



PART I: **INTRODUCTION AND** **STUDY OVERVIEW**

This report, alongside the synthesis report and website www.hobgreeneconomy.org, have been developed in support of the Heart of Borneo (HoB) governments as they implement their HoB transboundary initiative.

A priority challenge facing the three governments—one which is highlighted in a recent three-country publication, *Financing the HoB: A Partnership Approach to Economic Sustainability*¹, is the need to harmonize HoB plans and current development plans in order to reflect economic, social, climate, biodiversity and poverty reduction objectives. A green economy approach will help deliver the three-country HoB Declaration by promoting people’s welfare through conservation and sustainable development.

With this in mind, a group of HoB supporters—including WWF, Knowledge SRL, Millennium Institute, Hatfield and Witteveen+Bos, with support from the European Space Agency and the WWF network—have worked together to develop a snapshot of the many values provided by the Heart of Borneo ecosystems and biodiversity to society and to the economy. The analysis includes a review of the impacts and costs of lost ecosystem services in the current economy; an effort to model a future in which the value of nature is mainstreamed within economic planning; and a vision of an economy which invests in nature and is at the service of people, bringing benefits to all stakeholders and to nature itself.

The report draws together experience and lessons gained from field work in the HoB and builds on real on-the-ground examples, as well as on an economic and environmental modeling work. It is based on extensive stakeholder engagements undertaken between 2010-2012 at national and sub-national levels involving governments, the private sector and civil society.

Among other objectives, the report aims to help demystify the term ‘green economy’. A number of green growth plans have been developed without fully recognizing the value of nature to the economy and society. Unfortunately, a common interpretation of a green economy mostly relates to production practices: greater resource efficiency, waste and emission reductions. It does not tackle the core issue of why economies need to be more resource efficient and environmentally friendly.

Public and private decision makers typically do not account for the value added by nature in their evaluation of economic policies and investment plans. This is partly because conventional economic and market indicators do not reveal the benefits provided by nature nor the economic costs associated with resource depletion and the loss of ecosystem services. Ignoring the value of nature results in market failure, policy failure and misallocation of capital, leading to further resource depletion and environmental degradation in an on-going and vicious cycle.

Maintaining the values provided by nature is essential to sustaining and growing a lasting economy for the benefit of all stakeholders. The core challenge in applying a green economy approach is therefore finding ways to sustain nature while simultaneously promoting sustainable economic development.

This report highlights the significant contribution of nature in sustaining a prosperous and inclusive economy. The emphasis is on the value of nature and its fundamental role in an economy and for people’s well-being, particularly in forested nations.

Part I:

Introduction and Study Overview

1.1 The Heart of Borneo Initiative	4
1.2 Green Growth Assessment	8
Structure and Reading Guide	12

FIGURES

- Figure 1.1: Approach from *Financing the HoB: A Partnership Approach to Economic Sustainability*, a three-country publication
- Figure 1.2: Five dimensions of green growth

BOXES

- Box 1.1: Transboundary and inter-agency collaboration
- Box 1.2: Report objectives
- Box 1.3: Critical questions

1.1 The Heart of Borneo Initiative

Comprising approximately 30 per cent of the island of Borneo's land area, the Heart of Borneo (HoB) covers more than 22 million hectares of tropical rainforest across three countries: Brunei Darussalam, Indonesia (Kalimantan) and Malaysia (Sabah and Sarawak). It is the largest transboundary tropical forest expanse remaining in Southeast Asia. Home to an astounding six per cent of the world's biodiversity, from the orangutan to the world's largest flower, and containing the headwaters for 14 of Borneo's 20 major rivers, the HoB is one of the planet's richest treasure troves. More than 500 new species, or about three per month, have been discovered within the HoB since 1995. More than one million people, the majority of whom are of Dayak origin, live within the HoB and directly depend on its forests for their livelihoods, food, income, water and culture.

While a large portion of Borneo's lowland areas has been converted from forests to other land uses, much of the HoB remains relatively intact. However, the threat of deforestation and forest degradation is an ongoing one. Most threats to natural forest² are linked to Borneo's continued economic dependence upon extraction of primary resources. Palm oil plantations and mining have expanded rapidly in recent years. These sectors, along with pulp and paper and timber, have been slow to adopt sustainable management practices or environmental impact mitigation measures.

Population growth, demand for agricultural land and the effects of climate change are also having significant impacts on the ability of natural ecosystems to support biodiversity and to continue to supply various ecosystem services to people across the island of Borneo—including many living beyond the boundaries of the HoB itself. Ecosystem services are the benefits that people obtain from the dynamic interactions that occur within functioning ecosystems, between plant, animal, and micro-organism communities and the non-living environment. Humanity is fundamentally dependent on the flow of these ecosystem services³.

The HoB's ecosystems also play a critical role related to climate change. First, HoB forest ecosystems have a globally significant role in storing, or sequestering, carbon. In addition, they help to create resilience in the context of a changing climate. Nevertheless, climate change is already leading to more severe dry seasons in some parts of Borneo resulting in seasonal water stress⁴; combined with higher rainfall overall, this is leading to more runoff and flood events. Biodiversity conservation and sustainable forest management in the HoB are crucial to maintaining the flow of these ecosystem services and to supporting the economy for people's well-being.

The Heart of Borneo (HoB) Initiative is a transboundary collaboration among the governments of Brunei, Indonesia and Malaysia to enable conservation and sustainable development that improves the welfare of those living on the island while minimizing deforestation, forest degradation and the associated loss of biodiversity and ecosystem services. Under this Initiative, the three countries involved have committed 355,000 hectares, 16.8 million hectares and six million hectares respectively to be included in the HoB⁵. The commitments of the three HoB governments are contained in the Heart of Borneo Declaration.

"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'."

- Heart of Borneo Declaration (2007)

The Heart of Borneo Initiative is a prime example of a coordinated, transboundary approach to conservation and sustainable development.

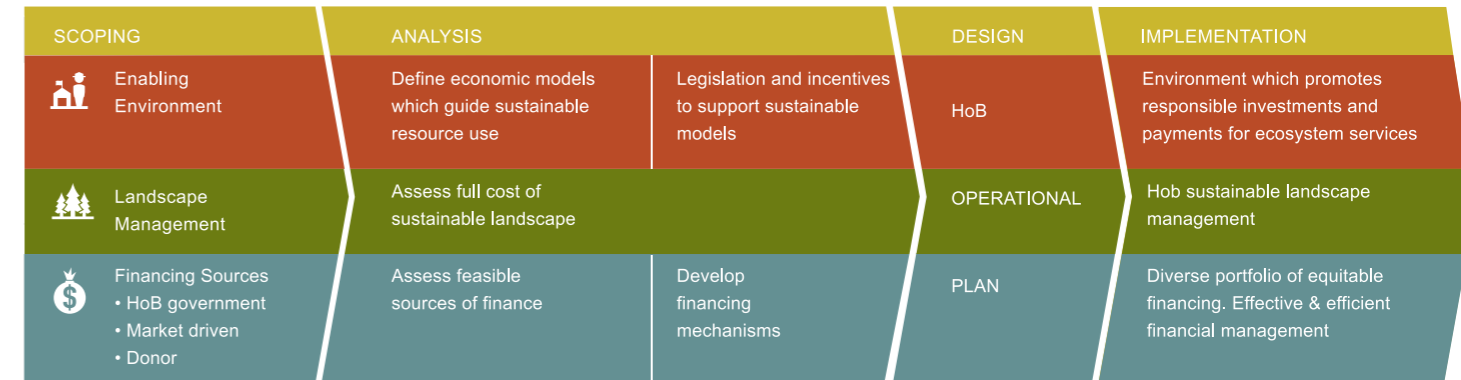


Figure 1.1: Approach from *Financing the HoB – A Partnership Approach to Economic Sustainability* (2010), a three-country publication

In 2005, the HoB Initiative was formally endorsed by the ASEAN Heads of Government and adopted as a Flagship Project of the Brunei-Indonesia-Malaysia-Philippines East ASEAN Growth Area (BIMP-EAGA).

All three countries have established governance structures to help fulfill their obligations under the HoB declaration: the HoB National Council in Brunei, HoB Working Groups in Indonesia and a National Expert Group and Steering Committees in Malaysia. The three governments have also jointly developed a trilateral Strategic Plan of Action and each country has developed an HoB-specific Strategic Plan of Action or Project Implementation Framework. These plans and frameworks embody the strategic approach being taken by each country in order to achieve the goals of the declaration.

Specific steps needed in order to mainstream the value of ecosystems in the HoB into policy and decision making and to use market mechanisms to drive green growth were laid out in *Financing the Heart of Borneo – A Partnership Approach to Economic Sustainability* (2010), a three-country publication. The report highlights priority actions

needed in order to integrate the value of forests, biodiversity and healthy watersheds into national and local development plans, while optimizing economic returns to improve people's livelihoods and national economies. The approach is outlined in Figure 1.1 above.

When the three governments launched the above report at the UN Convention on Biodiversity in Nagoya (2010), they agreed to pursue the following next steps:

- Understand the value of forests, watersheds, biodiversity and potential for carbon emission reduction and distribution to beneficiaries;
- Assess how to optimize economic growth while maintaining HoB's natural capital and its contribution to climate change; and
- Estimate the costs and benefits associated with sustainable landscape management.

The present report is designed as a specific contribution towards completion of the above-mentioned steps.

The three governments are also actively developing strategies and policies for the HoB. For example, Indonesia has designated its HoB territory as a Strategic National Area (KSN) under government regulation PP 26 (2008) for its abundance in natural resources. The recent Presidential Regulation no. 3 (2012) formalizing Kalimantan's spatial plan makes specific mention of the designated HoB Strategic National Area, emphasizing the recognition of the area in the spatial planning process, while also confirming the designation of 45 per cent of Kalimantan for conservation of biodiversity. A presidential decree linked to an HoB-specific spatial plan (at a scale of 1:50,000) is currently under development to guide conservation and development efforts in the HoB. At the local level, the district government of Kutai Barat in Kalimantan is creating enabling conditions for a district-level REDD+ program. This includes spatial planning, governance, and stakeholder involvement to improve forest protection, utilize only degraded lands for palm oil expansion and secure community conservation areas for biodiversity, carbon and socio-cultural values.

In Malaysia, federal government allocations for Sabah and Sarawak for HoB implementation through the 10th Malaysia Plan have grown significantly. For its 2011-2012 rolling plan, Sabah has received MYR6 million for its HoB program, while Sarawak has received MYR3.5 million. Sabah's HoB program focuses on implementing a policy

review to enhance institutional arrangements in the state to enable REDD+ process within the framework of a green economy to mainstream valuation of ecosystem services into economic development and land-use planning. The state has also developed—and received US\$4.4 million in grant support from the Global Environment Facility (GEF) for—a \$13.2 million project titled 'Biodiversity Conservation in a Multiple Use Landscape in Sabah'. In Sarawak, the focus has been on strengthening protected area management and bioprospecting efforts.

For its part, Brunei has elaborated 36 specific interventions including greatly increasing the area of its protected forests, ceasing to log natural forests entirely and strengthening institutional and human capacities to support conservation and sustainable development in the HoB.

Actions in the HoB have already begun to demonstrate tangible results, based on successful application of a new way of thinking, which are advancing the economy and helping to assure the long-term future of natural assets that underpin it. However, to fully realize the HoB Declaration and to make further progress in their transition to a green economy, Brunei, Indonesia and Malaysia will need to invest in the ecosystems and biodiversity of the HoB and to incorporate their essential contributions to the economy within national and local economic and development plans.

Box 1.1: Transboundary and inter-agency collaboration

Enhanced transboundary collaboration, as well as inter-agency co-operation within each of the HoB member countries, are essential to the success of the HoB Initiative. Fortunately, a number of steps have already been taken in this area.

In Brunei, the HoB National Council is led by the Ministry of Industry and Primary Resources (MIPR), with various government agencies participating in the Council. In addition to the HoB National Council, a Brunei HoB Center (HoB Center) has been proposed as a lead institution to facilitate the implementation of HoB programmes.

In Indonesia, there is support from 11 ministries constituting the Indonesian government's HoB National Working Group; this umbrella organization includes operational units consisting of three provincial working groups and 10 district working groups. The Working Group is chaired by the Coordinating Ministry of Economic Affairs.

Malaysia's HoB National Steering Committee is chaired by the Ministry of Natural Resources and Environment at federal level. Sabah and Sarawak each have their own inter-agency steering committee.




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.

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



© Jimmy / WWF-Indonesia

1.2 Green Growth Assessment

Since late 2010, a group of HoB supporters—including WWF, Knowledge SRL, Millennium Institute, Hatfield Consultants and Witteveen + Bos—has been working together to support the HoB governments as they begin to tackle the priority steps agreed on in the *Financing the Heart of Borneo* report. The present report represents an important outcome of that collaboration. The report’s methodology, particularly its emphasis on economic valuation of ecosystems and biodiversity, has been inspired in part by the Economics of Ecosystems and Biodiversity (TEEB)⁶ effort. Whilst not part of the TEEB initiative per se, the report has certainly been influenced by the dissemination of the TEEB reports, as well as by the ongoing TEEB implementation efforts⁷. This chapter introduces some of the thinking underlying the report.

An obvious first question to ask is: what exactly is a green economy? UNEP’s Green Economy Report (2011) defines a green economy as “...an economy that results in improved human well-being and social equity, while significantly reducing environmental risks and ecological scarcities”. This definition emphasizes reductions in carbon emissions and pollution, improvements in energy and resource efficiency, and minimal or no loss of biodiversity and ecosystem services. A green economy favors renewable energy and low carbon and environmentally-friendly economic development.

In the context of sustainable development and poverty eradication, a green economy should protect and enhance the natural resource base, increase resource efficiency, promote sustainable consumption and production patterns and involve low-carbon development.

The concept of a green economy is closely linked to the idea of “green growth”. This depends on an extension of capital theory to include what may be termed “natural capital,” which comprises the biosphere as a whole, including ecosystems and biodiversity and which is an indispensable enabler of economic growth and human well-being. A key aspect of a green economy is its emphasis on sustaining natural capital to secure green growth and long-term prosperity. The green economy concept thus calls for green growth within an economy that takes into account the importance of natural capital for society and results in improved human well-being and social equity because it invests in restoring, sustaining and enhancing that capital.

HoB’s ecosystems and biodiversity are part of Earth’s natural capital. Key elements of natural capital, in the case of the HoB, are natural resources such as forests, minerals, soil and water; ecosystem goods, such as timber and a range of biodiversity-based products; and ecosystem services such as water supply and carbon sequestration provided by those resources.

Box 1.2: Report objectives

- (1) Showcase the many values of the HoB’s ecosystems and biodiversity;
- (2) Provide an innovative analysis that accounts for the contribution and value of these ecosystems and biodiversity, i.e., natural capital to the economy;
- (3) Estimate the investment needed to transition to sustainable landscape management in the HoB, which would protect natural capital;
- (4) Support further evaluation and policy formulation for the elaboration of coherent strategies to mainstream HoB Strategic Plans of Action⁸ into national and local economic development plans.

While many may agree on the importance of investing in natural capital in principle, competing demands over the allocation of public funds mean that actual investments remain inadequate. The ability to make a business case for increased investment in HoB’s natural capital is most significantly undermined by the ongoing under-valuation of natural forests.

Box 1.3: Critical questions

- How valuable are the natural ecosystems and associated services of the HoB to the economies of Brunei, Indonesia and Malaysia?
- Who profits from these ecosystem services?
- Who suffers from degradation or loss of ecosystem services?
- How can changes in regulations or incentives stimulate investment in sustaining forest ecosystems?
- What investments would be required to safeguard ecosystem services?
- Do the benefits of a given investment in sustaining ecosystems and biodiversity justify the costs?
- Does a given investment in sustaining ecosystems and biodiversity result in a more equitable distribution of benefits?
- Would investment in sustaining ecosystems and biodiversity support the reduction of poverty?
- Would investment in sustaining ecosystems and biodiversity benefit long-term economic growth?
- What are the likely short- and long-term impacts of climate change on HoB’s natural ecosystems and services and how should these affect decisions regarding investments in natural capital?

The present report is therefore designed to inform policy- and decision-makers and underscore the economic necessity of investing in sustaining the HoB’s natural capital through policies, regulations, incentives and solutions on the ground. With a clearer picture of the economic importance of natural capital—including the benefits for employment and economic

growth, and in terms of more sustainable investment returns—public and private stakeholders should be more willing to invest in sustaining ecosystems and biodiversity.

As shown in Figure 1.2, the assessment presented in this report is based on a framework of five dimensions of green growth, with a focus on how the value of natural capital contributes to green growth. These dimensions include elements of classical economic growth, combined with values of ecosystems and equitable social development.

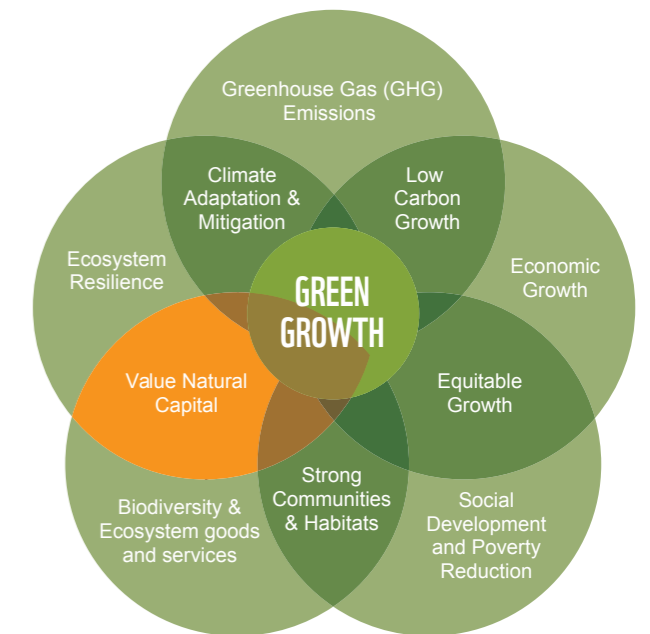


Figure 1.2: Five dimensions of green growth

The geographical focus of the study is the HoB landscape, which spreads across three countries, and mostly comprises mountainous forests forming the headwaters of major river basins that drain to each country’s coastline. Many of HoB’s most valuable ecosystem services, like water supply, prevention of soil erosion and flood control, provide benefits far beyond the area’s boundaries. While the HoB covers an area the size of 22 million ha (close to 30 per cent of Borneo), its ecosystems support key economic sectors across

54 million ha (over 70 per cent) of the island, where over 11 million people live¹⁰. For this reason, the overall scope of the assessment extends beyond the boundaries of the HoB. The analysis focuses both on sectors currently most important to the respective economies and those of potential economic importance. Due to the challenge of acquiring consistent data across all three countries, the economic and environmental modeling is primarily based on data from Kalimantan. However, given that Kalimantan covers almost 70 per cent of the HoB and also given the similar characteristics of the ecosystems and the similar interactions with the areas surrounding the HoB, the findings may be considered broadly applicable to the entire HoB.

The report examines the often unrecognized environmental benefits arising from the HoB as well as the environmental costs associated with unsustainable landscape management leading to environmental degradation. Spatially-explicit development scenarios comprising a mosaic of land uses across the landscape are modeled in an innovative way, including simulations of alternative futures to show the important relationships among nature, economy and society, changes in land cover, ecosystem services and GDP, based on a range of variables. Two scenarios are presented and compared: a 'Business-as-Usual (BAU) scenario', which arises from a traditional approach to economic development and Gross Domestic Product (GDP) calculations, and a 'Green Economy (GE) scenario', in which natural capital is fully valued by all sectors that have a stake within the HoB landscape. BAU assumes the continuation of current business activities that damage or deplete natural capital and is characterized by a focus on short-term gains (< 10 years), externalization of impacts and their costs, and little or no recognition of the economic value of natural capital and associated goods and services. A green economy focuses on longer-term income (> 10 years) and internalizes most environmental impacts and costs, thereby avoiding the degradation of natural capital and ensuring the long-term flow of ecosystem goods and services. The economic and

environmental modeling aims to provide policy makers with the tools and analysis needed to support more informed decision-making—particularly related to mainstreaming the value of HoB natural capital into economic decision-making processes.

To complete an assessment of natural capital for an area as large and diverse as the HoB is challenging. The assessment has been undertaken using data sets that are as complete, consistent, current and accurate as possible. Published datasets are used where possible and all third party data were reviewed by the study team to ensure their appropriateness. Land cover and land use are particularly important data sources to assess changes in biodiversity and ecosystem goods and services at a landscape scale. A variety of satellite remote sensing data have been sourced and used for this purpose. In some cases, data were not available for the entire island, an individual country or even a province or state. Partly as a result of these limitations in data availability and quality, there is moderate to high uncertainty in the outcomes of the modeling work. Nevertheless, the main purpose of the assessment is to inform the HoB governments along with other stakeholders in understanding some of the fundamental issues and trends related to economic development and natural capital. It is hoped that this analysis will stimulate more precise valuations of natural capital, more robust scenario modeling and wider public discussions and debates around a green economy in general and in HoB in particular. A related website (www.hobgreeneconomy.org), which was developed as part of this assessment, provides access to the data and to additional information on methods and tools.

The report is intended to inform policy and decision makers concerning the economic necessity of investing in sustaining the HoB's natural capital through policies, regulations, incentives and solutions on the ground. Following the present introduction, the report is broken down into four parts, which are outlined below.



© Jimmy / WWF-Canon

Part II

Part II describes the current HoB economy and its complex, interdependent relationship with HoB's ecosystems and biodiversity. It includes four chapters: Chapter 2.1 presents the theoretical and methodological framework for the report, including the concepts of natural capital, ecosystem goods and ecosystem services. The chapter describes an economy-nature disconnect, according to which conventional economic analysis has tended to overlook the extensive contributions of nature to economic activity. It also presents the impact pathways through which reliance on natural capital can affect the economy and vice versa.

Chapter 2.2 outlines some of the key, but often overlooked, environmental economic values of the HoB, including biodiversity, ecosystem resilience in a changing climate, water-related ecosystem services, social values, micro-climate regulation and carbon sequestration. This chapter does not attempt to estimate total economic value, presenting instead a qualitative picture of these important and non-monetized values.

Chapter 2.3 presents a sectoral overview of economy-nature interdependence. Seven sectors—timber supply, palm oil, mining, local forest-based enterprise, freshwater fisheries, hydropower and tourism—are described. The purpose here is twofold: first, to better understand the impacts of unsustainable practices within the sector on natural capital, and; second, to understand the feedback effect that declining natural capital is having on the sector.

In contrast to the qualitative approach employed in chapter 2.2, chapter 2.4 presents quantitative estimates of impacts and costs associated with lost ecosystem services. These are presented according to the service in question, i.e., costs due to changing water resource availability, water quality impacts, impacts of sedimentation, etc. While the figures presented here are of a partial and preliminary nature, they do indicate the actual and potential severity of economic impacts associated with declining HoB natural capital.

Part III

Part III presents an initial attempt to quantify the contribution of natural capital to the society and economy of Borneo. It describes, and presents the findings of, a modeling exercise aimed at generating preliminary estimates of the economic value of natural resource stocks, ecosystem goods and ecosystem services and estimating how their conservation could contribute to continuing and inclusive economic prosperity. It begins with a conceptual overview behind the macroeconomic modeling work, including a view of a nature-economy system that values natural capital.

Chapter 3.2 presents an overview of the modeling approach and explains the framework of analysis and how the two scenarios—Business-as-Usual (BAU) and Green Economy (GE)—were developed. The analytical methods and modeling tools used for different aspects of the analysis are also presented here.

Chapter 3.3 presents the quantitative findings generated by modeling of the two scenarios. The chapter begins by presenting the simulation of changes in forest cover associated with both the BAU and GE scenarios. It goes on to describe the results of the integrated, cross-sector macro analysis, including impacts on growth and equity as well as investment findings. Finally, results from modeling the impacts of BAU and GE scenarios on natural capital are presented.

Part IV

Part IV discusses the leading role of governments in delivering the green economy. Chapter 4.1 starts out by presenting the current state of affairs in delivering a green economy, particularly the challenge of mainstreaming natural capital into national and sub-national efforts. It describes the need to mainstream natural capital into national and sub-national planning and policy making. The only part of the report organized according to political boundaries, this chapter describes recent steps taken by Brunei Darussalam, Indonesia (Kalimantan) and Malaysia (Sabah and Sarawak) to move towards a green economy, along with key further steps needed.

Chapter 4.2 provides an example of an economic policy package that would sustain HoB's ecosystems and biodiversity. It outlines a range of economic instruments that could be employed to drive green growth in the HoB when implemented in synergy.

Chapter 4.3 presents a set of proposed targets and indicators for measuring success in transitioning to a green economy.

Part IV concludes (Chapter 4.4) by looking at the broader, enabling role of governments beyond the development of economic policies.

Part V

Finally, part V goes beyond the role of government to discuss a wide range of solutions and actions that need to be taken by various stakeholders. It begins with chapter 5.1, which discusses on-the-ground and cross-cutting solutions, including specific investments and other actions meant to enhance natural capital. It presents a mix of possible actions by various stakeholders.

Chapter 5.2 sets out potential roles of key stakeholder groups, including business, civil society, the global community and media.

Chapter 5.3 describes a way forward, presenting a series of critical next steps for success based on five success factors and aligned with the priorities contained in the three-country action plan.

Finally, chapter 5.4 concludes the report, noting that a carefully constructed roadmap would help to facilitate the joint efforts of the three HoB countries to advance to a green economy.

END NOTES PART I

¹ Government of Brunei Darussalam, Government of Indonesia and Government of Malaysia. 2010. *Financing the Heart of Borneo, A partnerships approach to economic sustainability*.

² Forests that reproduce naturally, without regeneration efforts by humans either through sowing or planting.

³ United Nations. 2005. *Millennium Ecosystem Assessment - Ecosystems and Human Well-being: Synthesis*.

⁴ Johnson, J. 2012. *World Wildlife Fund's Environmental Economic Series, Assessing the Impact of Climate Change in Borneo*.

⁵ These are the sizes of the HoB landscape in respective countries to date.

⁶ TEEB is a global initiative which is focused on drawing attention to the economic benefits of biodiversity, highlighting the growing cost of biodiversity loss and ecosystem degradation and drawing together expertise from the fields of ecosystem science, economics and development policy to support the mainstreaming of biodiversity and ecosystem considerations in development policy-making.

⁷ See www.teebweb.org for more information.

⁸ These are: Government of Brunei Darussalam, Government of Indonesia and Government of Malaysia. 2009. *HoB Transboundary Action Plan*; Government of Brunei Darussalam. 2009. *Project Implementation Framework Negara Brunei Darussalam, 2008*; Government of Indonesia. 2010. *Indonesia HoB Strategic Action Plan*; State Government of Sabah. 2010. *Sabah HoB Plan of Action*; State Government of Sarawak. *Sarawak Heart of Borneo Project Implementation Framework*. Unpublished report.

⁹ PWC and WWF. 2011. *Towards a Roadmap for a Green Economy in the Heart of Borneo. A scoping study*.

¹⁰ Witteveen+Bos and WWF. 2011. *Quick scan watershed services – Heart of Borneo. Technical Report*.

