100 entrance fee. The use of these funds is designated by law into certain percentages, divided up between the management, upkeep and protection of the Park (*Organic Law for the Special Regimen for the Conservation and Sustainable Development of Galapagos 1998*). Another example is the Volcanoes National Park in Rwanda that charges USD 750 per person to issue a mountain gorilla permit. Here in Sabah, the management of Sugud Islands Marine Conservation Area (SIMCA) is in large-part funded from a per-night conservation fee [25]. These practices could be further developed in the State.

Activity/user fees can also be considered for activities within other non-recreational managed areas. Permits for other activities such as filming, or for commercial activities such as tourism or aquaculture are levied in the Great Barrier Reef Marine Park in Australia. In addition, an assessment fee is levied for potentially damaging activities such as aquaculture or construction (up to USD 120,000), and is non-refundable even when the permit application is rejected. The fees applied in the Great Barrier Reef are meant to discourage the proliferation of potentially destructive activities within the Park. However, the use of such fees for use must be considered carefully as not to prohibit the growth of local small-scale enterprises within HoB.

Royalties/Taxation

Royalty fees or taxation could be an option for extractive activities within HoB, as long as a legal mechanism exists to allocate these funds towards HoB programs. These fees could be directly collected from resource extractive companies (not only for timber but for bioprospecting, oil palm production and tourism activities, for example) and allocated to a special Fund that would then disburse the money according to agency's needs.

• Private and Public Sector Support

Private sources of funding hold the potential for financing HoB programs and could include corporate donors through Corporate Social Responsibility (CSR), philanthropic donors and etc. An example of this is the formation of the Wildlife Rescue Unit, which operates in partnership with the Sabah Wildlife Department but is funded by the MPOC and Rasa Ria. The management of SIMCA receives a portion of its operating costs from Langkayan Island Dive Resort [25].

• International Funding Bodies

Relatively untapped sources of funding include those on the international finance markets, such as various payments for ecosystem services, including carbon financing under Reduced Emissions from Deforestation and forest Degradation (REDD+), as well as mitigation banking and biodiversity offsets (such as the Malua BioBank project developed between the State government of Sabah, SFD, YS and New Forests: see Text Box 10). The SFD has been very active and successful in this approach. Multilateral and bilateral agencies (including the Global Environment Facility; Asian Development Bank, World Bank, European Union, JICA, etc.) are also important sources of support to finance conservation and sustainable development. Sabah has already embarked in collaboration through the UNPD-GEF Project on Biodiversity Conservation in Multiple-use Forest Landscapes (see Text Box 5). The European Union has also pledged 4 million euros to support three pilot projects (Gana/Lingkabau FR; Kinabalu Ecolinc Zone; Kinabatangan River Corridor) to tackle climate change through sustainable forest management and community development. This initiative will support the implementation of the REDD + state strategy and is expected to start in 2013.

• Conservation Trust Fund

In the longer-term, the issue is not to identify the potential sources of funding per se, but rather to identify ways to effectively develop a sustainable and long-term working relationship with potential donors and investment partners. Two structures could assist in this endeavour: a trilateral Secretariat that would work in tandem with HoB GI, and a Trust Fund specifically designed to support HoB activities. The tri-lateral secretariat would be the fundraising mechanism to reach out international donors to support activities within HoB, while the Trust Fund would be the recipient of the funding raised internationally. To date, no centralized mechanism for HoB funding exists in Sabah. The different agencies in charge of implementing the HoB vision are expected to obtain their own financial support. The possibility to create a "Trust Fund" at the State level with the task to support HoB implementation in Sabah was raised several times during the consultation process of this SPA. The Trust Fund could also oversee the sourcing and obtaining of financial resources to support activities identified within the HoB SPA. Ideally, this structure would be under the Sabah State Level HoB Steering Committee. The need to establish a Sabah state level Trust Fund that would complement the hypothetic HoB GI Trust Fund must also be discussed by the Sabah State Steering Committee and relevant governmental agencies.

Text Box 10: The Malua Biobank

The Malua Biobank is an innovative commercially sustainable model for large-scale conservation and rainforest restoration in the Malua Forest Reserve area in Sabah. The Biobank covers 34,000 ha of primarily overlogged lowland dipterocarp forest and encompasses the watershed of the Malua River, a tributary of Sabah's longest river, the Kinabatangan. Malua lies within the Heart of Borneo boundary.

The Biobank was set up as a private-public partnership to restore and protect the Malua Forest Reserve and finance its management through the sale of voluntary biodiversity conservation certificates. The purchase of biodiversity certificates from the Biobank allows end buyers to support forest conservation and supporting a greening of the supply chain, whilst generating commercial returns for the investor.

The goals of the Malua Biobank are:

- To restore and protect populations of endangered and protected species in the reserve;
- To restore a functioning lowland dipterocarp ecosystem in the reserve;
- To create a new model for rainforest conservation using private finance and linking increasing agricultural commodity production with the expansion of forest conservation through the sale and purchase of biodiversity credits.

This concept of biobanking has been implemented in other parts of the world, such as in the United States where mitigation banking and conservation banking programmes are regulated under federal law, and require developers to offset impacts to wetland, streams and endangered species habitat.

References

- 1. Levang, P., E. Dounias, and S. Sitorus. 2005. Out of the forest, out of poverty? Forests, Trees and Livelihoods 15:211-235
- Gaveau, D. L. A., S. Sloan, E. Molidena, Husnayanem, M. Ancrenaz, R. Nasi, N. Wielaard, and E. Meijaard. in review. Four decades of forest persistence, loss and logging on Borneo. PLOS ONE
- 3. Hoffmann, M., et al., The impact of conservation on the status of the world's vertebrates. Science, 2010. **330** (6010): p. 1503-1509.
- 4. Rautner, M. et al. 2005. *Borneo: treasure island at risk*. WWF Germany report. 80 pp.
- 5. Meijaard, E., et al. 2013. People's perceptions on the importance of forests on Borneo. PLoS ONE, in press.
- 6. Wells, J., et al. 2013. Forests, floods, people and wildlife on Borneo. A review of flooding and analysis of local perceptions of flooding frequencies and trends, and the roles of forests and deforestation in flood regimes, with a view to informing government decision-making on flood monitoring, forest management and biodiversity conservation, 2013, UNEP: Bangkok, Thailand.
- 7. Van Paddenburg, A., Bassi, A., Buter, E., Cosslett, C., and A. Dean. 2012. *Heart of Borneo: investing in natura for a green economy*. WWF HoB Global Initiative, Jakarta. 201pp.
- 8. Wan Razali Wan Mohd. *Climate change and biodiversity in Malaysia: research , development, and policy issues in sustainable forestry*. Workshop on Climate Change & BioDiversity: Mobilizing the Research Agenda. UKM, Bangi, Selangor, Malaysia.
- 9. Presiden Republik Indonesia, Peraturan Presiden Republik Indonesia Nomor 3 Tahun 2012 Tentang Rencana Tata Ruang Pulau Kalimantan (Presidential Decree of the Republic of Indonesia No. 3, 2012, Regarding Spatial Planning in Kalimantan. 2012.
- 10. Government of Brunei Darussalam, 4th National Report. Convention on Biological Diversity 2008.
- 11. WWF. 2011. Heart of Borneo A natural priority for a green economy.
- 12. Tangit, T.M., Attractions in Sabah; Tourist perceptions of information in Sabah Tourism official website. Master Thesis, in *Master Science of Tourism Development. School of Housing, Building & Planning* 2009, Universiti Sains Malaysia.
- 13. Hitchner, S. 2010. Heart of borneo as a 'Jalan Tikus': Exploring the links Between indigenous rights, extractive and exploitative industries, and conservation at the World Conservation Congress 2008. Conservation & Society, 8(4): p. 320-330.
- 14. Runting, R.K., et al., Alternative futures for tropical forests. Science, in review.
- 15. Gaveau DLA, Sloan S, Molidena E, Husnayaen, Sheil D, et al. (In review) Four decades of forest persistence, clearence and logging on Borneo. PLoS ONE.
- 15. Ensolve. 2011. *Impact study of palm oil mills, oil palm plantations and other pollutants on the quality of selected rivers in Sabah*. Final Report. Environment Protection Department, Ministry of Tourism, Culture and Environment, Sabah: Kota Kinabalu.
- 16. Chong VC, Lee PKY and Lau CM. 2010. Diversity, extinction risk and conservation of Malaysian fishes. Journal of Fish Biology, 76, 2009-2066.
- 17. ERE Consulting Group. 2009. *Study on pollution prevention and water quality improvement for Sungai Kinabatangan Basin*. Final Report. Department of Environment Malaysia, Ministry of Natural Resources and Environment.

- Goossens, B., Chikhi, L. Ancrenaz, M., Lackman-Ancrenaz, I., Audau, P., and M.W. Bruford. 2006. Genetic Signature of anthopogenic population collapse in orang-utans. Plos Biology, 4 (2): 285-291.
- 19. Meijaard E., Wich S., Ancrenaz M., Marshall A.J. 2011. Not by science alone: why orangutan conservationists must think outside the box. Annals of the New York Academy of Science: 1-16. doi: 10.1111/j.1749-6632.2011.06288.x.
- 20. UNDP-GEF. *Project of Biodiversity Conservation in Multiple-use Forest*. Project inception workshop, July 2013, Kota Kinabalu.
- 21. Carol Taylor Fitz-Gibbon. 1990. "Performance indicators", BERA Dialogues (2), ISBN 978-1-85359-092-4
- 22. WWF. 2011. Business solution: delivering the Heart of Borneo Declaration. Focus on forestry, palm oil and mining. 82 pp.
- 23. WWF. 2010. A partnership approach to economic sustainability: *Financing the Heart of Borneo*. 16 pp.
- 24. Alin, J.M. 2007. *Developing a Business plan for the Turtle Islands Park, Sabah, Malaysia*. Kota Kinabalu: WWF-Malaysia.
- 25. Teh, L.C.L., Teh, L.S.L., Chung, F.C. 2008. A private management approach to coral reef conservation in Sabah, Malaysia. Biodiversity Conservation, 17, 3061-3077.

Annex 1. Declaration on the Heart of Borneo Initiative Three Countries, One Conservation Vision

We, the Governments of Brunei Darussalam, Indonesia and Malaysia, recognizing the importance of the Island of Borneo as a life support system, hereby declare that:

With one conservation vision and with a view to promote people's welfare, we will cooperate in ensuring the effective management of forest resources and conservation of a network of protected areas, productive forests and other sustainable land-uses within an area which the three respective countries will designate as the "Heart of Borneo (HoB)", thereby maintaining Bornean natural heritage for the benefit of present and future generations, with full respect to each country's sovereignty and territorial boundaries, and also without prejudice to the ongoing negotiations on land boundary demarcation.

The HoB Initiative is a voluntary trans-boundary cooperation of the three countries combining the stakeholders' interests, based on local wisdom, acknowledgement of and respect for laws, regulations and policies in the respective countries and taking into consideration relevant multilateral environmental agreements, as well as existing regional and bilateral agreements / arrangements.

We are willing to cooperate based on sustainable development principles through research and development, sustainable use, protection, education and training, fundraising, as well as other activities that are relevant to trans-boundary management, conservation and development within the areas of the HoB.

To support this Declaration, we, the three countries will prepare our respective project documents incorporating the strategic and operational plans, which will form the basis for the development of our road map towards realizing the vision of the HoB Initiative.

Done at Bali, Indonesia on the twelfth day of February, two thousand and seven in three original copies.

For the Government of For the Government For the Government of His Majesty the Sultan of the Republic of Malaysia and Yang Di-Pertuan of Indonesia Brunei Darussalam E. Pehin Dato Di H.E. Dato' Seri Azmi bin H.E. Mr. M. S. Kaban Awang Haji Ahmad bin Minister of Forestry, Khalid Minister of Natural Haji Jumat Republic of Indonesia Resources and Environment, Minister of Industry and Primary Resources, Malaysia Brunei Darussalam