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Balancing Sustainable Growth and Forest Conservation through Spatial Planning for a Green Economy in the Heart of Borneo

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Abstract

Uncontrolled development in Borneo will potentially increase economic activities in relation to transport infrastructure and urbanisation, and further exert pressures on the environment, particularly in protected forest areas. Attempts have been made at resolving situational conflicts between economic growth and nature conservation by using the concept of a green economy through spatial planning as Indonesia, Malaysia and Brunei Darussalam set targets to reduce greenhouse gas emissions. Within the Heart of Borneo (HoB) initiative, the three countries have agreed to collaborate on managing forest resources and conserving protected areas. Nevertheless, several factors are needed to optimally manage the sustainability of the HoB region through spatial planning for a green economy. This study was conducted to identify the driving forces necessary to effectively plan and implement the green approach through spatial planning within the HoB initiative. National governments should aim to assist spatial planning and implementation processes at the local levels in each country.

Keywords: spatial planning, green economy, Heart of Borneo (HoB)

Biography

Paramitha Yanindraputri was a Junior Research Fellow under the ASEAN-Canada Junior Fellowship 2014 programme funded by IDRC, conducting research on the balancing of sustainable growth and forest conservation through spatial planning for a green economy in the Heart of Borneo. She is a Research Fellow in Urban Development Studies at the University of Indonesia, Junior Expert on sustainable development and climate change, and also a member of The Indonesian Association of Planners (IAP) research group. Her recent work among others were formulating the Roadmap of Capacity Building on Climate Change for National Focal Point under SEAN-CC, preparing Sustainable Neighbourhood Guidance for the Ministry of Public Works and conducting research on cooperative and sustainable worker housing in Bandung under the Netherland Smart City Project. She was formerly a research coordinator for Skills to Succeed in Save the Children Indonesia. She received her bachelor's degree in architecture from Bandung Institute of Technology and her master's degree in Urban Management and Development from the Institute for Housing and Urban Development Studies of Erasmus University Rotterdam. After graduating, she was involved in several research projects, namely post disaster settlement conducted by the Bandung Institute of Technology settlement research cluster and integrated coastal adaptation strategies in North Jakarta conducted by the Indonesian Association of Planners (IAP) in collaboration with START funded by USAID.

Introduction

The island of Borneo, which comprises territories from Indonesia, Malaysia and Brunei Darussalam, contains one of the richest natural resource endowments on earth. The tropical rainforest area in Borneo is a global biodiversity hotspot that is home to 6 per cent of the world's biodiversity¹ and includes the headwaters for 14 of Borneo's 20 major rivers². Borneo's natural resources include oil, coal and gas mining as well as tropical rainforest areas that serve as valuable ecosystems, with rich biodiversity and high carbon sequestration potential.³

Indonesia, Malaysia and Brunei Darussalam have agreed to collaborate on managing forest resources and conserving protected areas under the Heart of Borneo (HoB) initiative, with support from the World Wide Fund for Nature (WWF). The HoB agreement covers approximately 30 per cent of the total island land area.⁴ Under HoB, Kalimantan in Indonesia covers 71.77 per cent, the Brunei segment covers 2.46 per cent, and Malaysian Borneo covers 25.78 per cent of the total HoB area.⁵ The three participating states have formulated general objectives, programmes and actions plans; however, the HoB initiative is a voluntary agreement, thus its execution is the responsibility of the respective countries.

Although Borneo possesses these remarkable ecosystems and natural resources, many parts of the island lag behind other areas in Indonesia and Malaysia. Infrastructure connectivity issues have led Borneo to become the least industrialised part of both countries. Recognising the problems, the governments of Indonesia and Malaysia initiated economic acceleration for cities in lagging regions of Borneo. Meanwhile, in Brunei, increasing population growth and inevitable demand for land have threatened forest areas. Borneo is also part of the Brunei Darussalam-Indonesia-Malaysia-Philippines East ASEAN Growth Area (BIMP-EAGA). This ASEAN initiative aims to improve ASEAN connectivity in order to achieve a competitive and resilient region. Currently, the three countries and the ASEAN initiative seek to develop within the area, which strongly needs to be conserved.

Forest protection on Borneo island has come into the international spotlight with regard to its carbon sequestration potential. However, Borneo cannot avoid the necessity of development and economic growth. The uncontrolled development caused by transport infrastructure construction and population growth in Borneo will increase economic activities and exert further pressure on the environment, particularly its protected forest areas. Therefore, it is necessary to ensure the implementation of spatial plans that can both accommodate development and conservation goals at the same time.

Answering the challenges of climate change and loss of natural capital while also addressing social or development objectives requires a strategic and comprehensive development plan. The green growth concept focuses on linking economic objectives with environmental and social challenges, within the realisation of the climate change

¹ Annawati van Paddenburg et al., *Heart of Borneo: Investing in nature for a green economy* (Jakarta: WWF HoB Global Initiative, 2012)

² Ibid.

³ Ibid.; Interview with Anwar Purwoto, Director Sumatra and Borneo Program of World Wide Fund for Nature (WWF) Indonesia, 9 June 2014

⁴ World Wide Fund for Nature (WWF), 'Heart of Borneo strategic plan of action: Bridging conservation and sustainable development in three countries' (n.p.: WWF, 2008).

⁵ World Wide Fund for Nature (WWF) and Starling Resources, 'Feasibility assessment report for financing the Heart of Borneo landscape Malaysia (Sabah and Sarawak)' (n.p.: WWF and Starling Resources, 2010), accessed 24 September 2014, <http://www.bps.go.id/>.

threat. In spatial planning, the green infrastructure approach offers linkages between ecosystem services and human well-being. When appropriately planned, designed and managed, it will have the potential to provide sustainable transport links that can simultaneously mitigate and adapt to the effects of climate change.⁶ Based on this understanding, the concept of a green economy in spatial planning has been promoted in Borneo through HoB initiatives.

Achieving development and conservation objectives from the regional to local levels has its own set of challenges, as several factors affect the spatial planning process and its implementation. This study was conducted to identify the driving forces that could effectively plan and implement this green approach through spatial planning. The research focused on the HoB area within Indonesia, Malaysia and Brunei Darussalam. Discussion is divided into four parts: (i) the current environmental and economic status of Borneo; (ii) the green strategy status of each HoB country; (iii) green approach through spatial planning within the HoB framework; and, (iv) challenges before the spatial planning process. Recommendations for the national governments have been proposed to guide the spatial planning process and its implementation at the local level in each country.

Why a 'Green' Strategy

Economic growth is often accompanied by increasing environmental costs. Unsustainable environmental conditions further lead to threats to livelihoods, which have given rise to global concerns regarding finding solutions for economic growth that considers environmental and social aspects. Food, fuel and financial crises in 2008–2009, coupled with concerns over vulnerability to climate and ecosystem changes, led to a strong move toward the emergence of green growth concepts.

The concept of green growth was first established at the Fifth Ministerial Conference on Environment and Development in Asia and the Pacific (MCED 2005) as a key strategy to attain sustainable development, poverty reduction and environmental sustainability.⁷ Green growth by definition is 'fostering economic growth and development, while ensuring that natural assets continue to provide the resources and environmental services on which our well-being relies'⁸, and 'growth that is efficient in its use of natural resources, clean in that it minimises pollution and environmental impacts, and resilient in that it accounts for natural hazards and the role of environmental management and natural capital in preventing physical disasters'⁹. Other descriptions include 'improved human well-being and social equity, while significantly reducing environmental risks and ecological scarcities'¹⁰, or 'a pattern of development that decouples economic growth from carbon emissions, pollution and resource use, and promotes growth through the creation of new environment friendly products, industries and business models that also improve

⁶ Landscape Institute, 'Green infrastructure: An integrated approach to land use – Landscape Institute position statement' (London: Landscape Institute, 2013), [doi:10.4135/9781412973816.n70](https://doi.org/10.4135/9781412973816.n70).

⁷ United Nations and Asian Development Bank (ADB), *Green growth, resources and resilience: Environmental sustainability in Asia and the Pacific* (Bangkok: UN and ADB, 2012).

⁸ Organisation for Economic Co-operation and Development (OECD), 'Towards green growth: A summary for policy makers' (Paris: OECD Publishing, 2011), [doi:10.1787/9789264111318-en](https://doi.org/10.1787/9789264111318-en).

⁹ World Bank (WB), *Inclusive green growth: The pathway to sustainable development* (Washington, D.C.: WB, 2012).

¹⁰ United Nations Environment Programme (UNEP), 'Towards a green economy: Pathways to sustainable development and poverty eradication – A synthesis for policy makers' (Nairobi: UNEP, 2011), www.unep.org/greeneconomy.

people's quality of life'¹¹. These various definitions of the green growth concept can be summarised as endeavours to improve economic conditions by the sustainable use of natural resources without neglecting social equity and becoming more resilient in the face of challenges, such as climate change and natural capital scarcity.

ASEAN countries account for a small amount of the world's total carbon dioxide emissions, but this is expected to surge due to rapid economic growth and rising urbanisation rates.¹² Development in Borneo in the name of economic growth needs to consider the island's potential for carbon sequestration. Therefore, Borneo needs to avoid following the traditional pathways used to enhance economic growth. In developing countries, the effort to implement the green growth strategy needs several enabling circumstances, specifically through: (i) mainstreaming green growth approaches into national planning; (ii) developing economy-wide enabling policies to deliver green growth; and, (iii) deploying green growth institutional mechanisms to keep green growth and its goal of sustainable development at the top of the political and policy agenda.¹³

Infrastructure investments can be seen as key components of the green growth strategy. Since infrastructure is characterised as long-term investment, it will potentially result in losses or benefits in future in terms of financial, environmental and social impacts.¹⁴ Therefore, once an area is developed, it is difficult to change its form. In spatial planning, transport infrastructure and land use planning are critical components to development since they can improve well-being and productivity. Proper planning in transport infrastructure and land use can also be used as tools for environmental protection. The utilisation of the green growth concept in land use planning for forest conservation is to direct and control the impact of development by mitigating forest fragmentation and consumption of open land area¹⁵, while green growth concepts in transport infrastructure help mitigate carbon emissions and pollution production, while at the same time limiting forest invasion¹⁶.

In the spatial planning context, green infrastructure is defined as 'the resilient landscapes that support ecological, economic, and human interests by maintaining the integrity of, and promoting landscape connectivity, whilst enhancing the quality of life, place and the environment across different landscape boundaries'¹⁷. Spatial planning with green infrastructure approaches in Borneo is important to resolve conflicting development goals of economic growth and ecological integrity. The following are criteria can be used by decision-makers when developing green

¹¹ Asian Development Bank (ADB) and Asian Development Bank Institute (ADBI), 'ADB-ADBI study on climate change and green Asia: Policies and practices for low-carbon green growth in Asia – Highlights' (Metro Manila: ADB, 2012), 3.

¹² International Energy Agency (IEA), 'CO₂ emissions from fuel combustion highlights 2013', accessed 12 December 2014, www.iea.org/publications/freepublications/co2-emissions-from-fuel-combustion-highlight-2013-.html.

¹³ Organisation for Economic Co-operation and Development (OECD), 'Green growth and developing countries – Consultation draft' (Paris: OECD Publishing, 2012).

¹⁴ World Bank (WB), *Inclusive green growth*, op. cit.

¹⁵ Mark A. Benedict and Edward T. McMahon, 'Green infrastructure: Smart conservation for the 21st century', *Sprawl Watch Clearinghouse Monograph Series*, n.d. (Washington, D.C.: Sprawl Watch Clearinghouse).

¹⁶ Organisation for Economic Co-operation and Development (OECD), *Green growth in cities*, OECD Green Growth Studies (Paris: OECD Publishing, 2013); William F. Laurance, Miriam Goosem and Susan G. W. Laurance, 'Impacts of roads and linear clearings on tropical forests', *Trends in Ecology & Evolution* 24, no. 12 (2009): 659–69, [doi:10.1016/j.tree.2009.06.009](https://doi.org/10.1016/j.tree.2009.06.009).

¹⁷ Ian C. Mell, 'Green infrastructure: Concepts, perceptions and its use in spatial planning' (Newcastle: School of Architecture, Planning and Landscape, Newcastle University, 2010), 255.

infrastructure plans as well as for evaluating the current plan: (i) plan foundations; (ii) stakeholder involvement; and, (iii) conservation vision.¹⁸

Methodology

This qualitative research was conducted using in-depth interviews with several stakeholders from intergovernmental institutions, governments at the national and local levels, academicians and non-governmental organisations involved in the planning, infrastructure and environmental sectors to derive primary data on existing conditions. Secondary data on policies and previous studies related to planning and environmental sectors were used as complimentary data.

The focus area of this study was the HoB designated region and its surroundings, which includes Kalimantan in Indonesia, Brunei Darussalam, and Sabah and Sarawak in Malaysia. More in-depth discussions were performed, in particular, within the area of Kalimantan in Indonesia, which covers more than half of the total HoB area.

The study was conducted to arrive at recommendations that could help to effectively plan and implement spatial planning for a green economy in Borneo. The recommendations are formulated based on: (i) the current situation on the ground; (ii) status of the green approach, particularly through spatial planning; and, (iii) the challenges in the spatial planning process with a green approach and its implementation. Enabling factors that would support the green growth approach in developing countries have been used to complete the recommendations.

Current Development in Borneo: Need for Balancing Economic Growth and Nature Conservation

Kalimantan

Kalimantan has provided evidence of how degradation of forest coverage can be directly proportional to increases in population and economic growth. In Indonesia, forest degradation for development first started on Java island, followed by Sumatra and now Kalimantan.¹⁹ Kalimantan occupies 72.6 per cent of the total land area of Borneo, covering 539,460 km².²⁰ Its population was estimated at 13,787,831 in 2010 and grew at an average rate of 2.1 per cent between 2000 and 2010.²¹ The population density of Kalimantan was 25.5 people per km² in 2010,²² which was spread evenly except in the Central Kalimantan province²³. Compared to Java and Sumatra islands, Kalimantan has a lower population density, but continues to grow. Kalimantan has lost 1,230,100 hectares of tropical rainforest area between 2000 and 2005.²⁴ The current development model of Kalimantan still neglects the sustainability of its forest reserves.

¹⁸ Leigh Anne McDonald (King) et al., 'Green infrastructure plan evaluation frameworks', *Journal of Conservation Planning* 1 (2005): 6–25.

¹⁹ Interview with Anwar Purwoto, op. cit.

²⁰ World Wide Fund for Nature (WWF), 'Borneo: Treasure island at risk – Status of forest, wildlife and related threats on the Island of Borneo' (Frankfurt am Main: WWF Germany, 2005).

²¹ For more information, see: Badan Pusat Statistik (BPS), 'Badan Pusat Statistik', accessed 24 September 2014, <http://www.bps.go.id/>.

²² Ibid.

²³ Imam Ernawi, 'Perpres No. 3 Tahun 2012 Tentang RTR Pulau Kalimantan', n.d.

²⁴ Ibid.

Kalimantan generates its main income from natural resources although social wealth is not spread evenly on the island. Kalimantan contributes 6.9 per cent of the total national economy, with a growth rate slightly above the national growth rate (5.86 per cent) with most of Kalimantan's growth coming from East Kalimantan (44.21 per cent).²⁵ This Indonesian part of Borneo's main income source is from mining, agriculture and commercial plantations, intermediate goods industries, and the service sectors.²⁶ However, many parts of the region are underdeveloped and remote, particularly in the Indonesia-Malaysia border zone, which is mostly covered by protected forest areas. Transportation, clean water and communication infrastructure services generally perform under the national average, and the social facilities lag behind other parts of the country.²⁷ Poor livelihood conditions become justification for the local community to conduct illegal logging, plantation and mining activities in border areas where supervision is lacking.²⁸ The areas with rapid and low economic activities in Borneo are threatened alike by unsustainable economic practices, which further lead to loss of natural resources.

The growth of palm oil plantations has significantly contributed to forest cover loss. For instance, the growth rate of land opening for palm plantations reached 10.6 per cent between 2003 and 2004 alone.²⁹ As the world's biggest palm oil supplier, President Yudhoyono agreed to stop forest clearing for two years. However, this agreement clashed with the government's desire to become the biggest palm oil producer in the world, with a goal to produce 40 million tonnes of crude palm oil by 2020.³⁰ Inconsistencies between conservation and economic growth objectives continue to occur within the Indonesian government.

In West Kalimantan, land-based sectors contributed to approximately 90 per cent of greenhouse gas (GHG) emissions.³¹ This is especially so in palm oil plantations, where uncontrolled forest fires, as a result of land clearing, have caused forest degradation and haze problems in neighbouring regions. Two major factors enabled the fast growth of palm plantations: (i) natural forest timber concession ownerships that were able to morph as industrial plantation concession ownerships within national policy; and, (ii) factors related to spatial planning where the possibility of private-sector companies owning land concessions in buffer zones adjacent to conservation areas complicated the conservation management and law enforcement in these areas.³² The failure of policy frameworks on forest management resulted in high amounts of carbon emission production in Kalimantan.

Brunei and Malaysian Borneo

In Borneo, Kalimantan possesses the lowest population density, followed by Malaysian Borneo and Brunei Darussalam, in that order. The total land area of Borneo includes Brunei Darussalam (5,570 km² or 0.6 per cent) and Malaysian

²⁵ Ibid.

²⁶ Ibid.

²⁷ Ibid.; Interview with Indra Maulana, a functional position at Subdivision Arrangement, Spatial Planning Department, Ministry of Public Works, 17 June 2014.

²⁸ Interview with Indra Maulana, op. cit.

²⁹ Lesley Potter, 'The oil palm question in Borneo', in *Reflections on the Heart of Borneo*, eds Gerard A. Persoon and Manon Osseweijer, Series 24 (Wageningen: Tropenbos International, 2008), 69–90; Interview with Anwar Purwoto, op. cit.

³⁰ Adianto P. Simamora, 'SBY vows to protect palm oil interests', *The Jakarta Post*, 26 March 2011, <http://www.thejakartapost.com/news/2011/03/26/sby-vows-protect-palm-oil-interests.html>.

³¹ West Kalimantan Pokja meeting on 26 September 2013.

³² David L. A. Gaveau et al., 'Reconciling forest conservation and logging in Indonesian Borneo', *PLoS ONE* 8, no. 8 (2013): e69,887, [doi:10.1371/journal.pone.0069887](https://doi.org/10.1371/journal.pone.0069887).

Borneo (197,000 km² or 26.7 per cent).³³ The population size of Brunei is 414,400 (with a population density of 72 people per km² in 2010) while the combined population of Sabah and Sarawak in Malaysia is 5.88 million (with a population density of 29.9 people per km²).³⁴ Despite the differences in spatial challenges faced by each country, the three countries should plan the development of Borneo and manage their population densities cautiously.

Economic activities in Brunei and Malaysian Borneo have an effect on forest cover change. Brunei Darussalam depends on the oil and liquefied natural gas industries for almost half of its national income while most income generation for Sabah and Sarawak is derived from commercial plantations and agriculture, such as oil palm, cocoa, rubber, and livestock.³⁵ Between the three countries, Brunei Darussalam has the highest income and, due to this, the country has successfully limited extensive land clearing operations, such as for palm oil plantations, in its part of Borneo. Compared to Kalimantan and Malaysian Borneo, the majority of forests in Brunei Darussalam are still in pristine condition; of the 4,018 km² of Brunei forest area, 79 per cent is relatively intact; only 15 per cent degraded and 6 per cent severely degraded.³⁶ By comparison, in Malaysian Borneo, only 38 per cent of total forest cover of 109,877 km² in 2009 remained relatively intact, 39 per cent was degraded and 23 per cent severely degraded.³⁷ Palm oil plantations in Malaysian Borneo contributed to extensive land clearing of forest areas. Tropical rainforests in Malaysian Borneo suffer from industrial logging and land clearing activities for commercial plantations.³⁸ Malaysia earns the equivalent of AUD 22 billion each year from palm oil exports, and employs 570,000 people.³⁹ Forest areas in Sabah have been cleared to develop palm oil and associated products, and the government of Sarawak plans to increase its oil palm plantation area to 2 million hectares by 2020.⁴⁰ Forest-based industries in Malaysian Borneo contribute to forest area loss.

Decision-making with respect to land use and transport infrastructure systems is a striking example of how economic growth can conflict with nature conservation in Borneo. Transportation development has influenced changes in spatial and economic activities, and natural capital degradation in Malaysian Borneo. Similarly, the development of land transport infrastructure in Sabah has changed settlement patterns of the region's rural population. The opening of road access resulted in market opportunities for logging activity. In Sarawak, road construction and logging activities in areas adjacent to forests have contributed to river siltation and further disruption of fish proliferation.⁴¹ Hence, spatial planning with a green approach is important to accommodate both conservation goals and economic development.

³³ World Wide Fund for Nature (WWF), 'Borneo', op. cit.

³⁴ Department of Statistics Malaysia Official Portal, accessed 10 September 2014, <http://statistics.gov.my/>.

³⁵ BIMP EAGA Secretariat, "BIMP-EAGA Food, Agribusiness, and Logistic Corridor" (2013).

³⁶ Jane E Bryan et al., "Extreme Differences in Forest Degradation in Borneo: Comparing Practices in Sarawak, Sabah, and Brunei," *PloS One* 8, no. 7 (January 2013): e69679, doi:10.1371/journal.pone.0069679.

³⁷ Ibid.

³⁸ Dicky Simorangkir et al., eds, 'Land clearing on degraded lands for plantation development: A Workshop on Economics of Fire Use in Agriculture and Forest Plantations, Kuching, 24–25 October 2002' (Workshop Report, Jakarta: Project FireFight South East Asia, 2002); Rhett Butler, 'A desperate effort to save the rainforest of Borneo', 12 June 2012, <http://e360.yale.edu/feature/a-desperate-effort-to-save-the-rainforest-of-borneo/2540/>.

³⁹ Ian Browne, 'A Shamrock News Darwin presentation 2011' (2011).

⁴⁰ Ibid.

⁴¹ Ian Douglas, 'The local drivers of land degradation in South-east Asia', *Geographical Research* 44, no. 2 (2006): 123–34, doi:10.1111/j.1745-5871.2006.00373.x.

Efforts to Create Enabling Conditions to Deliver the 'Green' Approach

Kalimantan

In Borneo, the deterioration of natural resources as a result of irresponsible economic activities is compounded by other challenges, such as population growth, urbanisation, infrastructure deficits and the impacts of climate change. Conflicts between economic growth and nature conservation in Borneo as well as the commitments by President Yudhoyono to reduce GHGs by 25 per cent by 2025 seem to have made the concept of green growth look like an alternative solution to planning the development of Borneo. However, several enabling conditions are required to implement this green growth strategy successfully.

Initial commitments to mainstreaming green growth in Indonesia started with pro-environment strategies involving various methods and instruments to reduce GHG emissions within national planning. A major step was taken by giving the pro-environment national planning policy a legal basis within Act No. 17/2007 which kick-started sustainable development initiatives and the move toward green economic initiatives that provided environmental protection and management within Act No. 32/2009.⁴² Indonesia's action plan for GHG reduction started at the national level and provides a reference point for action plan formulation at local levels. In the case of West Kalimantan, the Regional Action Plan for GHG Emission Reduction (*Rencana Aksi Daerah penurunan emisi Gas Rumah Kaca [RAD-GRK]*) was defined as Governor Law (No. 27/2012) and added to the Regional Medium-Term Development Plan (RPJM) 2013–2018, which is further integrated within strategic plans of the local agencies.⁴³ The green economy within spatial-based models in Indonesia is progressing through international initiatives, such as HoB and Reducing Emissions from Deforestation and Forest Degradation in developing countries (REDD+)⁴⁴, which assist with enabling circumstances to achieve green growth. At the district level, West Kutai Barat regency began to mainstream REDD+ by creating conditions for a district-level programme that includes spatial planning, governance, and stakeholder involvement to improve forest protection, utilise degraded lands for palm oil expansion and secures community forests for biodiversity, carbon and sociocultural values.⁴⁵ The Indonesian government has mainstreamed the green growth approach into national and local development planning.

Green growth requires enabling conditions within national economic policies, including incentives and controls to deliver such development. Related to incentives and controls, Indonesia has a mechanism through the performance-based Regional Incentive Fund to support regional accomplishment; yet, its indicators reflect only technical or financial issues and not environmental concerns.⁴⁶ National economic policies in Indonesia have yet to adopt green growth supporting instruments.

Institutional mechanisms through a collaborative institution to link the actors continuously and regularly are important to ensure green growth. In Indonesia,

⁴² Akhmad Fauzi and Alex Oxtavianus, 'Background Study RPJMN 2015-2019 Indeks Pembangunan Lingkungan Hidup' (n.p.: Kementerian PPN/BAPPENAS, 2013).

⁴³ West Kalimantan Working Group Meeting on 26 September 2013.

⁴⁴ For more information on Reducing Emissions from Deforestation and Forest Degradation in developing countries (REDD+), see: UN-REDD Programme, 'About REDD+', <http://www.un-redd.org/AboutREDD/tabid/102614/Default.aspx>.

⁴⁵ Heart of Borneo, 'HoB initiative: A natural priority for a green economy', accessed 9 September 2014, <http://www.hobgreeneconomy.org/en/hob-initiative-a-natural-priority>.

⁴⁶ van Paddenburg et al., *Heart of Borneo*, op. cit.

National Development Planning Agency (BAPPENAS), with the support of the international institution, Global Green Growth Institute (GGGI), designed a participatory process to assist stakeholders at the local level and include government agencies (such as forestry, mining, agriculture and environment) on the green growth issue. Nevertheless, no institutional mechanism was specifically formed to ensure green growth. Institutional problems slow the implementation of the Presidential Regulation for a National Action Plan on GHG Emission Reduction (*Rencana Aksi Nasional penurunan emisi Gas Rumah Kaca* [RAN-GRK]). In the case of Kapuas Hulu, the local government's commitment to make the green approach operational has received no positive response from the central government. The absence of national government support for local initiatives on action plans, such as working groups or task forces, has threatened green growth practices in the region.⁴⁷

Brunei and Malaysian Borneo

International commitments toward environment protection efforts and green strategy affect spatial development planning in each country. In the context of climate change mitigation, each country has set targets to reduce carbon emissions. At the 15th Conference of the Parties (COP 15) to the United Nations Framework Convention on Climate Change (UNFCCC), Brunei Darussalam committed to mitigating carbon emissions by reducing energy intensity by up to 25 per cent of 2005 levels by the year 2030 while the Malaysian Prime Minister has set a target of a 40 per cent reduction of the 2005 level in carbon footprint and emissions by 2020.⁴⁸ Based on this, it is important for both countries to plan their development while giving due consideration to carbon emission reduction efforts. Both countries should fulfil several aspects to effectively apply the green growth strategy.

The governments of Brunei Darussalam and Malaysia have tried to include green strategies into national plans and policies. However, synchronisation between environmental and economic development plans has not yet been achieved. Previously, forest protection policies had limited the development process in Brunei Darussalam since only 5.5 per cent of the country's land was free from development constraints.⁴⁹ Within the National Land Use Master Plan (NLUMP), the Brunei government's plans included efforts to harmonise development with the environment by promoting a high level of safety and a cleaner environment. The efforts to mainstream green strategy into national policy and planning only began in the last few years, but have not yet been executed optimally.⁵⁰ Most green initiatives are related to energy efficiency and conservation practices given that the possession of large amounts of petroleum resources is likely to have a major impact on the Brunei population's energy-intensive lifestyle. The NLUMP states Brunei's plans to implement transit-oriented development principles in urban areas, improve and upgrade road-based transport (including traffic movement) and support the development of an efficient settlement pattern.⁵¹ In developing a sustainable development agenda, Brunei Darussalam is currently threatened by increasing

⁴⁷ Interview with Ahi, Head of Regional Development Planning Agency (BAPPEDA) of West Kalimantan province, 30 September 2014.

⁴⁸ US Climate Action Network (USCAN), 'Who's on board with the Copenhagen Accord?: Notes', accessed 14 July 2014, <http://www.usclimatenetwork.org/policy/copenhagen-accord-commitments#Note5>.

⁴⁹ Interview with Nurol H. Rahman, staff at Brunei Darussalam Town and Country Planning, 11 August 2014.

⁵⁰ Ibid.

⁵¹ United Nations Environment Programme (UNEP), *Sustainable building policies on energy efficiency: Brunei Darussalam* (Singapore: UNEP and Building and Construction Authority [BCA], 2011).

population growth and the inevitable demand for land, leading the government to persuade the population to return to abandoned settlements in rural areas and to control this rural redevelopment. The goal to revitalise abandoned settlements without opening new areas and planning the revitalised growth centres as small-sized cities will be reviewed in the next 15–20 years.⁵²

In Malaysia, providing instruments to implement carbon emission reduction efforts at the city level shows the government's willingness to bring a green strategy into national spatial plans. However, in its spatial planning framework, National Physical Plan (NPP) and National Urbanisation Policy (NUP), energy conservation and efficiency as well as GHG emissions reduction issues have not yet been directly addressed since most of the plans focus on supporting economic growth by increasing energy demand.⁵³ The Malaysian government has land use planning policies that are linked to climate change and green technology policy. There include Green Township Policy Initiatives to develop low-carbon neighbourhoods and the Low Carbon Cities Framework and Assessment System (LCCF) to assist various stakeholders in assessing whether developments carried out within the city contributes towards a reduction in GHG emissions. The Green Township Policy Initiatives provides guidelines on land use planning, green transport and building initiatives.⁵⁴ Nonetheless, more synchronisation is required between socioeconomic development and environmental protection plans, as Malaysian Borneo is currently promoting the Sabah Development Corridor (SDC) and the Sarawak Corridor of Renewable Energy (SCORE) as a strategy to enhance economic activities in the region. In the case of SCORE, hydroelectric facilities for industrialisation and manufacturing development have been criticised as carbon dioxide emitters that will potentially contribute to land and water pollution in the region.⁵⁵ The government also plans to develop urban-rural linkages through inter-urban highways and railways.⁵⁶ Brunei and Malaysia have made an effort to mainstream green growth into policies and plans at the national levels. Yet, in Malaysian Borneo, the synchronisation of policies and plans between the national and local level governments has yet to be achieved.

Economic policies to foster green growth are essential. Brunei Darussalam and Malaysia are creating green growth-enabling conditions through economic policies. Development directives in Brunei emphasise the protection and conservation of the environment and interventions that would support a green transformation of the economy.⁵⁷ Brunei is also planning for economic diversification by shifting from a natural resource-based economy to one that is knowledge-based. This knowledge-based economy should be planned with carbon emission reduction efforts in mind. Brunei Darussalam could move towards a green economy within spatial-based

⁵² Interview with Nurol H. Rahman, op. cit.

⁵³ Wee-Kean Fong et al., 'Energy consumption and carbon dioxide emission considerations in the urban planning process in Malaysia', *Summaries of Technical Papers of Annual Meeting Architectural Institute of Japan 2* (2007): 497–8.

⁵⁴ Dahlia Rosly, 'Green township policy initiatives in Malaysia' (paper presented at 2nd High Level Seminar on Environmental Sustainable Cities, Kitakyushu, 15–16 March 2011).

⁵⁵ Benjamin K. Sovacool and L. C. Bulan, 'They'll be dammed: The sustainability implications of the Sarawak Corridor of Renewable Energy (SCORE) in Malaysia', *Sustainability Science* 8 (2013): 121–33, [doi:10.1007/s11625-012-0159-3](https://doi.org/10.1007/s11625-012-0159-3).

⁵⁶ G. Naidu, 'Infrastructure development in Malaysia', in *International infrastructure development in East Asia – Towards balanced regional development and integration*, ed. Nagesh Kumar (ERIA Research Project Report 2007-2, Chiba: Economic Research Institute for ASEAN and East Asia [ERIA], 2008), 204–27.

⁵⁷ Prime Minister's Office of Negara Brunei Darussalam, *National Development Plan (RKN) 2007-2012* (Brunei: Prime Minister's Office, Brunei Darussalam, 2006).

models through the HoB initiative. The formulation of a green growth supporting system will be important for its transformation into a knowledge-based economy. Brunei has also developed fiscal instruments on sustainable building policies and initiatives on energy efficiency through taxation, tax exemptions, incentives, grants, funds and capital subsidies.⁵⁸

In Malaysia, strategic initiatives under the Economic Transformation Programme (ETP) bring sustainability into play.⁵⁹ The government promotes economic opportunities that create value from conservation through ecotourism, a knowledge-based bio-economy and green technology in the production of goods and the provision of services. Within the green initiative policy, the government introduced a series of tax incentives to encourage public and private sectors to generate energy from renewable resources and to spur energy conservation activities; they also established a Green Technology Finance Scheme (GTFS) for companies that supply and utilise green technology.⁶⁰ However, the current tax incentives for green technology in Malaysia may not be sufficiently attractive to the public and private sectors due to potential problems from the practical application of tax incentives.⁶¹ Nonetheless, compared to Brunei, Malaysia has made progressive efforts in enabling economic policies to deliver green growth.

Malaysia and Brunei Darussalam have progressed differently in setting up institutional mechanisms to foster green growth. In Brunei, the HoB initiative promoted the establishment of the National Committee on the Environment (NCE) and the Environmental Unit of the Ministry of Development, which play important roles in coordinating environmental policy with the support of local non-governmental organisations. Malaysia, meanwhile, inaugurated the Ministry of Energy, Green Technology and Water (MEGTW), and formed institutional frameworks through the Malaysian Green Technology Corporation, National Green Technology and Climate Change Council (MTHPI), Sustainable Energy Development Authority (SEDA) and Yayasan Hijau, each with different roles and functions to assist green growth implementation, coordination between sectors and stakeholders, as well as public involvement.⁶² Under the HoB initiative, the HoB National Council in Brunei and a National Expert Group and Steering Committees in Malaysia were formed. Compared to Brunei, Malaysia seems to have stepped forward in setting up institutional frameworks to deliver green growth.

Spatial Planning Process for HoB

HoB in Kalimantan

The development of a spatial plan for Kalimantan needs a clear foundation to achieve sustainable development. Within Indonesian spatial planning policies, the government has directives to assist national spatial utilisation that may be in accordance with national spatial planning through a zoning regulation system, licensing, incentives and disincentives, and administrative sanction.⁶³ To optimise the spatial planning incentives and control mechanisms, green growth-related measurements remains a requirement. The National Strategic Area (*Kawasan*

⁵⁸ United Nations Environment Programme (UNEP), *Sustainable building policies on energy efficiency*, op. cit.

⁵⁹ van Paddenburg et al., *Heart of Borneo*, op. cit.

⁶⁰ Pricewaterhouse Coopers, 'Green tax incentives for a sustainable Malaysia', *PwC Alert* 86 (2010).

⁶¹ Ibid.

⁶² Ministry of Energy, Green Technology and Water (MEGTW), 'Malaysia government initiatives towards achieving low carbon growth' (Putrajaya: MEGTW, 2013).

⁶³ Indonesian Law No. 26/2008.

Strategis Nasional [KSN]) within the Kalimantan Land Use Plan according to Government Regulation No. 26/2008 on National Spatial Planning Law embodies the statutory basis to guide environmental protection, particularly related to HoB.⁶⁴ However, specific legal status on spatial planning in HoB has yet to be determined. Currently, the regions are in a race to attract investment, which could potentially ignore sustainability requirements and continue to threaten environmental protection efforts without legal binding status of HoB KSN spatial planning.⁶⁵ In the case of West Kalimantan province, the Regional Development Planning Agency (BAPPEDA) has recommended in favour of the HoB KSN Spatial Planning draft but it still awaits a decision on its legal standing at the national level. The decision-making process at the national level has delayed the formulation of the HoB KSN spatial planning as the Ministry of Forestry postponed the determination of spatial patterns in the HoB designated area. Generally, delays on the determination of spatial patterns for forest areas occur due to technical issues, such as existing data on the ground.⁶⁶ In the case of Sendawar in East Kalimantan, a city located in the Malaysia-Indonesia border area designated as KSN, issues such as paucity of data in relation to large fires, land use permits for mining, paths which pass through the concession area, and splitting open village lands were found.⁶⁷ Thus, the legal status of HoB is a major obstacle in achieving sustainable development at the local level.

Stakeholder involvement is important for a green approach to spatial plan formulation; this also applies to Kalimantan. In Indonesia, local governments have the authority to draft regional socioeconomic development plans according to the National Development Planning System Law No. 25/2004 and regional spatial plans according to the Spatial Planning Law No. 26/2007.⁶⁸ Current mechanisms to harmonise the spatial plan with existing policies and plans between sectors and various government levels require the involvement of related sectors, local governments and other stakeholders in its formulation. Public participation in the spatial planning process has statutory basis under Law No. 68/2010 in Indonesia. At the initial stage, other related government sectors, associations, academicians, and targeted communities are involved; after public input on the spatial plan, there is also a public hearing on the feedback.⁶⁹ Indonesia also has the Development Planning Council (*Musrenbang*), which is supposed to coordinate both top-down and bottom-up development needs in each administrative area. However, feedback from stakeholders is not always incorporated into the plan due to political agendas.⁷⁰ As seen in other instances, a lack of awareness of the need to reduce GHG emissions has caused the local community to focus only on immediate problem solving related to their livelihoods and settlement.⁷¹ Therefore, involvement of stakeholders in

⁶⁴ Andi Novianto, 'Indonesia's perspectives on the concept of green economy in the Heart of Borneo' (presented at International Conference on 'Sabah Heart of Borneo Green Economy and Development: Engaging Business for Environment', Kota Kinibalu, 15–16 November 2011).

⁶⁵ Interview with Ahi, op. cit.

⁶⁶ 'Wah! Ada Skema Baru Percepat Pengukuhan Kawasan Hutan, Apakah Itu?', *Mongabay Indonesia*, 31 August 2014, <http://www.mongabay.co.id/2014/08/31/wah-ada-skema-baru-percepat-pengukuhan-kawasan-hutan-apakah-itu/>.

⁶⁷ Hendricus Andy Simarmata et al., 'Institutional barriers of low carbon development planning in Indonesian small cities', *Low Carbon Economy* 5 (2014): 105–16.

⁶⁸ For more information, see: Ministry of Land, Infrastructure, Transport and Tourism (MLIT), 'Ministry of Land, Infrastructure, Transport and Tourism, accessed 10 September 2014, <http://www.mlit.go.jp/>.

⁶⁹ Interview with Indra Maulana, op. cit.

⁷⁰ Interview with Dave Lumenta, a researcher on the border government issue in Kalimantan, 6 December 2014.

⁷¹ Ibid.

developing spatial plans with a green approach needs to firstly include awareness-raising and capacity-building of the related issues.

Within the HoB initiative, the Indonesian government has formed working groups at the national, provincial and regency levels that are expected to respond and formulate decisions made in the three-country forum. Myriad support from civil society, international and local non-governmental organisations and initiatives, such as HoB and REDD+, help to foster a nature protection agenda by managing forest restoration, rehabilitation, sustainable management and reforestation. WWF, as the initiator of HoB, has regular monitoring programmes on rainforest existence and has given information and related data from the ground to the government.⁷²

There are several plans within and adjacent to the HoB area with different focuses, such as nature conservation, as well as spatial and economic acceleration plans. These are the HoB KSN Spatial Planning, National Spatial Planning Law and the Masterplan for Acceleration and Expansion of Indonesia's Economic Development (MP3EI). The HoB KSN Spatial Planning emphasises forests protection and infrastructure development in the HoB area. The National Spatial Planning Law encourages several regencies in the border areas that are close to the HoB region, such as the national or regional activity center, to become economic embryos that foster economic growth for their surrounding areas. The MP3EI in Kalimantan is planned to be complementary to the Island Spatial Plan, but has yet to be detailed for environmentally sound development.⁷³ The development plan for economic acceleration in Kalimantan neglects the sustainable development agenda. The harmonisation of the economic development plan with environmental protection efforts had not been done within MP3EI for the Kalimantan corridor that will link Borneo island by road infrastructure. This provoked public reaction with regard to environmental issues caused by the lack of concrete plans for environmental sustainability.⁷⁴ Various spatial and development plans need to be synchronised to achieve sustainable development in the region.

HoB in Brunei and Malaysian Borneo

Brunei Darussalam and Malaysian Borneo face different challenges vis-à-vis formulating spatial plans with a green approach for their forest areas. The HoB initiative began on the green approach within the spatial-based models for natural resource management in both countries. Under the HoB initiatives, HoB covers 58 per cent of the total land area in Brunei Darussalam⁷⁵, and in Malaysian Borneo, 54 per cent of land area in Sabah and 16.4 per cent of Sarawak's land area.⁷⁶ Several significant factors for highly effective spatial planning with green approach should be considered.

The HoB initiative is a voluntary transboundary collaboration. Brunei adopts a three-tiered spatial planning system, consisting of the Negara Brunei Darussalam master

⁷² Interview with Anwar Purwoto, op. cit.

⁷³ Interview with Indra Maulana, op. cit.; Interview with Anwar Purwoto, op. cit.

⁷⁴ 'Pemerintah Uji Kelayakan Rencana Rel Kereta Kalimantan', *Tempo.co*, 4 August 2011, <http://www.tempo.co/read/news/2011/08/04/090350142/Pemerintah-Uji-Kelayakan-Rencana-Rel-Kereta-Kalimantan>.

⁷⁵ WWF and Starling Resources, *Feasibility Assessment Report for Financing the Heart of Borneo Landscape Brunei Darussalam*, 2010.

⁷⁶ WWF and Starling Resources, *Feasibility Assessment Report for Financing the Heart of Borneo Landscape Malaysia (Sabah and Sarawak)*, 2010.

plan, district plans and local plans.⁷⁷ In Brunei, the HoB delineated area is designated as National Landscape and Environmental Protection Zones under the NLUMP.⁷⁸ However, NLUMP implementation has not yet acquired statutory status⁷⁹ and administrative structures to support sustainable management of its national forests and wildlife are yet to fully develop⁸⁰. Due to the legal status of NLUMP, local governments or government agencies in Brunei Darussalam do not always apply the master plan, mainly because of cost priorities.⁸¹ In Malaysia, the NPP is prepared at federal levels and then integrated into a structure plan that subsequently serves as the framework for development planning at the local level in the form of a local plan or a special area plan.⁸² The HoB in Malaysia does not have legal status. Even though HoB is not directly addressed within a legal framework, HoB initiative programmes and actions are designed to support existing development, conservation and spatial plans of both the federal and state governments in Sabah.⁸³ In other words, the voluntary nature of the HoB initiative affects the statutory status of the HoB spatial plan in both countries.

Stakeholder involvement at the planning stages within spatial plan development is ensured in both countries. In Brunei's spatial planning formulation process, inhabitants in affected areas are engaged during inception processes and final presentations of findings during the consultation stage through public hearings and final presentation, while other government agencies and stakeholders are involved during focus group discussions.⁸⁴ In Malaysia, the state structure plan should involve the public for input in its preparation stage and publication after approval of the draft local plan.⁸⁵ The Sabah HoB Strategic Plan of Action involves engagement of communities within the green economy framework through ecotourism activities and biodiversity-based enterprises. However, efforts to involve other stakeholders have faced several problems initially. For instance, the sustainable development programme in Sabah has been inhibited by engagement with HoB communities, poor capacity of stakeholders and lack of awareness of the green concept.⁸⁶ Therefore, awareness raising and capacity building for stakeholders involved in plan development in green approach issues are required.

Conservation vision, which could accommodate economic development and future growth, should be considered in plan formulation. In Brunei, with almost half of the country's land assigned as HoB, this initiative also stimulates well-balanced and sustainable development in areas adjacent to HoB. This attempt will safeguard ecological connectivity between the HoB area and its surroundings, which is

⁷⁷ World Wide Fund for Nature (WWF) and Starling Resources, 'Feasibility assessment report for financing the Heart of Borneo landscape Malaysia (Sabah and Sarawak)', op. cit.

⁷⁸ Mahmud Yussof, 'The Brunei HoB perspective for the land use management in designated Brunei HoB area' (Bandar Seri Begawan: 44th EAROPH REGIONAL CONFERENCE 2011, 2011).

⁷⁹ Interview with Nuroh H. Rahman, op. cit.

⁸⁰ Ministry of Industry and Primary Resources of Negara Brunei Darussalam, 'Heart of Borneo: Project implementation framework, Negara Brunei Darussalam – Final report' (Brunei: Ministry of Industry and Primary Resources [MIPR], 2008).

⁸¹ Interview with Nuroh H. Rahman, op. cit.

⁸² For more information, see: Ministry of Land, Infrastructure, Transport and Tourism (MLIT), 'Ministry of Land, Infrastructure, Transport and Tourism', accessed 4 October 2014, <http://www.mlit.go.jp/>.

⁸³ Sabah Forestry Department and World Wide Fund for Nature (WWF), 'Strategic plan of action (Sabah): The Heart of Borneo initiative' (Sabah: Sabah Forestry Department, 2009).

⁸⁴ Interview with Nuroh H. Rahman, op. cit.

⁸⁵ Malaysia Town and Country Planning Act 172.

⁸⁶ World Wide Fund for Nature (WWF) Malaysia, 'Strategic plan of action (Sabah): The Heart of Borneo initiative (2014–2020)' (Sabah: Sabah Forestry Department, 2013).

expected to arrest negative impacts of infrastructure development within the city and urban sprawl.⁸⁷ In Malaysian Borneo, HoB covers most of the designated highland areas and designated water catchment areas in the Sabah Water Resources Master Plan. The HoB initiative in Sabah is planned to function complementarily with existing policies, plans and programmes pertaining to sustainable development, land use and conservation, at both the state and national levels. With respect to spatial planning in Sabah, 'SPaCe' (Spatial Planning for Conservation and Sustainable Development) has been developed to determine forest conservation priority areas within Sabah, which is further included into the Sabah Structure Plan 2033, and to inform related stakeholders about priority areas for biodiversity in the state.⁸⁸ However, for the Sabah State Structure Plan (2013–2033), which provides directives on development and land use in the state, each district plan still needs to consider the HoB vision.⁸⁹ Thus, weaknesses in the regulatory functions of Sabah State Structure Plan is a hindrance in the implementation of the state's development programme.⁹⁰

Barriers to the Implementation of HoB Spatial Planning

The question of ecosystem sustainability and carbon emission reduction in the face of economic pressures in Borneo is a crucial issue. Addressing barriers to optimising the implementation of spatial planning with a green growth approach is critical to achieving the sustainable development agenda in Borneo. The challenges in the synchronisation of spatial planning to sustainable management of forest resources in the HoB region can be found from current spatial planning implementation. The impediments related to spatial planning implementation are examined through a reflection on Kalimantan.

Policy framework issues constrain the implementation of spatial planning in Borneo. At the national level, economic development policies for development in forest areas do not support conservation policies.⁹¹ The forest conservation policy is open to opportunistic misuse for economic activities.⁹² A similar situation is also seen in Sabah, where the lack of spatial planning for conservation and sustainable development has led to inappropriate or uncoordinated land use development and the existence of conflicting policies and strategies.⁹³ In relation to carbon emission reduction efforts, support for decisions in the form of environmental indicators in the development plan have yet to accommodate key metrics, such as prevention approach indicators, and biocapacity and ecological footprint indicators.⁹⁴ Predevelopment impacts assessment is often not in use or implemented on the ground.⁹⁵ Existing challenges to the implementation of spatial planning in policy frameworks suggest that a review of current policy frameworks related to forest resources and areas is needed.

Institutional framework issues are a key factor affecting the implementation of spatial planning. The autonomy system in Indonesia is a distinctive hindrance to implementing spatial planning as directives are developed at the regional level, as in

⁸⁷ Yussof, 'The Brunei HoB perspective for the land use management in designated Brunei HoB area', *op. cit.*

⁸⁸ World Wide Fund for Nature (WWF) Malaysia, 'Strategic plan of action (Sabah)', *op. cit.*

⁸⁹ *Ibid.*

⁹⁰ *Ibid.*

⁹¹ Gaveau et al., 'Reconciling forest conservation and logging in Indonesian Borneo', *op. cit.*

⁹² Interview with Anwar Purwoto, *op. cit.*

⁹³ *Ibid.*

⁹⁴ Fauzi and Oxtavianus, 'Background Study RPJMN 2015-2019 Indeks Pembangunan Lingkungan Hidup', *op. cit.*

⁹⁵ Interview with Anwar Purwoto, *op. cit.*

HoB. The authority possessed by the local government allows the possibility to use land conversions to raise money for their own budgets. This situation has led local governments to lean towards investment, such as palm oil plantations, instead of forest preservation. Similar institutional issues in Sabah have seen irresponsible acts and abuse of power by some parties resulting in forest destruction.⁹⁶ Therefore, the vision of a leader has an important role to play in ensuring sustainable development implementation within institutional frameworks.

Coordination between stakeholders to attain development, led by the objective to safeguard forest resources, is necessary. In the case of Indonesia, the government objective for economic development through palm oil industries did not support its President's commitment on forest degradation prevention. This shows lack of coordination between government institutions. Communication issues due to administrative reshuffling between government bodies also obstruct the spatial planning process and implementation⁹⁷, as is the case in Brunei, too⁹⁸. Given global concerns over Borneo's carbon sequestration potential, various international initiatives, including HoB, are assisting in the implementation of a green strategy in Borneo. However, their participation is only limited to consultation and inputs are not necessarily adopted within the government's plans and actions. Also, the conservation initiatives are often unable to resist political pressure at local levels.⁹⁹ With regard to the private sector, the interest of economic actors cause major obstacles to preserving the environment in Borneo.¹⁰⁰

Conclusion

The forest cover area status in Indonesia's Kalimantan, Brunei and Malaysian Borneo are different from each other. The largest forest cover losses have occurred in Kalimantan followed by Malaysian Borneo; forest cover in Brunei remains nearly pristine. Yet, future development and economic growth efforts do threaten the existence of forests in Borneo. Economic activities, as in Kalimantan and Malaysian Borneo, and rapid population growth, as in Brunei, have brought degradation pressures on existing forest cover. Therefore, development in Borneo, although inevitable, should be planned with great caution. This need to accommodate forest conservation, economic development and carbon emission reduction at the same time has led to the emergence of green concepts for planning the development of Borneo.

Status of enabling conditions for delivering green growth in each country

- The support of civil society and international initiatives on nature conservation as well as the commitment to reduce GHG emissions have become driving forces for these countries to pursue green growth in Indonesia, Malaysia and Brunei Darussalam. All countries have shown efforts towards mainstreaming the green growth approach into their national plans. Indonesia has not yet regulated the green growth approach within its spatial planning. In Brunei, attempts toward green growth through energy efficiency and conservation have influenced its national spatial planning. Malaysia has gone further than the others in mainstreaming the green approach within spatial planning with city planning reflecting the green policy, framework and assessment tools formulated at the

⁹⁶ Butler, 'A desperate effort to save the rainforest of Borneo', op. cit.

⁹⁷ Interview with Dave Lumenta, op. cit.

⁹⁸ Interview with Nurol H. Rahman, op. cit.

⁹⁹ Interview with Anwar Purwoto, op. cit.; Interview with Dave Lumenta, op. cit.

¹⁰⁰ Potter, 'The oil palm question in Borneo', op. cit.; Interview with Dave Lumenta, op. cit.

national level. Where mainstreaming the green growth approach into spatial planning is concerned, Malaysia has progressed the most among the three countries in HoB; Brunei and Indonesia are yet to establish policies and instruments that support the mainstreaming of the green growth approach into spatial planning.

- The status of enabling economic policies for delivering green growth is different in Indonesia, Malaysia and Brunei Darussalam. In Indonesia, economic policies and supporting instruments that specifically support the implementation of green growth still do not exist. Brunei is as yet developing green economy transformation plans by emphasising the protection and conservation of the environment. Malaysia, meanwhile, has just started the implementation of green economic policies. Yet again, among the three countries in HoB, Malaysia has made more progressive effort for green economy transformation.
- Institutional mechanisms have been established via the HoB initiative in Indonesia, Malaysia and Brunei Darussalam. However, only Malaysia has taken significant steps by launching institutional frameworks to promote green growth within the public and private sectors, civil society and community. The governments in Indonesia and Brunei will need to put in place institutional frameworks that particularly ensure green growth development outside the HoB initiative.

In total, Malaysia has made the most progressive efforts with regard to creating an enabling environment for green growth in the country. In contrast, Indonesia and Brunei have just started promoting green growth in their respective countries. International commitments to reduce carbon emissions are but the initial step towards green growth establishment for each country. Where Borneo is concerned, the huge carbon sequestration potential of its forests have caused global concern for solving the conflict between the island's development and nature conservation plans through a green growth approach under the HoB initiative.

Status of HoB spatial planning processes in the three countries

- Spatial plans within the HoB area in Indonesia, Malaysia and Brunei Darussalam have yet to obtain legal status due to its voluntary nature. The legal status of HoB has an impact on the achievement of sustainable development at local levels, where inconsistencies within policies and weak institutional frameworks have been noticed. This legal status needs to be supported by law enforcement with the participation of civil society and local community ensured during its implementation.
- In all three countries, stakeholders on related issues have participated in spatial planning formulation in the HoB area. However, not all of the feedback received are reflected in the spatial plan. There have also been some limitations to public participation in the process, as the green concept is new to all stakeholders. Care should be taken to ensure that awareness-raising and capacity-building measures are undertaken when involving the public in spatial planning for a green economy.
- Integrating conservation efforts with economic development and future growth will be crucial. In Brunei, the spatial planning of HoB and adjacent areas to accommodate conservation and future development goals has been integrated into its plans. Overlapping plans that have different goals for the same area impede HoB conservation efforts, as was seen in Kalimantan and Malaysian Borneo. The development plan in Kalimantan and Malaysian Borneo are not led by goals to protect ecological processes and functions, even though nature preservation is part of the development plan of Brunei.

Current spatial planning within the HoB area needs to be optimised in the three countries. The voluntary nature of the HoB initiative has given rise to different responses from each of the three countries. To optimally achieve the various green strategy goals formulated, the challenges that exist in the spatial planning processes of these countries will need to be effectively answered.

Recommendations

The following recommendations have been formulated to answer the sustainable management of forest resources in Borneo through spatial planning. Current barriers in the spatial planning process and its implementation on the ground, together with factors that could help to optimally deliver the green approach through spatial planning, were the basis for these recommendations. Recommendations have been delineated for each country in Table 1.

Table 1: Recommendations for national governments to guide the spatial planning process and its implementation at the local level in each country.

No.	Recommendation	Indonesia	Malaysia	Brunei Darussalam
1	Establishment of policies and instruments to support the mainstreaming of the green growth approach into spatial planning	Yes	-	Yes
2	Development of economic policies and instruments that specifically support the implementation of green growth	Yes	-	-
3	Formulation of institutional mechanisms that particularly ensure green growth besides the HoB initiative	Yes	-	Yes
4	Promotion of legal status for HoB spatial planning	Yes	Yes	Yes
5	Inclusion of awareness-raising and capacity-building programmes on green concept prior to public involvement in spatial planning process	Yes	Yes	Yes
6	Involvement of civil society, local community and independent parties for corruption watch in monitoring the implementation of spatial planning policies, plans and predevelopment impact assessments at the local level	Yes	Yes	Yes
7	Synchronisation of policies and plans by prioritising the goals to protect ecological processes and functions within development	Yes	Yes	-
8	Review of current forest conservation policy, especially related to buffer zone areas and forest concession policy	Yes	-	-
9	Review of environmental indicators in the development plan to include upstream and downstream indicators, and biocapacity and ecological footprint indicators	Yes	-	-
10	Strengthening of coordination between government sectors through working groups	Yes	Yes	Yes

11vv	Conducting road shows to communicate current spatial plans to other related departments and government agencies	Yes	-	Yes
12	Establishment of regulation on eco-labelling of forestry products	Yes	Yes	Yes
13	Establishment of incentive and disincentive mechanisms during spatial planning implementation for the public and private sectors at the local level	Yes	Yes	Yes

HoB = Heart of Borneo