

THE HEART OF BORNEO:

Vision and Action toward Sustainable Development
in Kalimantan

Tonny R. Soehartono
Ani Mardiasuti

2017



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THE HEART OF BORNEO:
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Black orchid, mascot of East Kalimantan Province
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FOREWORD

At the beginning, allow me in my capacity as the Chairman of HoB National Working Group to congratulate and welcome the publishing of another document of HoB entitled The Heart of Borneo: Vision and Action Toward the Sustainable Development in Kalimantan. I would like to thank and appreciate the writers for completing the document.

As you may read, the book depicts the history of ecological and social-economy connectivity in Borneo, which lead to the creation of the brilliance initiative of HoB. The book also, among others, illustrates the biodiversity of HoB in Kalimantan, the economical resource, the initiative of green economy, the effort for sustainable financing on HoB, the threat, the effort to manage the HoB through the Kalimantan spatial plan and the outlook of HoB in Kalimantan.

As the book comprises many important information of HoB and its associates issues, I expected that this book would bring a clearer picture of HoB, in particular those located in Kalimantan, and provide substantial references for the HoB stakeholders, both for practical and science purposes at the national and Kalimantan level or even for practical and science purposes at the national and Kalimantan level, or even for others in the member countries of HoB (Brunei Darussalam and Malaysia).

Obviously, the plan and the idea of the HoB as presented in the document are not the final end. HoB initiative should be a dynamic idea, which could be enriched by new practical and scientific knowledge. With that, I encourage many to keep exploring and implementing any ideas for the future of sustainable development in Hob.

I understand that in preparing this book, the writers have gathered information from many stakeholders and friends who understand well about HoB. For that I would like also to thank and express my appreciation to all who have assisted and provide data and effort to complete this book. Once again, I do hope that the books useful in building the national and local ownership of HoB in Kalimantan.



Dr. Ir. Prabianto Mukti Prabowo, MSc

Chairman of the National Working Group on the Heart of Borneo

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We would like to thank the countless bless of the God Almighty for allowing the completion of this book. For years, since I (TRS) left WWF Indonesia I have a plan to documenting the Heart of Borneo (HoB) story and its development. Yet, for many personal reasons it was not to avail. The passion revived when I encounter and responsible with the issues of HoB again during my work in ADB as a Consultant for the project of sustainable forest and biodiversity management in HoB. Fortunately, my wife, Prof, Ani Mardiasuti who always mentoring me in writing papers and books, is willing to be a co-author of this book.

The book might not be completed without relentless helps of Mr. Indra Kumara in collecting data from four provinces and 17 districts within the HoB, and Ms. Laksmi D. Bahaduri who assisted us in processing the data of social economy of HoB. For that, allow me to express our thanks and appreciation to both of them. Further, most of records of HoB Trilateral Meeting and maps of HoB was supplied by WWF Indonesia through Ms. Elizabeth Wetik, so we would like also thanks to both Ms. Wetik and WWF Indonesia. We also would like to express special thanks and appreciation to the late Mr. Wisnu Rusmantoro, who made special visit to our home in Sentul (Bogor) for providing the history and data, as well as a number of maps of HoB before he passed away.

We also thank all friends who contributed writing the box of this book: Dr. Bambang Suprianto (Director of Policy on Climate Change and Social Economy of the Ministry of Environment and Forestry of Indonesia), Dr. Irshal Aرسال (Indonesian Timber Trade Association), Mr. Arbert Chiu (WWF Indonesia), Ms. Cristina Eghenter (WWF Indonesia), Dr. Prabianto Wibowo (Chairman of Indonesian HoB National Working Group), and Dr. Hendry Chan (WWF HoB Network Coordinator).

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We would like also thanks and express our appreciation to persons whom we might forget to list for their contribution in collecting data and supporting the process of producing this book. We all wholeheartedly hope that this book would contribute to the continuation process of developing the regional cooperation in HoB for the sustainable development of the region.

Sentul, September 2017

Tonny R. Soehartono
Ani Mardiasuti

EXECUTIVE SUMMARY

The Heart of Borneo (HoB) is a sustainable development initiative of the large-scale landscape of Borneo. It encompasses a number of Borneo ecosystems located under three countries territories: Brunei Darussalam, Indonesia and Malaysia (State of Sabah and Sarawak) covering more than 22 million ha of tropical forest in Southeast Asia. Historically the concept was initiated through the two joint of conservation programs between Betung Kerihun National Park in West Kalimantan and Batang Ai Wildlife Reserve and Lanjak Entimau National Park in Sarawak State of Malaysia in 1993 and Kayan Mentarang National Park in North Kalimantan and Pulong Tao Protected Forest in Sabah State of Malaysia in 2001. Both programs were supported by the International Tropical Trade Organization (ITTO).

The embryo of HoB was nurtured and born under a series of discussion within WWF Indonesian and brought to the WWF Family in Germany and the Netherlands in 2003 and received positive respond. Since then WWF Indonesia invited its family in Malaysia to initiate the HoB programs and extended to Brunei Darussalam. Overtime WWF in respective country gradually promoted the idea to the country level and shifted the lead of the initiative to the respective country (Brunei Darussalam, Indonesia and Malaysia). The first exploratory meeting on HoB attended by official delegations from Brunei Darussalam, Indonesia and Malaysia was held on 5-6 April 2005 in Bandar Seri Begawan, Brunei Darussalam. The result of this meeting was then brought to the 11th ASEAN Summit in December 2005. Finally, on 12 February 2007 in Bali Indonesia, the three countries declared the expression of commitment to the HoB initiative with entitle of Three Countries One Conservation Vision.

Initially, the administrative works and focal point of HoB in Indonesia was managed and led by the Ministry of Forestry. Later, for better coordination and effective works, the Government of Indonesia appointed the Coordinating Ministry of Economic Affairs to set up the National Working Group on HoB. The government provides funding to run the Group with some additional fund from WWF Indonesia and its family.

The Indonesian part of the HoB cover approximately 17.9 million ha of the tropical mountain and lowland forest of Kalimantan. The delineation of area was decided upon the consensus among the Indonesian stakeholder on 17 January 2008. Administratively, it covers 17 districts of four provinces in Kalimantan (North, East, Central and West Kalimantan).

As for hydrological features, the HoB area is the sources of main rivers in Kalimantan: Kayan River in North Kalimantan, Mahakam River in East Kalimantan,

Barito River in Central Kalimantan and Kapuas River in West Kalimantan. The area also forms nine catchment area and seven sub-catchment areas. These watersheds serve as a number of groundwater water basin and saturated aquifers in Kalimantan.

In view of biodiversity, the HoB is a habitat of 222 mammals including the critical endangered species (such as Orangutan, Bornean Elephant, Sumatran Rhino), as well as 358 bird species (which include 6 species of hornbills), more than 3,000 three plant species (including 267 of Dipterocarps, the most important group of commercial timber species in Southeast Asia), more than 200 species of orchids, at least 1,000 species of ferns, and many other reptiles and insect species.

Up to 2015, the human population of the HoB area is about 3.52 million people and in the last of five years the growth rate is 2.41 %. The average density of population is 11.5 person/km², sex ratio of 111.6 and productive age of 1.5 million people. The rate of education level across the area is 73.37 graduated from high school. In view of Human Development Index (HDI) the average score for the area is 65.87 with Gini Ratio of 0.29 and estimated number of poor people in the area is 290,225.

The HoB Indonesian section is rich with natural resources from timber to minerals. For decades the provinces and districts' economy have largely relied on the extraction the natural resources. Lately when timber resources have been depleting, the provinces and districts have shifted the major economic sources to the commercial product of agro-industry, in particular oil palm plantation. Consequently, large scale of forest conversion occurred to provide space for the industries. In 2014 the area of oil palm plantation in the HoB region was about 1.6 million ha with the production of 9.41 million tons. In addition, at the community level there are considerably large area of rubber (1.1 million ha), coffee (60,000 ha) and cacao plantation (20,434.5 ha), which for long become the backbone of livelihood of the community.

Along with the investment of agro-industry, as demand for national and global energy increasing, the government also extensively issuing permits for extracting coal minerals and also gold in the area. In 2014 there are 2.5 million ha of mining operations. The total production of coal from 2008 to 2014 was more than a billion tons. Unfortunately, there was no available and reliable record on the gold productions in HoB.

The abundance of resources has blessed the districts' economy and become a main support for the district development such as infrastructures, health and education. The average of district annual budget in HoB area from 2010 to 2015 was IDR 1.37 trillion. This means that the gross domestic revenue of the districts during the

period was IDR 20,607 trillion with the average economic growth of 6.78%. However, most of this budget was come from the national fiscal distribution related to mining, timber and agro-industry production. The average of annual income (*Pendapatan Asli Daerah; PAD*) of the districts of that period was only IDR 68,554 billion.

Infrastructure in the HoB was not as good as expected. Not all cities in the provinces and districts are connected by roads. However, there are considerable modest airport or runway that connect most of the cities or even sub-district in the region. The central governments and province as well as districts are expediting the infrastructure development in the region.

In order to ensure the development was in line with sustainable principle and to avoid the high impact of the development on the natural resources, WWF Indonesia and its family has produced and presented the green economy concept to the government of Indonesia via the National Working Group of HoB. The concept was officially presented at the 6th HoB Trilateral Meeting in Kuching, Sarawak, Malaysia in September 2012. Subsequent to series of meeting deliberation in HoB Trilateral Meeting, the concept was endorsed by the parties to the HoB at the 8th Trilateral Meeting.

As mandated under the Act No. 32 pertaining Protection and Management o Environment in Indonesia, commitment to reduce emission from the effect of greenhouse was declared by Indonesia in 2008 and renewed in 2014. The Government of Indonesia in December 2014 has issued the green initiative document entitled *Pembangunan di Jantung Kalimantan Melalui Pendekatan Ekonomi Hijau* (Strategy for Developing the Heart of Borneo through a Green Economy).

Along with the green initiative, the Indonesian Government has also proposed the cooperation on the ecotourism in Borneo at the 5th HoB Trilateral Meeting in Balikpapan. The response from other parties to HoB was very supportive and subsequent to this event and following the 7th HoB Trilateral Meeting Indonesia and Malaysia agreed to establish a Technical Agreement between Betung Kerihun National Park in west Kalimantan, Indonesia and Lanjak Entimau Wildlife Sanctuary and Batang Ai National Park in Sarawak, Malaysia.

Far ahead of two green aforementioned initiatives, WWF Indonesia along with local governments in West Kalimantan Provinces, in particular the District of Kapuas Hulu, has launched the corridor concept connecting two national parks located in the same districts: Betung Kerihun and Danau Sentarum. Initially the corridor aimed to provide biodiversity flow and genetic variation between the two Parks.

Nonetheless during its development and to invite the involvement of the districts, the corridor has developed into green economy corridor which cover the buffer zone of the two Parks and watershed system. The corridor is called as Labiyan – Leboyan Corridor. At the HoB level, Brunei Darussalam has proposed to have a similar corridor idea, connecting protected area in the three member countries. The proposal was first submitted to the 7th Trilateral Meeting and deliberated until the 10th HoB Trilateral Meeting. The proposal still being discussed by the three countries.

The precious HoB area is not without a threat. The blessing resources within the HoB area are like a two-faces of a coin. In one hand, it might become an asset that could support the region economic development and improve the prosperity of the people living in the HoB area. On the other hand, if the resources were not managed properly and unsustainably it could lead to the severe disaster for the people who live there.

For the last ten years the annual rate of official deforestation in four provinces located in HoB area was 221,154 ha. The cause of the of forest degradation ranged from illegal activities, unsustainable harvest, forest conversion to forest fire. The government’s relentless effort to curb deforestation has gradually fruited. Between 2013 to 2014 deforestation rate in the four provinces declined to 147,590 ha from 353,900 in 2006. The number of seizure of illegal timber has equally dropped to 29,387 pieces of wood as compared to 7,677,608 pieces of wood in 2006¹. Similarly, the number of fire hotspot for the same period has fall to less than 2,000 in 2016 from more than 75,000 spots.

In the effort to spatially manage and develop the HoB landscape properly and sustainably, through the Government Regulations No. 26/ 2008 the government has declared the HoB area as a National Strategic Area (NSA). The NSA of HoB area also is clearly defined under the Spatial Plan of Kalimantan as part of the lung of the world. As the consequence of the status of NSA and the mandate of spatial plan of Kalimantan, the government is required to develop the spatial plan for the HoB landscape. The later is now being developed and hopefully will be completed in 2017.

In strengthening the local capacity to implement the HoB initiative, the government has closely work and cooperated with a number of civil society, in particular WWF Indonesia, and international agencies such as German Technical Agency (GiZ) through FORCLIME Project, USAID through Tropical Forest Conservation Act, Asian

¹Directorate of Forest Protection and Investigation of the Ministry of Environment and Forestry 2017. Unpublished Report.

Development Bank's HoB Sustainable Forest and Biodiversity Management, as well as the World Bank's Forest Investment Programs.

At the HoB three country levels, Indonesia - as the initiator for the HoB - and other member countries has consistently promoted the joint initiative such as ecotourism programs, protected area management and GIS cooperation. Nonetheless, there is an outstanding and important issue, which until today has not been resolved that is the organization structure and modality of the HoB regional cooperation.

This Book illustrates the history of HoB and its development in the HoB section of Indonesia. It also presents the social economic condition, the HoB resources, and a number of initiatives such green economy, ecotourism and corridor of biodiversity and economic development within the HoB landscape of Indonesia. Further, it outlines the investment, effort to develop sustainable financing and cooperation to develop local capacity and economy in the area. Finally, it describes the government's vision of HoB landscape through the spatial plan and National Strategic Area initiatives and the outlook of the HoB cooperation at the trilateral level.





Dipterocarps
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ABBREVIATIONS

ADB	Asian Development Bank
ASEAN	Association of South East Asian Nations
APBD	<i>Anggaran Pendapatan dan Belanja Daerah</i>
APBN	<i>Anggaran Pendapatan dan Belanja Negara</i>
APHI	<i>Asosisasi Pengusaha Hutan Indonesia</i>
BIMP-EAGA	Brunei, Indonesia, Malaysia, Philipines-East Growth Area
BPKH	<i>Balai Pemantapan Kawasan Hutan</i>
CBD	Convention of Biological Diversity
CM	Cubic Meter
DAS	<i>Daerah Aliran Sungai</i>
DPR	<i>Dewan Perwakilan Rakyat</i>
DPRD	<i>Dewan Perwakilan Rakyat Daerah</i>
EU	European Union
FIP	Forest Investment Program
FMU	Forest Management Unit
FORCLIME	Forest and Climate Change Programme
GDR	Gross Domestic Revenue
GEF	Global Environment Facility
GIS	Geographic Information System
GiZ	Deutsche Gesellschaft für Internationale Zusammenarbeit
GR	Gini Ratio
Ha	Hectare
HDI	Human Development Index
HoB	Heart of Borneo
IBRD	International Bank for Reconstruction and Development
IDR	Indonesia Rupiah
IFC	International Finance Cooperation
IPK	Ijin Pemanfatan Kayu
ITTO	International Tropical Timber Organization
IUCN	International Union for Conservation of Nature
IUP	<i>Ijin Usaha Produksi</i>
IUPHHK-HA	<i>Ijin Usaha Pemanfaatan Hasil Hutan Kayu-Hutan Alam</i>
IUPHHK-HTI	<i>Ijin Usaha Pemanfaatan Hasil Hutan Kayu Hutan Tanaman Industri</i>
KEHATI	<i>Keanekaragaman Hayati</i>
KfW	Kreditanstalt für Wiederaufbau
KSDAE	<i>Konservasi Sumber Daya Alam dan Ekosistem</i>
LULUCF	Land Use, Land-Use change and Forestry
MDBs	Multilateral Development Bank
MDF	Medium Density Fiberboard
MoA	Memorandum of Agreement
NGO	Non-Governmental Organization
NSA	National Strategic Area
PDRB	<i>Produk Domestik Regional Bruto</i>
PES	Payment for Ecosystem Services
PKP2B	<i>Perjanjian Karya Pengusaha Penambangan Batubara</i>

REDD+	Reducing carbon Emission from Deforestation and forest Degradation
SPA	Strategic Plan of Action
SVLK	<i>Sistem Verifikasi dan Legalitas Kayu</i>
TA	Technical Arrangement
TFCA	Tropical Forest Conservation Act
TNC	The Nature Conservancy
UNCBD	United Nations Convention on Biological Diversity
UNEP	United Nations Environment Programme
UNFCCC	United Nations Framework Convention on Climate Change
USAID	US Agency for International Development
USD	United States Dollar
WWF	World Wide Fund For Nature



Selling durian
©Budi Suryansyah



Tahapun Hill, Betung Kerihun National Park
©M. Heriansyah

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Wetland of Danau Sentarum National Park
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CHAPTER I: INTRODUCTION

1. What is the Heart of Borneo?

The Heart of Borneo (HoB) is the highland area in central part of Borneo, encompassing three nations of Indonesia, Malaysia, and Brunei Darussalam. According to Indonesian terms, the Borneo Island is called Kalimantan Island.

Indonesia and the other two neighbouring countries have been developed a special program or initiative for the HoB area. The objective of the HoB Initiative is to sustainably manage the area along the trans-border of the three countries, covering of approximately 26.5 million hectares of land and tropical forest in Borneo for the purpose of human wellbeing and ecosystem conservation¹.

The HoB Initiative was adopted and launched by three Ministers of the Member Countries at the first Ministerial Meeting of HoB held in Denpasar, Indonesia, on 12 February 2007. Since then, the three countries meet regularly to develop joint HoB programs and discuss issues related to the Initiative, as well as trans-border sustainable development.

The HoB Initiative in Kalimantan (Indonesian territory) later on was translated into a low carbon sustainable development area namely *Jantung Kalimantan*. The area covers four provinces (North Kalimantan Province, East Kalimantan Province, Central Kalimantan Province, West Kalimantan Province) and 17 districts within the administration jurisdiction of the four Provinces.

2. About This Book

This book could serve as an excellent source for the readers to understand the history and development of the HoB Initiative. It can be used for policy makers, scientists and researchers, as well as the relevant stakeholders in the

¹Ministry of Economic Affairs. 2015. National Strategic Plan, Heart of Borneo 2015-2019. Heart of Borneo National Working Group 2015. Ministry of Economic Affairs, Republic of Indonesia. Jakarta.



Bukit Semujan waterfall, Danau Sentarum National Park
©Budi Suryansyah

trans-border area in Kalimantan. As the initiator of the HoB, Indonesia also lead and maintain the initiative for enhancing policy and technical cooperation to sustainably manage and conserve the trans-border area for better future of Kalimantan - and Borneo in general - and its people who live there and associated with the unique ecosystem and cultures.

This book starts with depicting the history of connectivity in Borneo which leads to the development of HoB (Chapter 2) and follow by the delineation of HoB in Indonesian territory and its status of land (Chapter 3). It continues with the illustration of Bornean richness of biodiversity, ecosystem and complex social-economy within the area (Chapter 4 and 5). The book then describes the green initiative within the HoB launched by the Indonesian government that could be implemented in the near future (Chapter 6) and the vast natural resources in the area (Chapter 7).

In running the Initiative, the Government of Indonesia has been working hand-in-hand with civil societies and donor countries to finance the HoB programs (Chapter 8), which include developing green economic corridor (Chapter 9). The remaining parts of the book portraits the current threat to the HoB area (Chapter 10), the government effort to manage the area by establishing the Spatial Plan and HoB Strategic Area (11). The book ends with the Outlook of the future (Chapter 12).

Traditional rattan mat
©Deni Sofyan





Stakeholder planning
©Budi Suryansyah

CHAPTER II: HISTORY OF THE HEART OF BORNEO AND ITS DEVELOPMENT

1. Biodiversity Connectivity in Borneo

Before HoB was established, the first biodiversity connectivity programs or project between Indonesian and Malaysia in Borneo was established in 1995, funded by ITTO (International Tropical Timber Organization), an intergovernmental organization promoting the conservation and sustainable management, use and trade of tropical forest resources, based in Yokohama, Japan. The ITTO Project (PD 26/93) Rev. 1 (F), entitled Development of Bentuang Karimun¹ Nature Reserve as National (Park Phase I) (see Box 2.1).

This ITTO Project aimed - among others - to establish cooperation in conservation activities in Bentuang Karimun Nature Reserve in Kalimantan (Indonesia), which shares the boundary with Lanjak Entimau Wildlife Reserve in Sarawak (Malaysia) through the development of trans-border joint management reserve² (Box 2.2). The Project were implemented in 1995 until 1999, with an investment of approximately USD 1.3 million. One of the success stories of the Project was the Borneo biodiversity expedition of the trans-boundary area of Betung Kerihun National Park³ (West Kalimantan, Indonesia) and Lanjak Entimau Wildlife Sanctuary (Sarawak, Malaysia) held in September to November 1997⁴.

The second connectivity of biodiversity conservation program between Indonesia and Malaysia in Borneo occurred in the eastern part of the island, namely between Kayan Mentarang National Park (1.345 million ha) in East Kalimantan (Indonesia), Pulong Tau National Park (63,700 ha; in the State of Sarawak, Malaysia) and Ulu Padas forest concession area (20,000 ha in State of Sabah, Malaysia). This program was also supported by ITTO through a project entitled "Management of Kayan Mentarang National Park to Promote

¹now it is called Betung Kerihun National Park.

²ITTO Project Proposal: Development of Bentuang Karimun Nature Reserve as National Park (Phase I) - PD 26/93 Rev.1 (F).

³The conservation status and name was changed from Bentuang Karimun Nature Reserve into Betung Kerihun National Park.

⁴ITTO. 1999. ITTO Borneo Biodiversity Expedition 1997: Scientific Report. Kuswanda M, Chai P, Jaya INS (Eds.). Government of Indonesia and Malaysia. ITTO, Yokohama.

Trans-Boundary Conservation along the Border between Indonesia and Malaysia State of Sabah and Sarawak - Phase I" (ITTO PD 38/00 Rev. I (F); see Box 2.3). The Project was implemented from January 2001 to June 2003.

In the two and half year period, it has achieved a number of outstanding conservation and management of biodiversity management plan such as development of infrastructures for the park, wildlife inventory and management plan (e.g., management plan for Bearded Pig, primates, birds, non-timber forest products), as well as the successful Joint Biodiversity Expedition in Kayan Mentarang National Park, participated by more than 100 scientists from Indonesia and Malaysia⁵ (Box 2.4).



Long Tua, Lalut Birai
©Andris

⁵Mardiastuti A, Soehartono T (Eds). 2003. Joint Biodiversity Expedition in Kayan Mentarang National Park. Ministry of Forestry Republic of Indonesia, WWF Indonesia, ITTO. Jakarta.

Box 2.1. Bentuang Karimun National Park Proposal to ITTO: A Personal Story

In 1992, I was the Head of the Provincial Conservation Office – Ministry of Forestry of West Kalimantan (*Sub-Balai Konservasi Sumber Daya Alam Provinsi Kalimantan Barat*). I proposed to upgrade the status of Bentuang Karimun Nature Reserve into a national park to the Directorate General of Forest Protection and Nature Conservation (*Direktorat Jenderal Perlindungan Hutan dan Pelestarian Alam*), Ministry of Forestry in 1992.

Following the submission of the proposal to the Ministry of Forestry, during the trip to Danau Sentarum Wildlife Sanctuary (now a national park, in September 1992, I had finished and completed the first version of the proposal for trans-border cooperation between Bentuang Karimun and Lanjak Entimau to be submitted to ITTO (International Tropical Timber Organization). I got important biodiversity information from two colleagues. Dr. Paul Chai, the ITTO Project Leader of Lanjak Entimau Wildlife Sanctuary - Sarawak, during his visit to the Provincial Conservation Office of West Kalimantan, enlightened me with the ecological condition and information of Lanjak Entimau. One of my staff and colleague, Erwin Effendy – who had explored Bentuang Karimun Nature Reserve – also had shared the ecological condition of the Nature Reserve.

The Proposal was submitted directly to Dato' Dr. Freezaillah Ben Che Yeom, the Executive Director of ITTO (then). The ITTO responded positively and requested Provincial Conservation Office of West Kalimantan to forward the Proposal to the ITTO Focal Point in the Ministry of Forestry Indonesia to be re-drafted in accordance to the ITTO Proposal Guideline. Following series of revisions and deliberation, the Proposal was accepted in October 1993 at the ITTO Council Meeting, with the ITTO support of USD 996,270 and counter budget of USD 139,700 from the Government of Indonesia. The title of the Project is "Development of Bentuang Karimun Nature Reserve as National Park (Phase I)" under ITTO serial number: PD 26/93 Rev. 1 (F).

Local community in the Heart of Borneo
©WWF Indonesia





Natural bee hives

© Syarief

Box 2.2. Betung Kerihun National Park and Lanjak Entimau Wildlife Sanctuary

Betung Kerihun National Park in West Kalimantan was first established as a nature reserve called Bentuang Karimun in 1982, covering an area of 600,000 ha. During the process of up-grading the status from nature reserve to national park, the name of the area was changed due to the request from the Dayak community who live in the area.

The name of Betung Kerihun was derived from the names of two mountains: Mount Betung in the west and Mount Kerihun in the eastern part of the park. The area then established as a national park with an enlargement area to 800,000 ha in 1995⁶. The remote area of the park is famous with its rich of biodiversity, including about 1,200 tree species, 48 species of mammals, 301 bird species and 112 freshwater fishes. One of the iconic endangered species which may spare the habitat with the neighboring area in Sarawak State (Lanjak Entimau Wildlife Sanctuary) is Bornean Orangutan.

Lanjak Entimau Wildlife Sanctuary was established in 1983 by the State of Sarawak, Malaysia. The area covers of 18,414 ha and contains an estimated of 1,400 Bornean Orangutan, 212 species of Bornean mammals, and 48 bird species. The protected area also consists of eight different types of forest: riparian, alluvial, lowland Dipterocarp, hill Dipterocarp, submit ridge, sub montane, mossy montane and old secondary forest⁷.

As the protected area in two countries are rich in Bornean biodiversity including Bornean Oragutan, ITTO facilitated the mangement cooperation between the two conservation areas of Betung Kerihun National Park and Lanjak Entimau Wildlife Sanctuary.

⁶Ministry of Agriculture of the Republic of Indonesia, Decree No. 467/Kpts-II/1995.

⁷Forest Department Sarawak & Universiti Malaysia Sarawak. 2011. Lanjak Entimau Wildlife Sanctuary: Hidden Jewel of Sarawak. Proceeding of the Seminar on Lanjak Entimau Scientific Expedition, 4-5 March 2009. Mohamed H, Ipor I, Ahmad S, Ampeng A. (Eds.). Forest Department Sarawak & Universiti Malaysia Sarawak.

Forest of Kayan Mentarang National Park
©WWF Indonesia



Box 2.3. Kayan Mentarang Trans-Boundary Proposal: The Background Story

Having seen the success story of the first ITTO biodiversity trans-boundary project in Bentuang Karimun, following a series of discussion took place in Kutai National Park (East Kalimantan), in early 1999, Dr. Nengah Wirawan (deceased; then the Director of WWF Sundaland Indonesia), in his capacity as the WWF Director - Sundaland, drafted the second trans-boundary proposal in Borneo to ITTO. This proposal aimed to connect Kayan Mentarang National Park (1.34 million ha) in the eastern part of Kalimantan (Indonesia) with Pulong Tau National Park (63,000 ha in Sarawak State of Malaysia) and Ulu Padas forest concession area (in Sabah State of Malaysia), which shared the border of Indonesian-Malaysian territory.

In addition to conserve the integrity of Kayan Mentarang National Park's biodiversity values, the proposed project also intended to contribute to the development of strategy for cooperation in trans-boundary conservation between Indonesia and Malaysian States of Sabah and Sarawak. Following a series of ITTO peer reviews, and a meeting between Indonesia and Malaysia on this issue held in Kuching on 28 February 2000, the Project document was approved by the ITTO Council Meeting in November 2000 in Yokohama with the full pledge financing grant of USD 1,040,676. This support consisted of contribution from the Government of Switzerland (USD 450,000), Japan (USD 383,398) and the USA (USD 20,000) and counter budget from the Government of Indonesia (USD 187,278).

As already mentioned in the previous part, Kayan Mentarang National Park was originally a Nature Reserve of 1.34 million ha and established in 1980⁸. The status was changed into a national park in 1996⁹. By size, the Park is the biggest conservation area in Borneo. It encompasses vast ecosystems, from lowland to upland of tropical Bornean forest. The pristine forests are rich in plant species, making it as an ideal habitat for numerous wildlife such as more than 300 species of birds including Bornean Peacock Pheasants, more than 100 mammals species (e.g., Banteng *Bos javanicus*, Clouded Leopard *Neofelis nebulosa* and Bearded Pig *Sus barbatus*). There is also an evidence that the Park was once inhabited by Bornean Orangutan *Pongo pygmaeus* and Sumatran Rhino *Dicerorhinus sumatrensis*¹⁰. The Park was also fortunate as there was a project supported by Danish International Development Agency (DANIDA), in cooperation with WWF Indonesia since 1998.

Pulong Tau National Park is located in Kelabit highland of Serawak (Malaysia) in the Island of Borneo. The Park was established in May 2008 and covers 63,700

⁸Ministry of Agriculture of the Republic of Indonesia Decree No. 84/Kpts/Um/II/1980 dated 25 November 1980.

⁹Ministry of Forestry of the Republic of Indonesia Decree No. 631/Kpts-II/1996 dated 7 October 1996.

¹⁰Soehartono T, Mardiasuti A. 2013. The Voice of National Parks in Kalimantan, Indonesia: Searching the Truth of Thirty Year National Park Development. Nata Samastha Foundation. Bogor.

ha of Bornean tropical forest ecosystem which rich in biodiversity. The Park is inhabited by a few population of Sumatran Rhino, Clouded Leopard and many other unique species. Over 100 families, 300 genera and approximately 800 species of plants have been recorded in the area. The famous plants include *Rafflesia* flower and pitcher plant *Nepenthes murudensis*. The Park is also serving as head for all major rivers in the northern Sarawak, Malaysia¹¹.



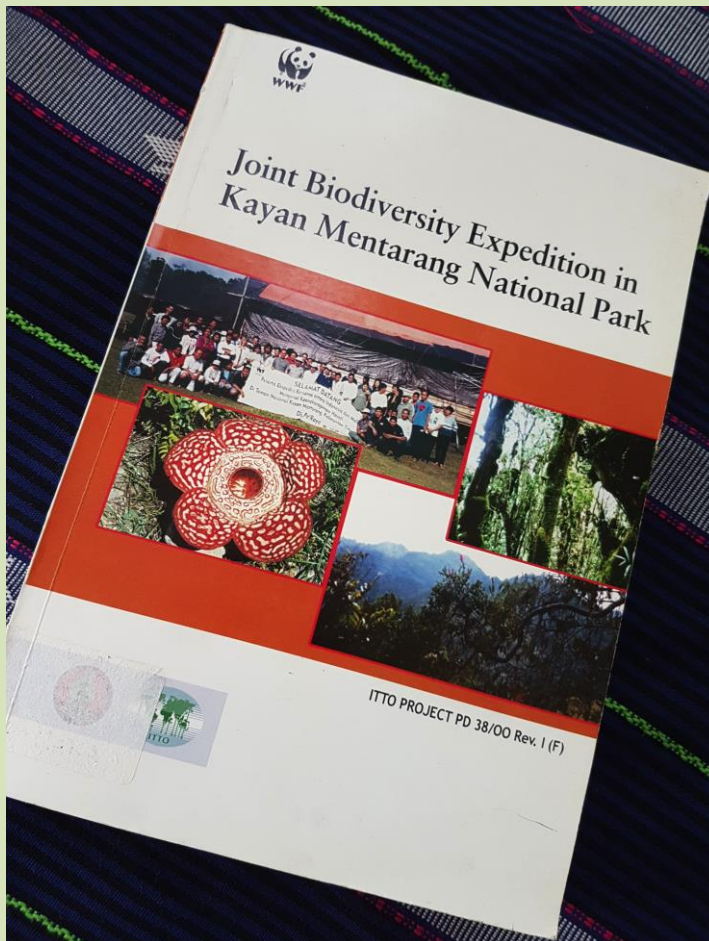
Lansium domesticum, a popular delicious fruit
©WWF Indonesia

¹¹Malaysian Nature Society. 1998. Expedition to the Proposed Pulong Tau National Park, Sarawak, Malaysia. Malaysian Nature Society. Sarawak, Malaysia.

Box 2.4. Joint Biodiversity Expedition in Kayan Mentarang National Park

A biodiversity expedition in Kayan Mentarang National Park was conducted from 1 to 20 April 2003. The activity was supported by ITTO Project PD 38/00 Rev. I (F) and aimed to explore the biodiversity and socio-economic status of the selected area of the Park. The expedition was coordinated by the Head of the Provincial Conservation Office – Ministry of Forestry of East Kalimantan (*Sub-Balai Konservasi Sumber Daya Alam* Provinsi Kalimantan Timur; the late Ramon Janis), and supported by WWF Indonesia Sundaland.

The northern part of the Park of approximately 30 km², nearby Pa' Raye Village, was selected as the site of expedition for a number of reasons: the area was much unexplored and forest condition was relatively still high in quality, located in the border between Indonesia and Malaysia, relatively accessible from both Kalimantan and Sarawak side, and closed to the village where the community could join and have benefit from the expedition.



There were more than 100 scientists from both Indonesia and Malaysia participated in the expedition, who divided into five groups: (1) ecology of the area, (2) plants in the forested area, (3) vertebrate, (4) invertebrate and (5) anthropology and ethno-botany. The results of the expedition were documented, and presented and discussed in a two-day workshop on 30-31 June 2003 in Samarinda, East Kalimantan.

Report of Joint Expedition in Kayan Mentarang National Park

2. From Borneo Montane Forest Ecoregion to the Heart of Borneo

Following the WWF Asia-Pacific Workshop Ecoregion in April 2002 in Madang (Papua New Guinea) and upon the request of Mr. Agus Purnomo (then the Executive Director of WWF Indonesia), and in line with the second Borneo Forest Meeting (June 2001) and WWF Global 200 Initiative, WWF Sundaland drafted a concept of Borneo Montane Forest Ecoregion. The ecoregion proposal connected three major mountainous conservation areas in the northern part of Kalimantan: Betung Kerihun National Park (800,000 ha) in West Kalimantan Province, Kayan Mentarang National Park (1.36 million ha) in East Kalimantan Province (now is part of North Kalimantan), and Sebuku Sembakung Wildlife Sanctuary (300,000 ha) in East Kalimantan Province. The idea was to create the biggest and longest connectivity of complex of biodiversity, cultural and socio-economic management system occurring in Kalimantan and Borneo as a whole.

For the purpose of better marketing before the Fundraising Meeting between WWF Indonesia and WWF Germany on 5 February 2003 in Frankfurt Germany, the name of Borneo Montane Ecoregion was changed into the Heart of Borneo (HoB). The Frankfurt meeting appeared to be the starting point of development of HoB as WWF Germany committed to support the HoB by providing Euro 45,000 for the desk study and visioning workshop of HoB. Further, one of the most important outcomes of this meeting was the agreement to include Brunei Darussalam to the concept of the Heart of Borneo (Box 2.5).

In the effort to seek funding from ITTO, during the Joint ITTO-IUCN International Workshop on Transboundary Conservation Areas in Tropical Forest held in 17-21 February 2003 in Ubon Ratchathani, Thailand and with the approval of Dr. Eva Muller (then Assistant Director of Reforestation and Forest Management of ITTO), the concept was presented as the additional agenda at the very last schedule of the Workshop. Although the presentation was also not included in the completion report of the Workshop, the concept did appear to obtain the attention of the participants. Dr. Muller proposed WWF Indonesia to follow up with formal proposal to ITTO before July 2003 for the incoming ITTO peer review in 2003. Yet the proposal had never been materialized. Instead, WWF Indonesia preferred to look for other sources from their-own family such as WWF Germany, United Kingdom, USA, Sweden, Switzerland and Netherlands to develop the Initiative¹².

¹²WWF Indonesia Financial Records on HoB Programs 2015. Unpublished Report.



Limestone cliff in Kayan Mentarang National Park
©WWF Indonesia

Following series of investment and effort in promoting the HoB, WWF Indonesia and WWF Malaysia gradually developed the initiative into the three nation's sustainable development model in Borneo. Equally important was both WWF had been able to convince the respected country to lead the initiative of HoB and to bring Brunei Darussalam into the HoB arena (Box 2.6). The first exploratory meeting on HoB attended by official delegation from Indonesia, Malaysia and Brunei Darussalam was held on 5-6 April 2005 in Bandar Seri Begawan, Brunei Darussalam. The results of this meeting was then brought and highlighted by Malaysian Government in the 11th ASEAN Summit in December 2005¹³ (Box 2.7).

Acknowledged by the three countries, the HoB initiative was then presented in the side event of the Convention of Biological Diversity (CBD) in Curitiba, Brazil on 27 March 2006 with the theme of "Three Countries, One Conservation Vision". The HoB was further discussed in the side meeting of Brunei Darussalam-Indonesia-Malaysia-Philippines East ASEAN Growth Area (BIMP-EAGA) Ministerial Meeting in Brunei Darussalam in November 2006. Succeeding the BIMP-EAGA Meeting, the three countries met in Jakarta on December 2006 to discuss and finalize the draft of declaration on the HoB initiative.

Finally, on 12 February 2007 in Bali Indonesia, the three countries agreed to declare the expression of commitment to the HoB initiative with entitle of "Three Countries, One Conservation Vision". The implementation framework for partnership operational was then discussed at the 1st Trilateral Meeting of HoB in Brunei Darussalam on 19-20 July 2007. Subsequent to this meeting, the three countries were met on 4-5 April 2008 in Pontianak, west Kalimantan, Indonesia to agree the three countries HoB programs as documented on Heart of Borneo Strategic Plan of Action (SPA). The detail commitments of each country are set out on the Country National Strategic Plan (Box 2.8). The document officially presented before the side event at the UNCBD-COP 9 in Bonn, Germany where Executive Secretary of UNCBD and more than 100 guests attended. Unfortunately since then there has been no further articulation of the detailed plans of work, timelines or measure of success at the trilateral scale¹⁴.

Initially the administrative works and the focal point of HoB, since the declaration, was managed and led in the Ministry of Forestry. Later, for better

¹³Heart of Borneo National Working Group. 2009. Heart of Borneo Strategic Plan of Action: Bridging Conservation and Sustainable Development in Three Countries. Republic of Indonesia. Jakarta.

¹⁴Additional note of the Report of 4th HoB Trilateral Meeting, Bandar Seri Begawan - Brunei Darussalam, 20-22 April 2010.

coordination and effective works, the Government of Indonesia appointed the Coordinating Ministry of Economic Affairs to set up the National Working Group on HoB which consists of representative of relevant sectors such as Ministry of Home Affairs, National Planning Board, Finance, Forestry, Agriculture, and Mining to deal with the HoB initiative. The group later extended into the regional/provincial levels located in the HoB area. Until 2015, the Government of Indonesia has established two periods of Strategic Plan for HoB (2009-2014 and 2015-2019) (Fig. 1.5)¹⁵.

In the effort to effectively implement the joint planning and implementation of HoB initiative at the 2nd HoB Trilateral Meeting in April 2008, Malaysia drafted a proposal for institutional arrangement and modalities for the HoB. Brunei and Indonesia concurred with the idea. Indonesia even presenting the good example of regional coordination under the Coral Triangle Initiative whereby six member countries established a secretariat in Indonesia. Likewise, Brunei also presented a proposal to host as secretariat for the HoB. Unfortunately up to the 4th HoB Trilateral Meeting, the three countries have not agreed on the structure (Box 2.9). Because of this, even though the SPA was recognized by ASEAN, BIMP-EAGA and ADB as well as several bilateral donors, as mechanism for coordinated delivery was not in place the financing and engine for running the initiative appeared to be problematic.

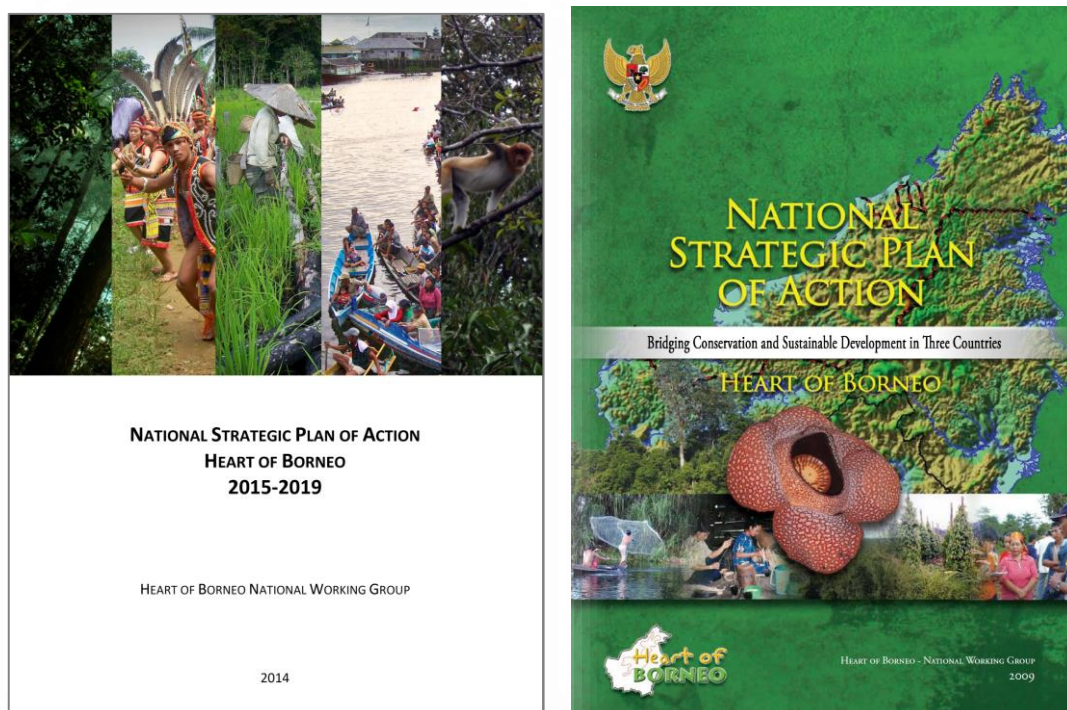


Fig. 2.5. National Strategic Plan of Action, Heart of Borneo: 2009-2014 and 2015-2019.

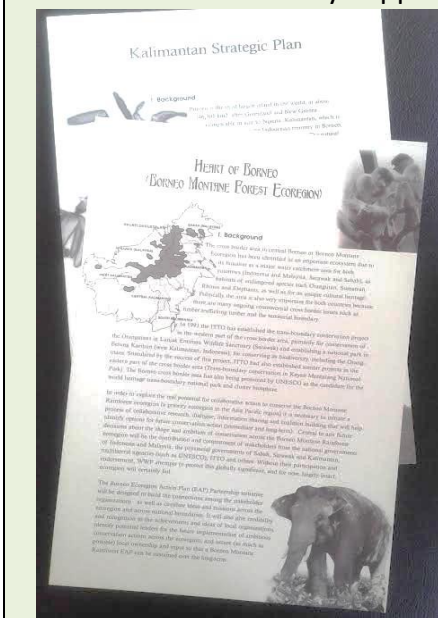
Box 2.5. The First Heart of Borneo Meeting in Frankfurt, Germany

January 2003 was a busy month for the WWF Sundaland Kalimantan in Balikpapan and Tarakan offices. People were hectic in preparing documents and factsheets of Kalimantan Strategic Plan, Endangered Species (Orangutan) Program, Collaborative Management in Kayan Mentarang National Park and Heart of Borneo (Borneo Montane Forest Ecoregion). These documents will be brought by the newly Executive Director of WWF Indonesia (Dr. Mubariq Ahmad) to Europe, as part of fundraising programs to WWF Netherlands and WWF Germany in February 2003.

In the mid of preparing the documents in WWF Sundaland Office in Balikpapan, by accident I found a folder with the title of 'Heart of Borneo' containing WWF KAN (Kalimantan Action Network) Programs belonging to Mr. Paul Kiman, a former staff of WWF Sundaland who worked for KAN Programs in Balikpapan. Without his consent, I picked the name as an option for the Borneo Montane Forest Ecoregion. Thanks to Paul for giving the idea and apology for picking up the name without his permission.

During the preparation meeting prior to depart to Frankfurt, in WWF Office in Mega Kuningan, Jakarta, the HoB name was presented to the newly Executive Director as an option of Borneo Montane Forest Ecoregion. He endorsed the name but he suggested the original name should still be presented. The first meeting on HoB in Frankfurt appeared to be successful, as WWF Germany committed to financially support scoping study, mapping, hiring coordinator

for HoB Initiative, conduct bilateral meeting between WWF Indonesia and Malaysia, as well as conducting kick-off workshop for HoB, and visioning workshop on HoB and fund raising¹⁵.



The Heart of Borneo Factsheets presented to the meeting between WWF Indonesia and WWF Germany in Frankfurt on 5 February 2003

¹⁵Heart of Borneo Initiative (Borneo Montane Forest Ecoregion). 2003. WWF Indonesia. Unpublished Report.



Timber tree
©WWF Indonesia

Box 2.6. From WWF to the Three Countries

Klass Jan Teule, adviser to WWF Indonesia, took over the works of HoB in August 2003. Later it was Dr. Bambang Supriyanto (then the National Coordinator for WWF's HoB; see also Box 2.7) who was not only successfully nurtured the concept but also managed to promote the idea to become the icon of the three countries in Borneo island – Brunei Darussalam, Malaysia and Indonesia. He and his WWF partners in Malaysia were able to smoothly convince the respected countries on the importance to save the HoB area for sustainable development in Borneo.

WWF Indonesia and WWF Malaysia relentlessly provide supports to the respected government to promote the idea in international forum such as the Convention on Biological Biodiversity (CBD) and ASEAN. It was both WWFs, which to some extent contributed to the first exploratory meeting in Brunei Darussalam in 2005 and the Declaration of the HoB - Three Countries, One Conservation Vision - in Bali 2007.

Because of such a depth and long contribution and involvement to the HoB during its development, WWF in both countries are seemingly appearing to be shadowing the HoB programs and activities that currently led by the three countries. Nonetheless. Following the declaration in Bali, WWF Indonesia substantially handed over the HoB Initiative to the Ministry of Forestry of Government of Indonesia. As part of the effort to improve and accelerate coordination among the relevant Ministries and Agencies in Indonesia, the Ministry of Forestry in 2014 shifted the authorities of managing HoB to the Coordinating Ministry of Economic Affairs. For a more effective management, in April 2014 the Coordinating Ministry of Economic Affairs has issued the Ministerial Decree on the National Working Group for HoB. The Group is led by the Deputy of Coordinating Minister for Economic Affairs on Forestry and Agriculture and supported by a number of high-ranking officers within the relevant Ministry involved in the area. At the program implementation level, provincial governments within the HoB area are also established HoB Provincial Working Group¹⁶.

¹⁶*Keputusan Menteri Koordinator Bidang Perekonomian No. 108 tahun 2014 tentang Kelompok Kerja Nasional Program Heart of Borneo.*

Box 2.7. The Story of Three Countries – One Vision

by Dr. Bambang Supriyanto

There were three crucial issues regarding forestry and environment in Kalimantan when I signed a working contract with World Wildlife Fund for Nature (WWF) as a National Coordinator for Heart of Borneo Program on 1 December 2004. First, there was economic development scenario that led to increased deforestation during the last 50 years, in which 30% of forests in Kalimantan were converted into farm plantations, agriculture, mining, and settlements. Moreover, the government planned to develop palm oil plantations along the borderline with Malaysia, which was mountainous area.

Second, planned deforestation during the decade was expanded from lowland to mountainous areas, which typically were conservation and protected areas. It was exacerbated by unplanned deforestation resulted from illegal logging, encroachment, and forest land clearing. Third, the Heart of Borneo was a mountainous area, thus an integrated watershed system playing crucial roles in freshwater supply for the people of Kalimantan.

The Heart of Borneo also had a huge biodiversity and was a home for Sumatran Elephant and Sumatran Rhinoceros. Considering the strategic function of the Heart of Borneo, I proposed to develop a program of “good heart of Borneo governance” in order to conserve the area and increase benefits for local people. Because the area of Heart of Borneo covered three countries (Indonesia, Malaysia and Brunei Darussalam) I arranged a meeting with the countries on 5 – 6 of April 2005 in Brunei Darussalam to discuss an idea of “three countries – one conservation vision”.

The Government of three countries, furthermore, declared the HoB vision on 12 February 2007. The vision was to implement effective conservation and sustainable management of equator tropical forest in the Heart of Borneo covering 23 million hectares through protected area network, as well as sustainable production forest and land use, which would benefit the community.



Box 2.8. Borneo Strategic Plan of Action

The Borneo Strategic Plan of Action (SPA) meeting attended by the countries was held in Hotel Grand Mahkota, Pontianak on 4-5 April 2008. Prior to that event, there was a two-day technical meeting at the same place. The technical meeting aimed to prepare the draft agreement to be endorsed at the Borneo SPA meeting.

The SPA meeting then agreed to adopt programs and plans of actions for the HoB Initiative which consisted of (1) transboundary management, (2) protected areas management, (3) sustainable natural resources management, (4) ecotourism development and (5) capacity building. However, these were not a binding agreement. Each of the programs will be elaborated in the respected country strategic plan, and the commitment would largely up to the nation's capacity and plan.



Traditional agricultural practice
©WWF Indonesia



Traditional beadings
©WWF Indonesia

Box 2.9. HoB Trilateral (Committee) Meeting

At the 2nd HoB Trilateral Meeting in Pontianak 4-6 April 2008, member countries have decided to adopt the proposal submitted by Malaysia on HoB Trilateral Committee to monitor and exchange of information on the implementation of recommended activities in HoB. The HoB committee meeting shall meet at least once a year and additional meetings may be held whenever deemed necessary. The participation of the meeting will continue to be at the Director General Level. Non-Member countries and NGOs and other organizations may be invited to the meeting but not admitted to the closed session.

The results of the meeting may be presented at the BIMP-EAGA Meetings for information and no decision should be made at the this meeting. A high level Ministerial Meeting should be held and when necessary. The HoB Trilateral Committee shall recommend the date and venue of its next meeting¹⁷.

¹⁷Report of the 2nd HoB Trilateral Meeting in Pontianak, West Kalimantan Indonesia 4-6 April 2008.

CHAPTER III: LOCATION AND ITS STATUS

1. Location of Heart of Borneo

The HoB Indonesia stretches from east to west of the northern part of Kalimantan, almost along the borderline between Indonesia territory with Sabah and Sarawak States of Malaysia. Initially, the area of Indonesian HoB consisted of East Kalimantan and West Kalimantan Provinces. When it was declared as HoB on 12 February 2007, the HoB Indonesian part covered 10 districts located in three provinces (East, Central and West Kalimantan). Later, upon the consensus among relevant provinces and districts, facilitated by WWF Indonesia, in January 2008 the area was expanded to cover 17 districts within the same provinces¹. In October 2012, the Indonesian Government decided to divide the province of East Kalimantan into two provinces: East Kalimantan and North Kalimantan Province. Hence, the HoB area administratively follows the changed (Fig. 3.1).

2. Delineation of Heart of Borneo

During the spatial plan meeting of HoB on 15-17 January 2008 the HoB National Working Group adopted the criteria for delineating the HoB area within Indonesian side (Table 3.1). Upon the adopted criteria, the area of Indonesia's HoB was re-mapped and ended up with approximately 17.9 million ha which administratively located in four provinces and 17 districts (Table 3.2) (Fig. 3.2). However, as there is no legal basis to this delineation, the boundary remains in imagery arrangement. As a result, districts claimed located in HoB area have difficulties to identify the real field boundary and impose flexibility in exercising development policy and intervention in their administrative jurisdictions.

¹Rusmantoro, W. Undated. Profile Kawasan HoB. Unpublished Report. WWF Indonesia.

Table 3.1. Criteria of boundary delineation for Heart of Borneo area².

No	Delineation Criteria
1	Follow the boundary of protected forest and conservation area
2	Follow the pattern of catchment area or cover the area with slope of more than 40%
3	The area to the best knowledge is rich with biodiversity including Bornean flagship species
4	The northern boundary shall follow the Indonesia territory boundary with Malaysia
5	The area should contain relatively intact forest cover



Fig. 3.1. Location of Indonesia's Heart of Borneo across the 17 districts in Kalimantan.

Source: WWF Indonesia

²Kriteria kawasan KSN HoB, disampaikan pada Rapat Kelompok Kerja Nasional, 31 March 2011.

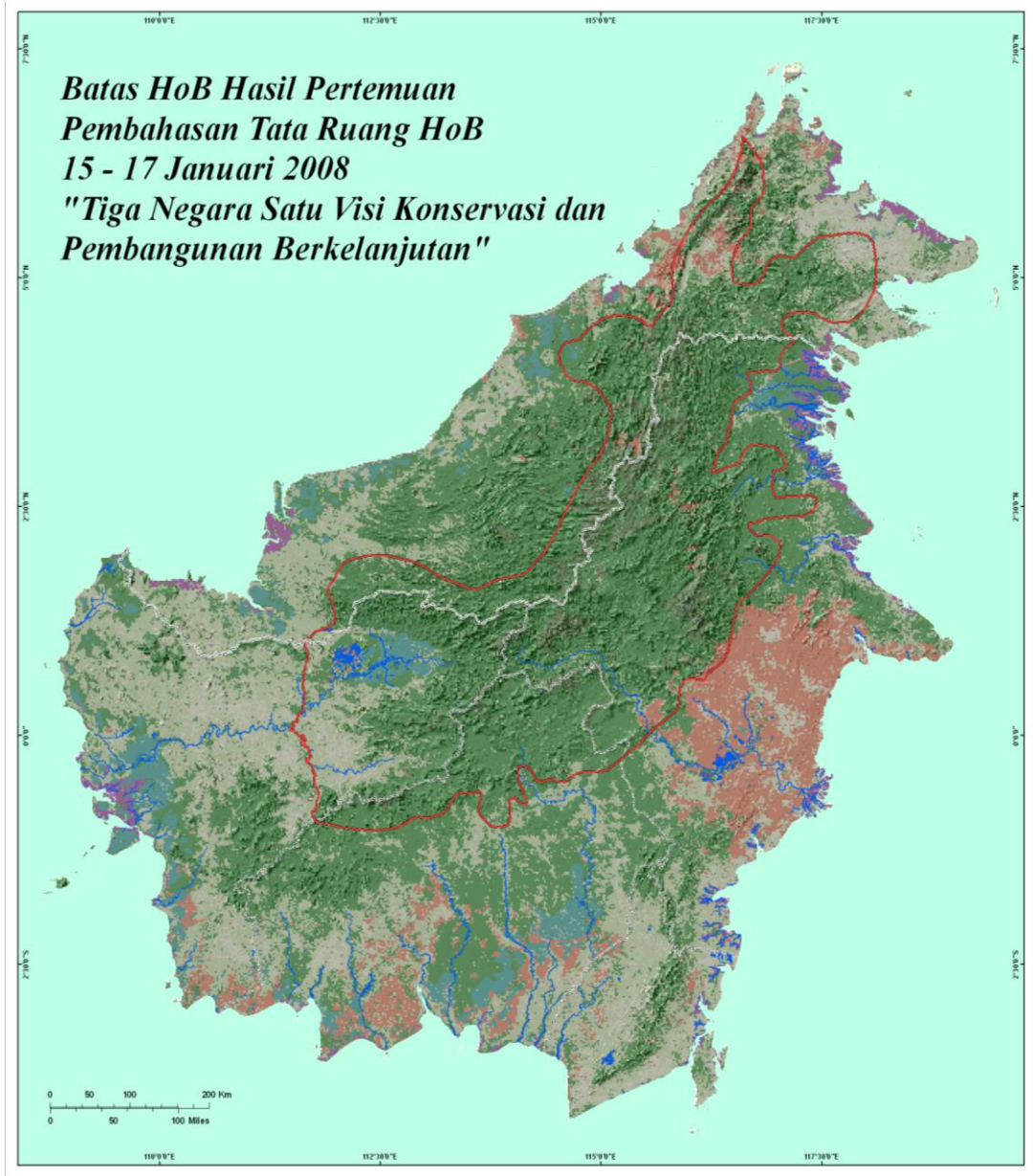


Fig. 3.2. The boundary delineation of Indonesia's Heart of Borneo based on the adopted criteria of Heart of Borneo delineation.

Source: WWF Indonesia

Table 3.2. The area of Indonesia's Heart of Borneo based on province and district.

Province	District	Area (ha)
North Kalimantan	Nunukan	956,642.93
	Malinau	3,493,256.73
	Bulungan	552,591.30
Total North Kalimantan (%)		5,002,490.96 (27.8)
East Kalimantan	Berau	651,586.35
	Kutai Timur	394,131.54
	Kutai Kartanegara	850,097.32
	Kutai Barat	1,563,060.00
	Mahakam Ulu	1,531,500.00
Total East Kalimantan (%)		5,404,369.63 (27.9%)
Central Kalimantan	Murung Raya	2,038,698.14
	Kapuas	127,376.81
	Gunung Mas	250,701.89
	Katingan	530,489.83
	Barito Utara	42,873.04
	Seruyan	34,336.15
Total Central Kalimantan (%)		3,024,475.85 (16.9%)
West Kalimantan	Kapuas Hulu	3,088,025.81
	Melawi	432,305.69
	Sintang	1,372,187.48
Total West Kalimantan (%)		4,892,518.99 (27.3%)
Total Kalimantan		17,909,861.01

3. Landscape of Heart of Borneo

Originally most of the landscape area in HoB was forest. For the purposes of economic development and spatial plan of HoB, since 2008 the government - lead by the Ministry of Forestry - has identified and categorized the landscape into 5 groups³. Based on the category most of the HoB area were allocated or suitable for protected forest and conservation areas (62.18%). There was only less than 5% area suitable area for non-forestry purposes or other sectors, leaving a very small space for economic development of the area (Table 3.3; Fig. 3.3). Perhaps the overall and final picture of landscape and its allocation will be much readable and reasonable when all relevant sectors in the area have a consensus on land analysis and laid out on HoB spatial plan.

³Kelompok Kerja Nasional HoB Kajian Ruang Strategis Nasional HoB. 2010. Kelompok Kerja Nasional HoB. Menteri Koordinator Perekonomian, Republik Indonesia. Jakarta.



Semangit Village, Danau Sentarum National Park
©Deni Sofyan

Table 3.3. Landscape of Heart of Borneo based on the purposes and physical feature³.

No	Type of Landscape	Area (Ha)	%
1	Protection forest	7,814,561.71	46.11
2	Production and limited production forest	3,781,125.09	22.31
3	Corridor of upland area	1,868,979.02	11.03
4	Non-forest purposes	759,083.79	4.48
5	Conservation area	2,723,722.34	16.07
Total		16,947,471.95*	100.00

*The total area of forest and its boundary is still being processed and re-calculated, and hence the total area in this table is less than the total administrative area shown in Table 2.2.

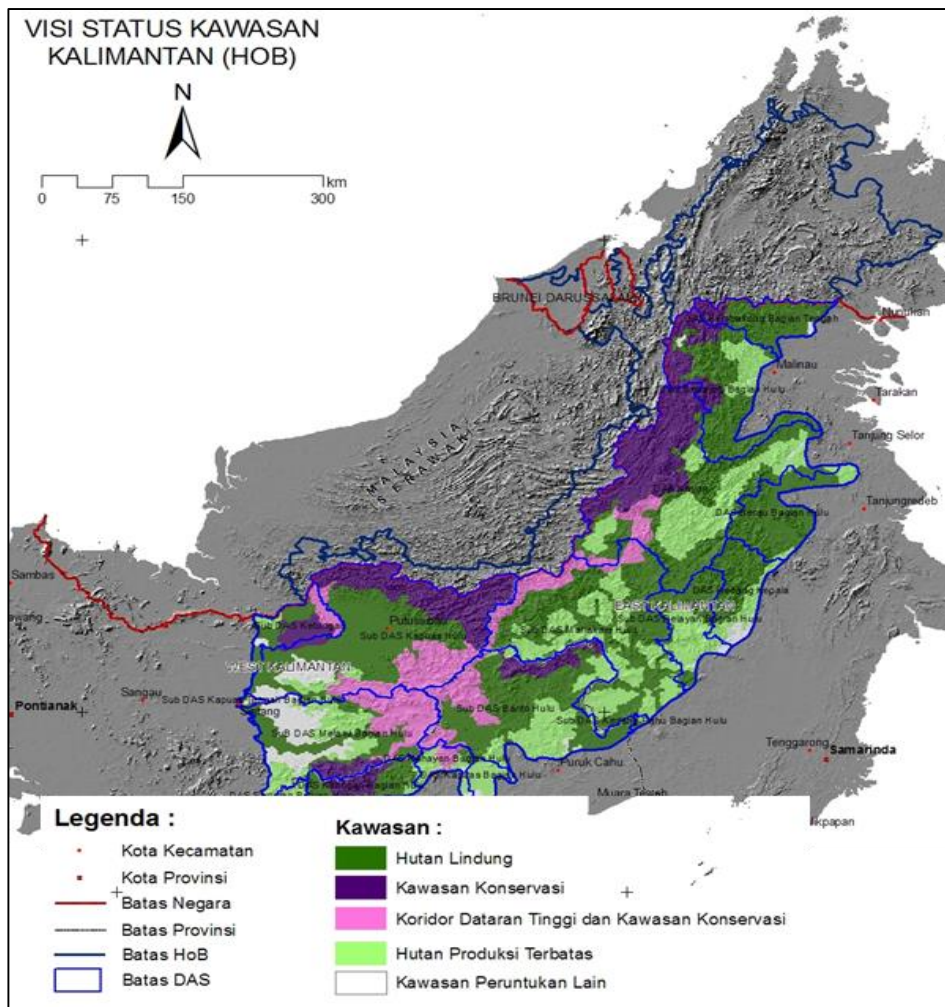


Fig. 3.3. Forest cover of the Indonesia's Heart of Borneo with indication of forest function and corridor.

Source: WWF Indonesia



4. Forest Status

A number of districts within the HoB area have not declared the status of their own forest due its complicated problems in establishing spatial plan within each district. Normally, the district wanted to have bigger space for development area or non-forest status. This creates complicated negotiation between authority in district, provinces and national level as well as between forest services agency and other institutions in three levels.

Yet, regardless the difficulties in obtaining compromise on the spatial plan, the Ministry of Environment and Forestry, through its regional offices of *Balai Pemantapan Kawasan Hutan* (BPKH; Regional Unit for Establishing Forest Area), has decided to develop spatial plan based on provincial level, instead of district level. This policy later on became the basis for establishing the spatial plan for provinces throughout the country.

The total area of forest within HoB is approximately 18,866,461 ha or about 105.3% larger than HoB area (Table 3.4). This is because the calculation of the forest area was based on the boundary of the districts, and compromised with other sectors are still being sought. As for the case of HoB spatial plan, see Chapter 11.

Table 3.4. Forest area based on status (ha) within the Indonesian Heart of Borneo⁴.

No	District	Production Forest	Limited Production Forest	Convertible Forest	Protected Forest	Conservation Area
1	Nunukan	270,542	169,683	13,403	150,943	489,349
2	Malinau	486,141	1,373,683	30,472	765,822	1,081,621
3	Bulungan	532,230	668,017	33,903	370,339	500,000
4	Berau	527,169	591,474	33,592	341,599	0
5	Kutai Timur	842,946	744,336	39,048	842,946	130,616
6	Kutai Kertanegara	697,582	480,112	22,804	198,016	123,038
7	Mahakam Ulu	214,370	653,277	2,815	707,754	0
8	Murung Raya	199,052	1,244,662	156,292	481,974	191,555
9	Kapuas	509,430	207,094	149,778	281,639	128,492
10	Gunung Mas	376,708	243,521	238,085	56,887	0
11	Katingan	539,892	364,524	393,669	58,449	445,741
12	Barito Utara	310,708	275,218	239,586	35,626	5,941
13	Seruyan	432,100	383,095	0	57,599	170,988
14	Kapuas Hulu	188,223	393,676	30,624	800,865	921,351
15	Melawi	178,466	235,838	2,252	219,099	0
16	Sintang	150,165	651,723	17,823	468,920	111,489
Total		6,455,724	8,679,933	1,404,146	5,838,477	4,300,181
Total forest area in HoB				18,866,461*		

**total forest area in HoB was calculated in accordance with the boundary of districts, hence it appeared bigger than the area of HoB*

⁴Based on the GIS calculation collected from BPKH Kalimantan (East, Central, ad West) in 2017.



River as a water source
©Gunung Palung Nationa Park

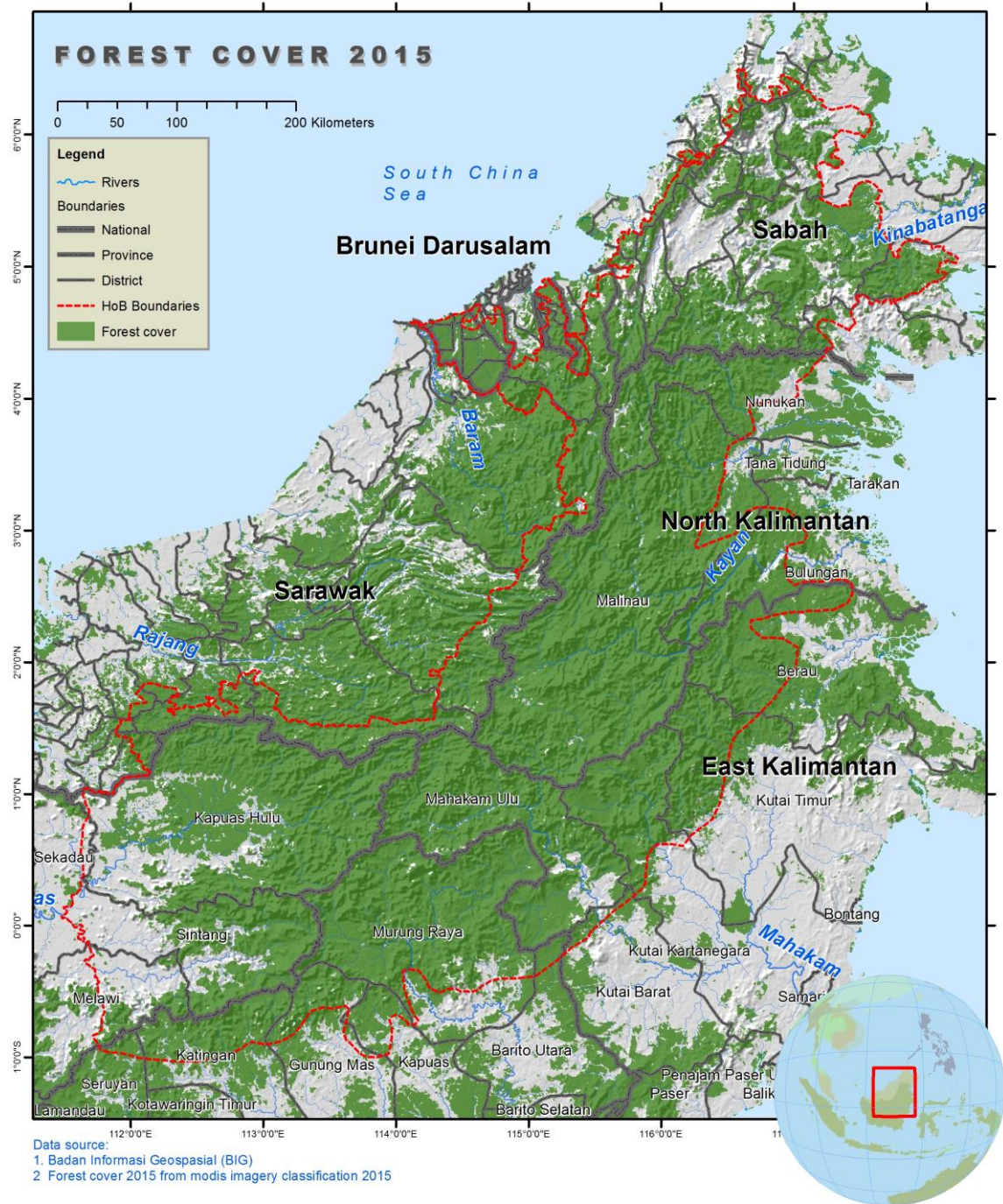


Figure 3.4. Forest cover of the Indonesia's Heart of Borneo.
Source: WWF Indonesia

5. Watershed Areas

The Muller Mountain ranges is the major hydrological systems in Kalimantan. It sources of main rivers in Kalimantan: Kapuas River in West Kalimantan, Barito River in Central Kalimantan, Mahakam in East Kalimantan and Kayan River in North Kalimantan. The Kapuas River has an upstream catchment area called Danau Sentarum (80,000 ha), which has been established as a national park. The river ends in the South China Sea West Kalimantan. While the Barito River, the widest river on the island, ranging from 650-1000 m wide, end in the Java Sea in South Kalimantan. The Mahakam River, the longest river on the island has more than 70 lakes spread along this river including three big lakes: Lake Jempang (15,000 ha), Lake Semayang (13,000 ha) and Lake Melintang (11,000 ha), ends in Makassar Straits in the east side of the island.

As for the watershed system, there are 17 catchment areas in the HoB area. These catchment areas serve as ground water basins and saturated aquifer. Some of the ground water and aquifers area might stretch to the northern part of Kalimantan, pivotal for the maintaining hydrological systems not only for the HoB area but also the whole Borneo Island⁶ (Table 3.5; Fig.3.5).

Table 3.5. Catchment areas in the Indonesia's Heart of Borneo⁵.

No	Catchment Areas/Watershed	Area (Ha)	%
1	Sub-catchment area of Mahakam Hulu	2,472,065.71	14.72
2	Sub-catchment area of Kedang Pahu	20,663.02	0.12
3	Catchment area of Sesayap Hulu	1,243,331.26	7.40
4	Catchment area of Berau	682,727.39	4.07
5	Sub-catchment area of Belayan	599,066.93	3.57
6	Catchment area of Kedang Kepala	543,190.67	3.23
7	Sub-catchment area of Ketungau	415,998.36	2.48
8	Catchment area of Seruyan	78,817.87	0.47
9	Sub-catchment area of Kapuas Hulu	2,789,407.60	16.61
10	Sub-catchment area of Kapuas Tengah	29,832.30	0.18
11	Catchment area of Sembakung	515,345.99	3.07
12	Sub-catchment area of Melawi	1,649,780.96	9.82
13	Catchment area of Katingan	482,500.07	2.87
14	Sub-catchment area of Barito Hulu	2,060,916.34	12.27
15	Kahayan Watershed	227,360.47	1.35
16	Kapuas Watershed	151,339.74	0.90
17	Kayan Watershed	2,832,755.71	16.87
Total Area		16,795,100.40	100.00

⁶MacKinnon K, Hatta G, Halim H, Mangalik A. 1996. The Ecology of Kalimantan, Indonesian Borneo. The Ecology of Indonesia Series Vol III. Periplus. Singapore.

⁷Directorate General of Watershed Management and Protection Forest. 2016. Unpublished Document

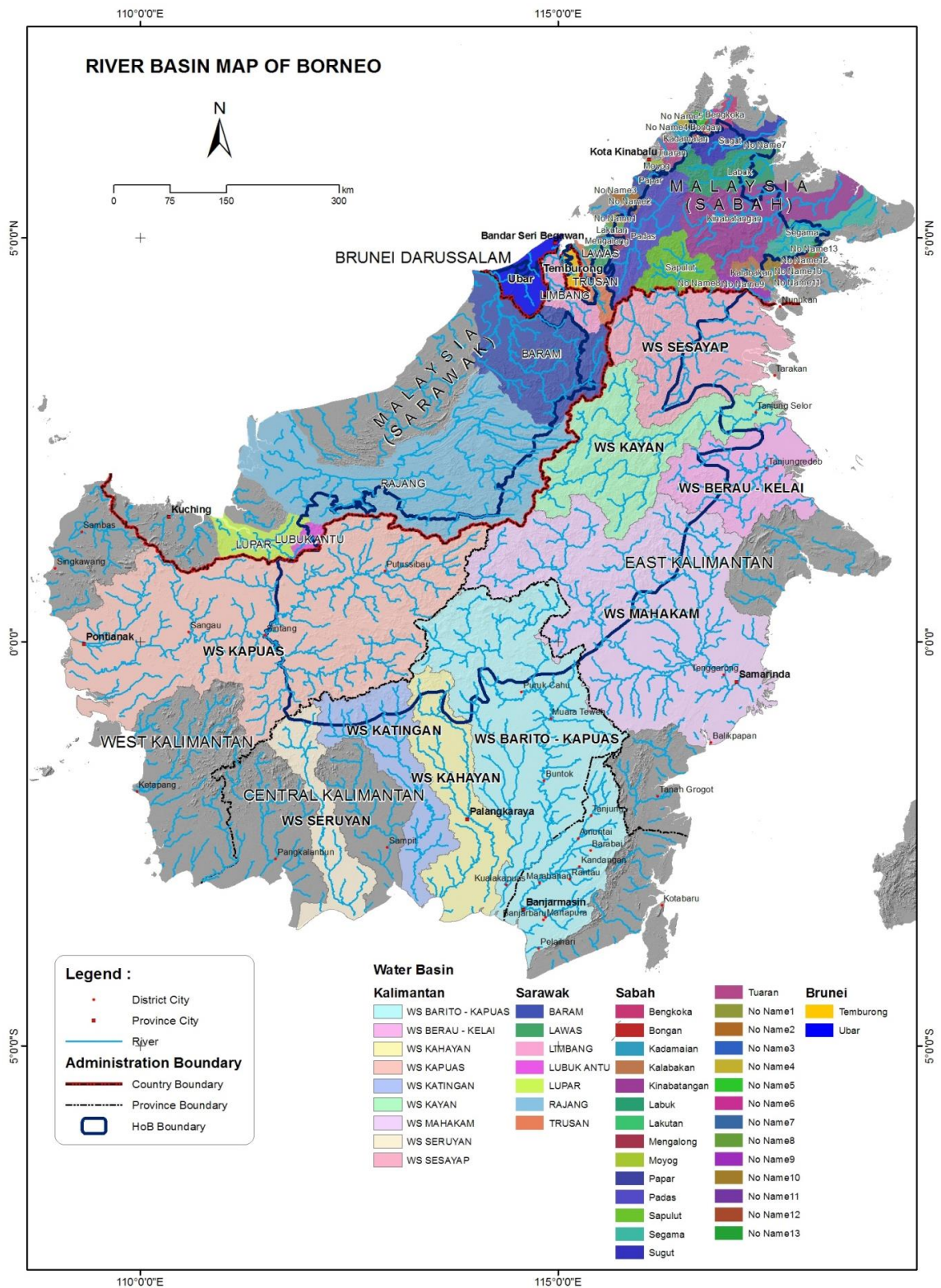


Fig. 3.5. Catchment and sub-catchment areas located across the Indonesia's Heart of Borneo.

Source: WWF Indonesia

6. National Park and Protected Areas

Much of the Indonesian part of Borneo landscape (Kalimantan) comprises of stretched of flat and swampy areas⁶, however, the majority part of Indonesian HoB are extended in the mountainous areas from Kapuas Hulu Mountains in Betung Kerihun National Park in West Kalimantan to a number of mountains in Kayan Mentarang National Park in North Kalimantan.

The two parks' landscape are connected by the Muller Mountains ranges while to the south it is linked by Schwaner Mountains to Bukit Baka–Bukit Raya National Park in West Kalimantan and Central Kalimantan Province⁷ (Table 3.6; Fig. 3.6). In addition, there are also nature reserves (*cagar alam*) and protected forest (*hutan lindung*) within the HoB area. The latter is stretch out along Schwaner-Muller and Meratus ranges.

Table 3.6. List of conservation areas and protected forest located in Indonesia's Heart of Borneo.

No	National Park/Protected Forest	Location
1	Kayan Mentarang National Park	North Kalimantan
2	Betung Kerihun National Park	West Kalimantan
3	Bukit Baka-Bukit Raya National Park	West Kalimantan and Central Kalimantan
4	Danau Sentarum National Park	West Kalimantan
5	Pararawen Nature Reserve	Central Kalimantan
6	Schwaner-Muller Protected Forest	Central Kalimantan
7	Kersik Luwai Nature Reserve	East Kalimantan
8	Sebuku-Sembakung Wildlife Sanctuary	North Kalimantan



Leaves of an orchid
©WWF Indonesia

⁶MacKinnon K, Hatta G, Halim H, Mangalik A. 1996. The Ecology of Kalimantan, Indonesian Borneo. The Ecology of Indonesia Series Vol III. Periplus. Singapore.

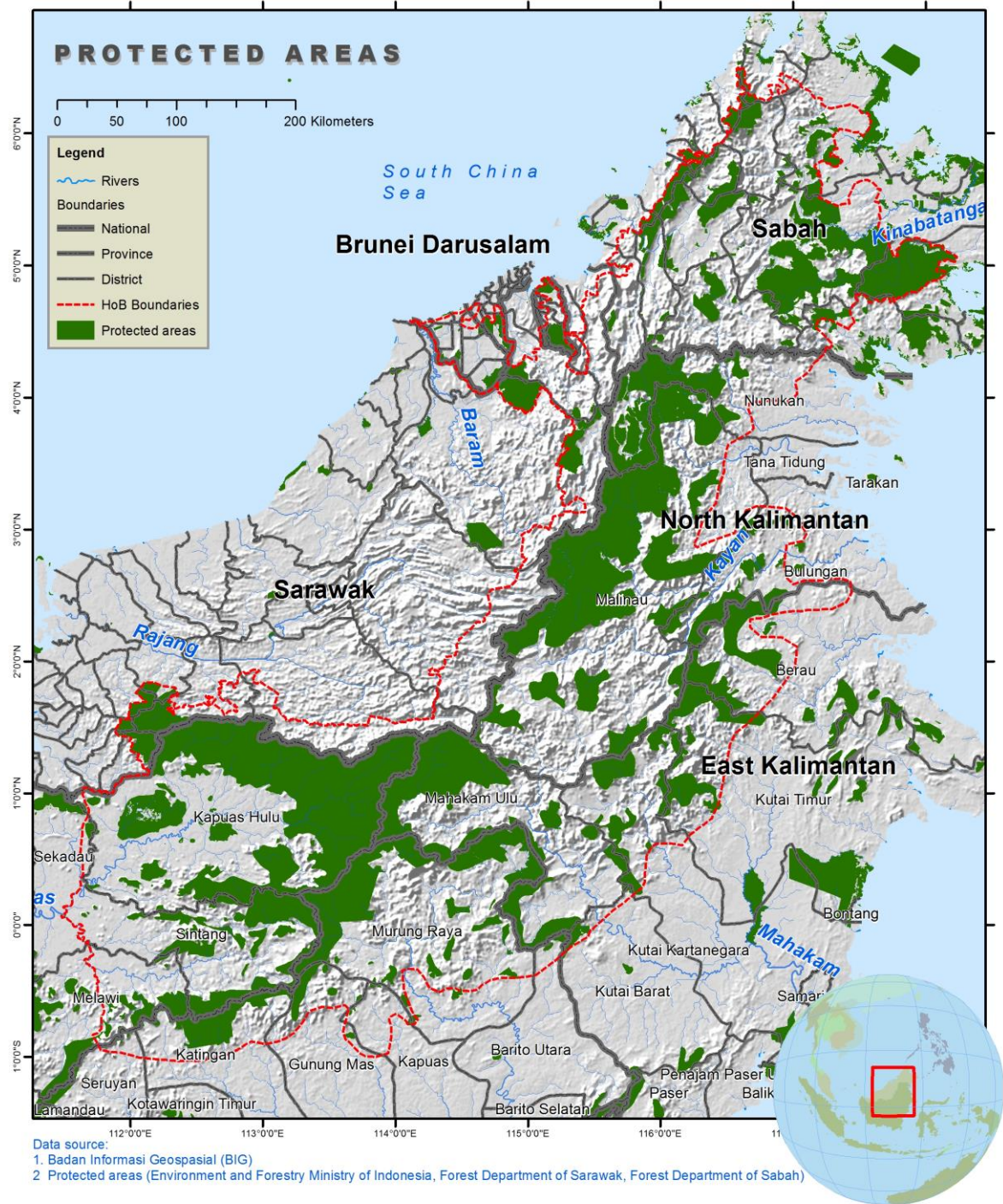


Fig. 3.6. National parks and protected forest areas located in Indonesia's Heart of Borneo.

Source: WWF Indonesia

CHAPTER IV: BIODIVERSITY IN THE HEART OF BORNEO

There are countless of biodiversity information of Borneo including within the HoB region available now and provided in various publication such as scientific journals, books, magazines, pamphlets, posters and in digital formats. The findings suggest that the HoB section of Indonesia is a habitat for 222 mammals including the critical endangered species such as orangutan, Bornean elephant, and Sumatran rhino, as well as 358 bird species which include six species of Bornean hornbills and more than 3,000 tree species including 267 species of Dipterocarps the most important group of commercial timber in Southeast Asia more than 200 species of orchids, at least 1,000 species of ferns, and many other reptiles and insects¹ (Fig 4.1).

1. Plants of Mountain and Lowland Areas

The plants in HoB areas are parts of the large trees family of rainforest ecosystem of Borneo. The important of tree group in the mountain areas of Borneo are belonging to the family of Guttiferae (e.g., *Garcinia* sp. or mangosteen), Ericaceae (e.g., *Salacca zalacca*), Myrtaceae (e.g., *Agathis endertii*), Fagaceae (e.g., *Quercus subsericea*), Lauraceae (e.g., *Eusideroxylon zwageri*), hill and upper Dipterocarp (e.g., *Hopea mengerawan*, *Shorea curtisii* ssp. and *Vatica oblongifolia*².

The lowland plants in Kalimantan are belongs to three types of ecosystems: heath forest or “kerangas” and freshwater swamp forest, if water seasonally occurs in the area or peat swamp forest if it occurs in waterlog condition. The common species occurs in heath forest are-among others-*Shorea balangeran*, *Cratoxylum glaucum* and *Eugenia* spp. Some species of *Lithocarpus* and *Buchanania arborescens* also occur in this type of ecosystem.

Tree species commonly found in freshwater swamp forest ecosystems are *Calophyllum* spp., *Vatica venulosa*, and *Horsfieldia* spp., while in the peat swamp forest commonly occur *Gonystylus bancanus*, *Alstonia pneumatophora*, *Alstonia spatulata*, *Cobretocarpus rotundatus*, *Dactylocladus* and *Lophopetalum*

¹MacKinnon K, Hatta G, Halim H, Mangalik A. 1996. The Ecology of Kalimantan - Indonesian Borneo.. The Ecology of Indonesian Series Volume III. Periplus, Singapore.

²Whitmore, TC. 1984, Tropical Rain Forest of the Far East. Clarendon Press, Oxford.

*javanicum*³. There are of course many more plant species including herbs and shrubs in Kalimantan but not specially presented in this book.

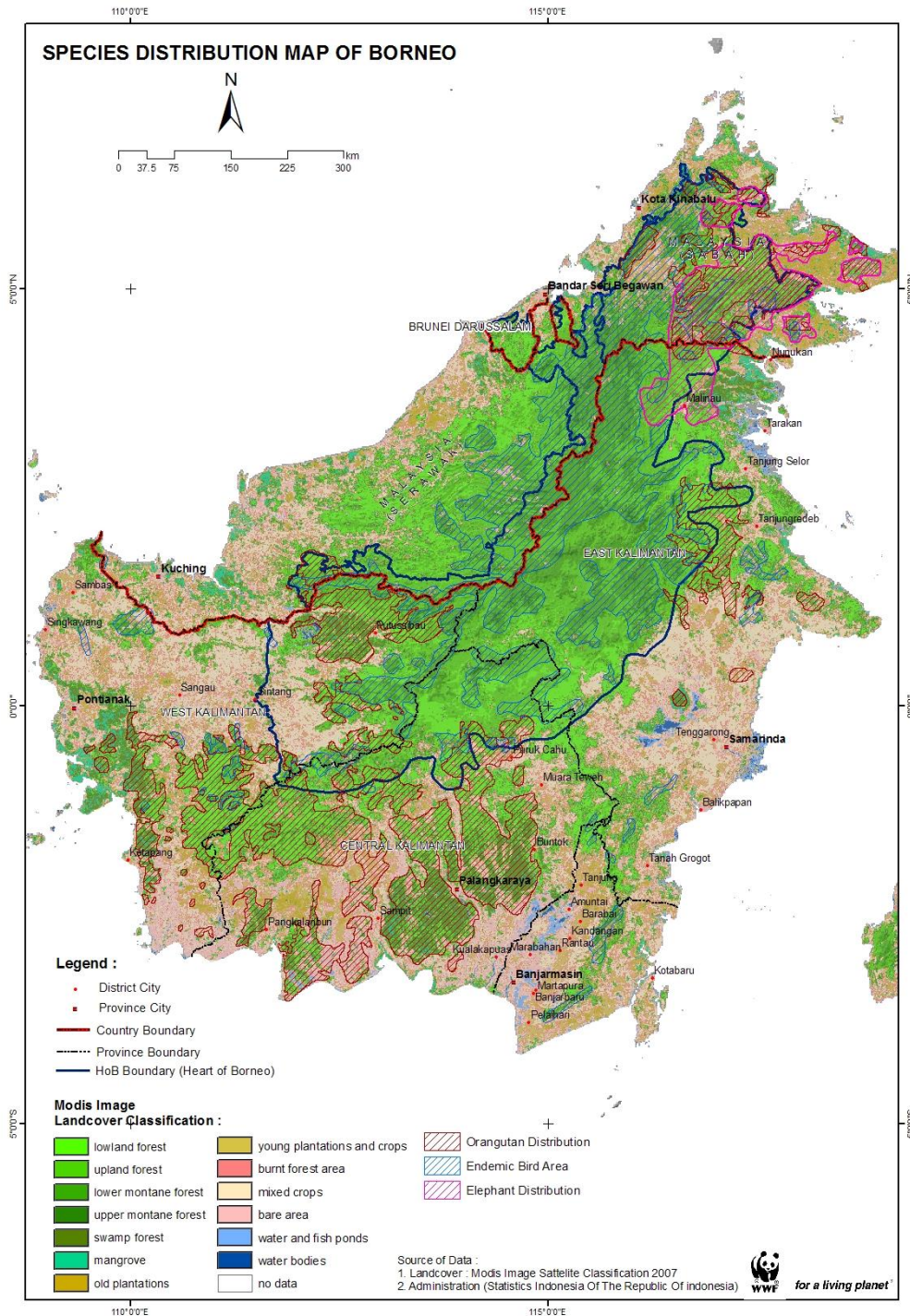


Fig. 4.1. Distribution of some important species in Heart of Borneo.
Source: WWF Indonesia

³Sidiyasa K. Undated. Tree Diversity in the Rain Forest of Kalimantan: The Balance between Biodiversity Conservation and Sustainable Use of Tropical Rain Forests. The Tropenbos Foundation, Wageningen, the Netherlands.

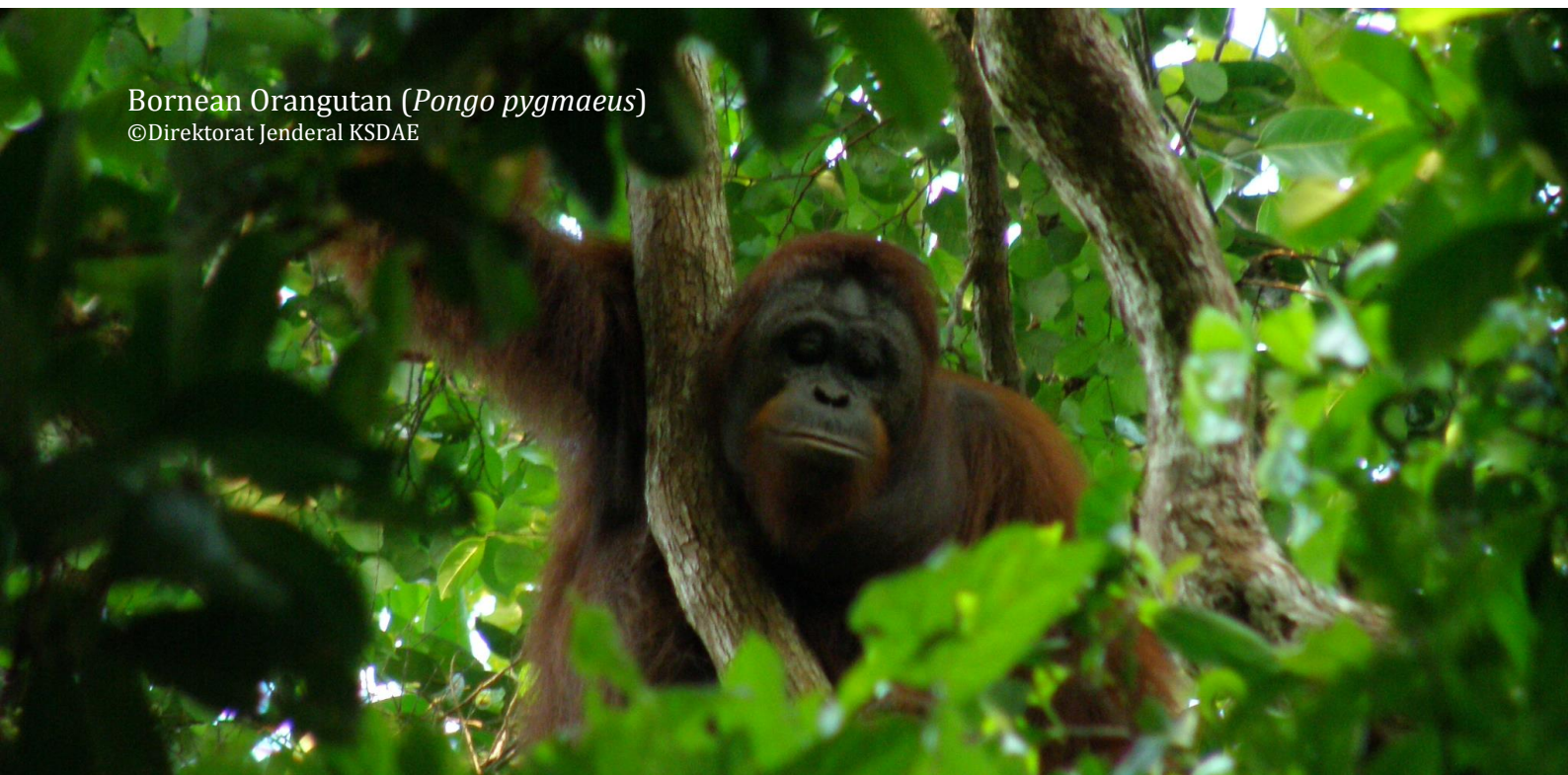
Tropical lowland rainforest
©Direktorat Jenderal KSDAE



2. Primates

There are 13 primates in Borneo, one of them is classified as big ape; orangutan (*Pongo pygmaeus*). The remaining species include agile gibbon (*Hylobates agilis*), Bornean gibbon (*Hylobates muelleri*), banded leaf monkey (*Presbytis femoralis*), Bornean leaf monkey (*Presbytis hosei*), white-fronted leaf monkey (*Presbytis frontata*), maroon leaf monkey (*Presbytis rubicunda*), proboscis monkey (*Nasalis larvatus*) (Fig. 4.2), silvered langur (*Trachypithecus cristatus*), pig-tailed macaque (*Macaca nemestrina*), long-tailed macaque (*Macaca fascicularis*), slow loris (*Nycticebus coucang*), and western tarsier (*Tarsius bancanus*)^{1,4}.

Within the HoB areas, orangutan occurs in Betung Kerihun and Bukit Baka-Bukit Raya National Park and most likely in non-conservation forests such as permanent production forest and limited production forest within the region. Their populations are considerably low, making them classified as endangered species. Likewise, the population of proboscis monkey in HoB area is considered even as critically endangered. They might be located in very few areas in HoB such as Danau Sentarum National Park in West Kalimantan, along Kayan River and Sebuku-Sembakung Wildlife Reserve in East Kalimantan⁵.



Bornean Orangutan (*Pongo pygmaeus*)
©Direktorat Jenderal KSDAE

⁴Meijaard E, Nijman V. 2003. Primate Hotspots on Borneo: Predictive Value for General Biodiversity and the Effects of Taxonomy. *Conservation Biology* 17(3): 725-732.

⁵Meijaard E. 2000. Distribution and Conservation of Proboscis Monkey, *Nasalis larvatus* in Kalimantan, Indonesia. *Biological Conservation* 92:15-24.

While populations of pig-tailed and long-tailed macaque, agile and Bornean gibbon are almost common across the HoB region, the remaining population of primates are either rare or lack data.

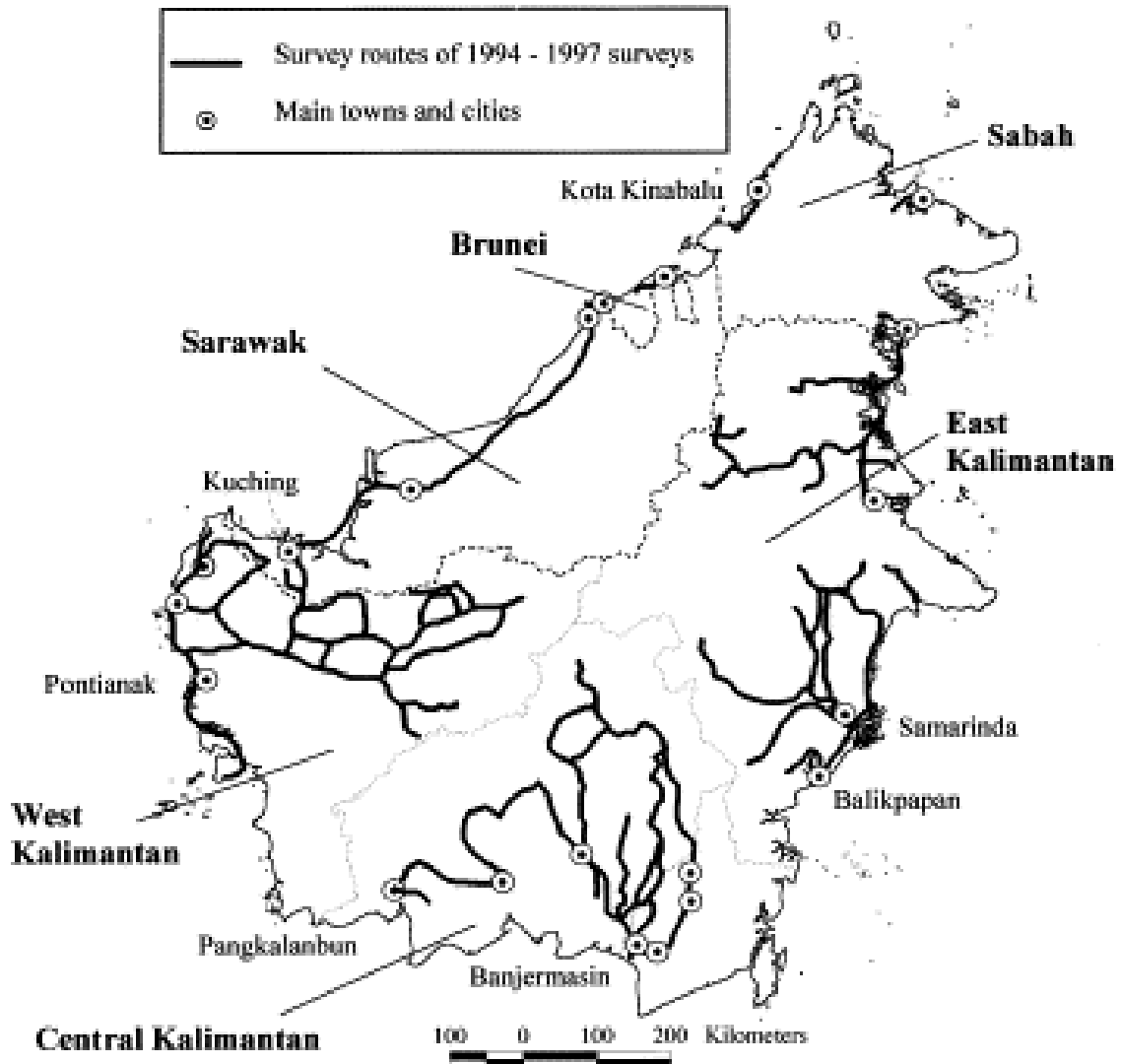


Fig. 4.2. Population distribution of Proboscis monkey *Nasalis larvatus* in Kalimantan⁶.

⁶Meijaard E, Nijman V. 2000. Distribution and Conservation of Proboscis monkey (*Nasalis larvatus*) in Kalimantan, Indonesia. *Biological Conservation* 92(1):15-24.



Proboscis Monkey (*Nasalis larvatus*)
©Erick Danzer

3. Other Big Mammals

Kalimantan, the Indonesian part of Borneo, is also blessed with other important and endangered mammals which include Sumatran Rhino (*Dicerorhinus sumatrensis*; Fig. 4.3), Borneo Pygmy Elephant (*Elephas maximus borneensis*; Fig. 4.4), Sundaland Clouded leopard (*Neofelis nebulosa*) and Banteng (*Bos javanicus*). Further, there are also Bearded Pig (*Sus barbatus*), Bornean Red Muntjac (*Muntiacus muntjac*), Bornean Yellow Muntjac (*Muntiacus atherodes*) and Malayan Sun Bear (*Helarctos malayanus*)⁷.

Few populations of Sumatran rhino recently were discovered by WWF Indonesia in the production forest areas within the HoB area, specifically in the District of Kutai Barat of East Kalimantan. As this is considered as new evidence in Indonesian side, research and field assessment on this population and distribution is now on going⁸. As for the population of Borneo pygmy elephant, it was discovered in the late 1990's in Sebuku Sembakung Wildlife Reserve of East Kalimantan bordering with Sabah forest in the north east of Borneo. Compared to the Borneo pygmy elephant populations in Sabah side, their population in East Kalimantan is very small. The government of Indonesia, supported by local civil society and WWF Indonesia, are working to improve the habitat as well as maintain their population.

The populations of Sundaland clouded leopard, bearded pig, sun bear and Bornean muntjac appears to occur in most forested areas in HoB region, though their reliable population and distribution status are still unidentified. By far, scientific and conservation supports for these population seems to also very little while threat and pressure from human being, especially from local people (e.g. poaching for commercial and subsistence) keep increasing. On the other hand, though populations of Borneo banteng is only occurring in Kayan Mentarang National Park, and Kutai National Park⁹, the first park geographically located in the HoB landscape, and some of the logging areas in the region, their presence in protected areas are relatively secure from outside pressure.

⁷ <http://www.worldwildlife.org/species>.

⁸ <http://www.worldwildlife.org/press-releases/footprints-of-sumatran-rhinos-discovered-in-borneo>.

⁹ <http://www.antarakaltim.com/berita/10609/puluhan-banteng-masih-ada-di-tnk>.

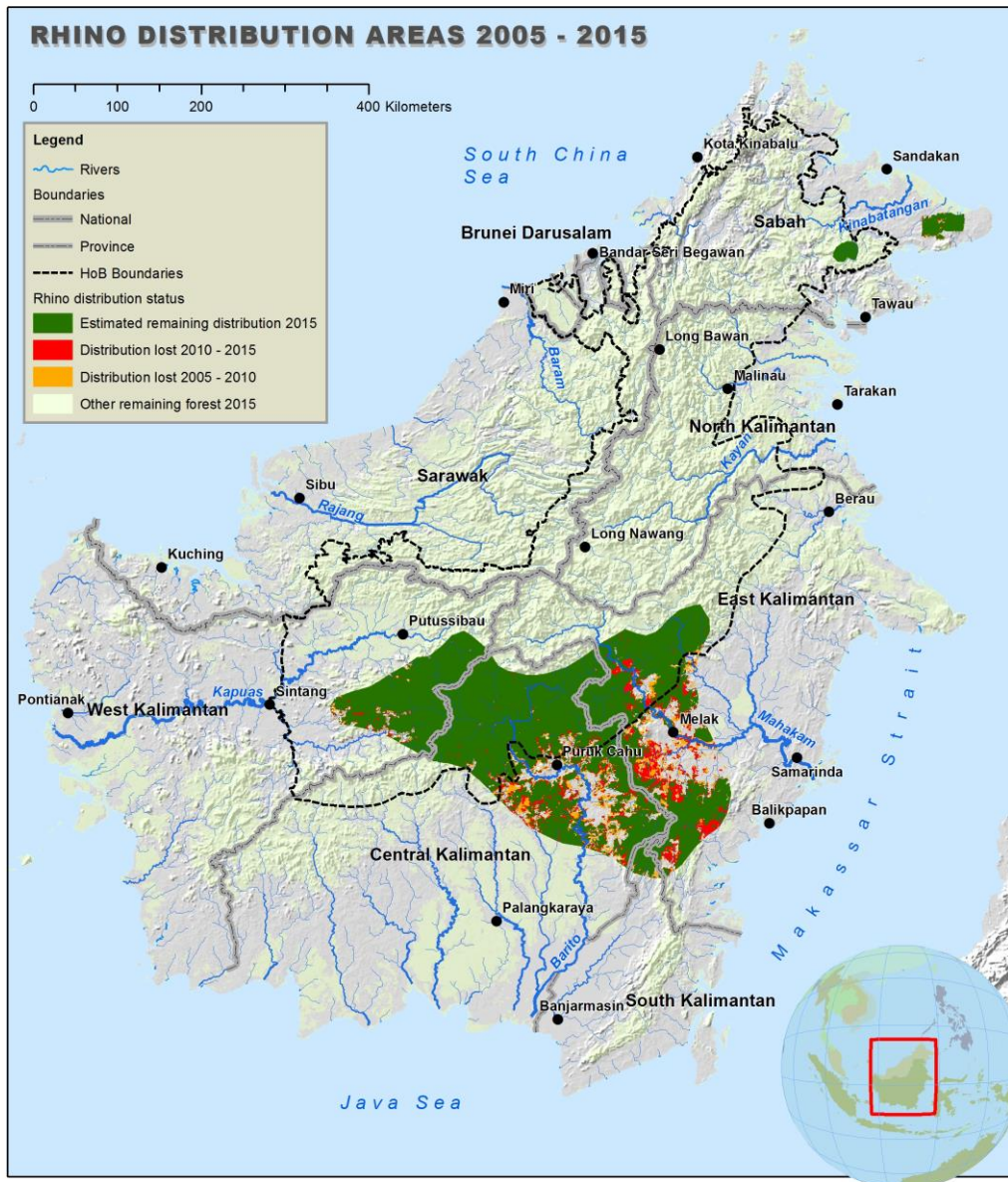


Fig. 4.3. Distribution of Sumatran Rhino in the northern part of Kalimantan within the Heart of Borneo⁴.
 Source: WWF Indonesia

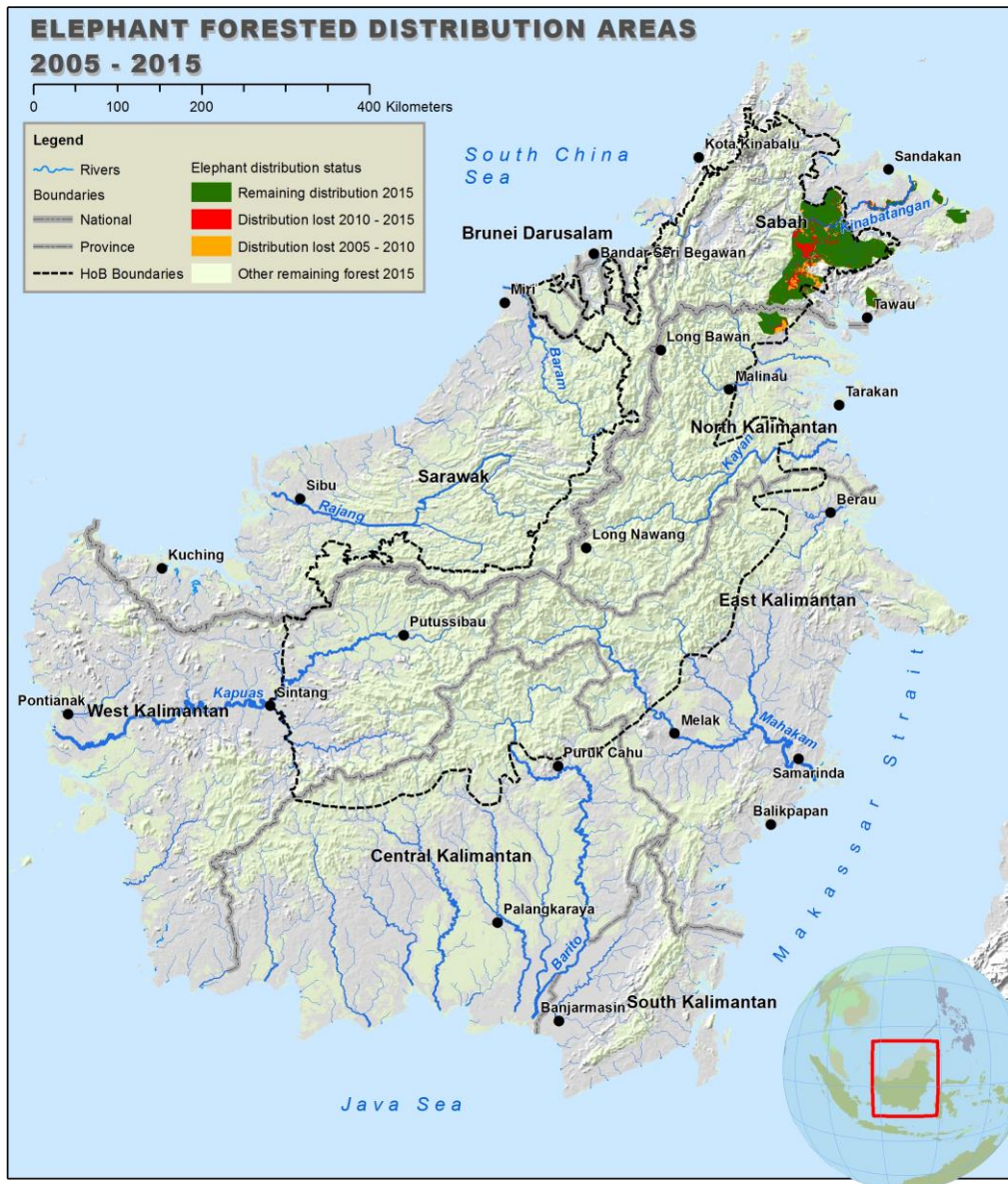


Fig. 4.4. Distribution of Borneo Pygmy Elephant in the northern part of Kalimantan within the Heart of Borneo⁴.

Source: WWF Indonesia

4. Freshwater Mammals

One of the most important and endangered species in Kalimantan is freshwater dolphin (*Orcaella brevirostris*). Because of its rareness, the species is also listed as conservation priority in Indonesia¹⁰. The population of this species occurs in the Mahakam River of East Kalimantan and Sesayap River of North Kalimantan. Both areas are geographically within the region of HoB. The population status is unknown and practical effort to save the species is also low. However, recently there are initiatives of ecotourism by travel bureau and NGOs to watch this species in the wild¹¹. Threats to the species remain high or even keep increasing particularly from urban development along the riverine, public rivers transportation and shipping commercial products such as timber and coal in their river habitat¹².

5. Birds

There are 358 species of birds in Kalimantan¹³ of which 29 species are endemic¹⁴ (Fig. 4.5). Unfortunately, 6 species have been listed by IUCN as either endangered or critical endangered, e.g. *Polyplectron schleiermacheri* (Bornean Peacock-pheasant) and *Ciconia stormi* (Storm's Stork). The Important Bird Areas in Kalimantan (23 locations) includes a number of protected areas such as Betung Kerihun and Danau Sentarum National Park in West Kalimantan, Bukit Baka-Bukit Raya National Park and Schwaner Mountain Protection Forest in Central Kalimantan and Kayan Mentarang National Park and Sebuku-Sembakung Wildlife Reserve in East Kalimantan¹⁵. These protected areas are geographically located in HoB areas. However, the Storm's Stock might not be found in HoB areas as their habitat is mostly coastal areas.

¹⁰Peraturan Menteri Kehutanan No. P. 57/Menhut -II/2008 tentang Arahan Strategis Konservasi Species Nasional 2008-2018.

¹¹De Gigant Tour, Kalimantan Freshwater Dolphins.
http://www.borneotourgigant.com/Fresh_Water_Dolphins.html

¹²Populasi Pesut Mahakam semakin terdesak.
<http://kaltim.antaranews.com/berita/14312/populasi-pesut-mahakam-semakin-terdesak>

¹³MacKinnon J, Phillipps K, van Balen B. 1992. Burung-burug di Sumatera, Jawa, Bali dan Kalimantan. Puslibang Biologi LIPI-Burung Indonesia Bogor.

¹⁴Birdlife International. Sites-Bird Important Areas (IBAs).
<http://www.birdlife.org/datazone/ebafactsheet.php>

¹⁵Bird Important Areas (IBAs) of Indonesia.
<http://www.birdlife.org/datazone/userfiles/file/IBAs/AsiaCntryPDFs/Indonesia.pdf>

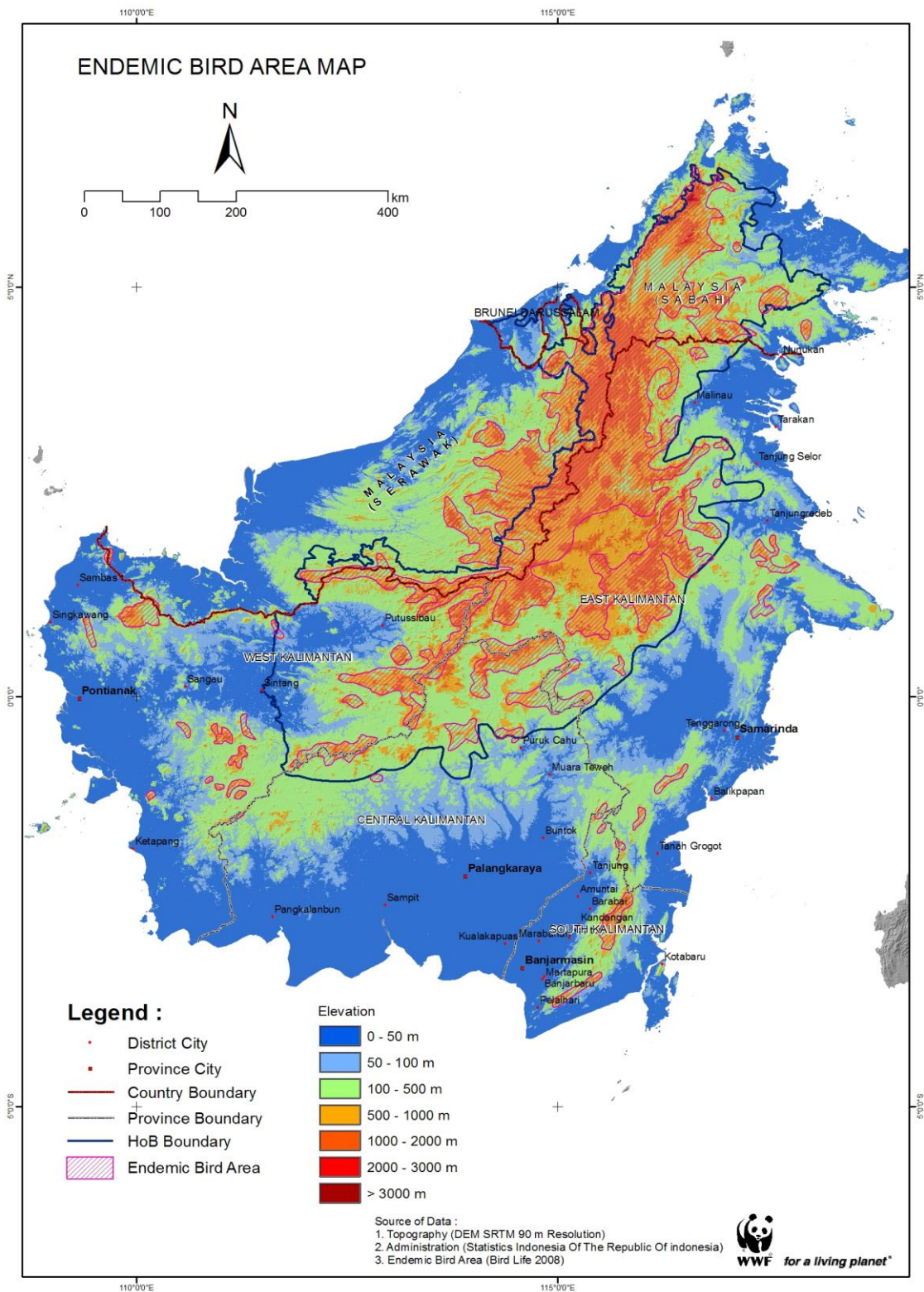


Fig. 4.5. Endemic Bird Area in Heart of Borneo area.
Source: WWF Indonesia



Buffy Fish-owl (*Ketupa ketupu*)
©Budi Suryansyah

6. Reptiles

There are 32 species of snakes, 27 species of lizards, 2 species of monitor lizards, 7 species of freshwater turtles, 2 species of marine turtles, and 2 species of crocodiles recorded occur in Kalimantan. Nonetheless, the population and distribution status is not clear. However by far none of the population of the snake species is threatens though pressure from commercial harvest with appears to be consistent and sustainability of harvest is questionable.

Unlike the population of snake species, unfortunately 3 of the 9 species of freshwater turtles has been logged as threatened and endangered due to unsustainable commercial harvest. The three species are *Heosemys spinosa*, *Manouria emys*, and *Chelonia mydas*. Except for the marine species, most if not all the species are occurring in HoB areas¹⁶.

¹⁶Flora dan Fauna Kalimantan. 2012. Dokumentasi Hasil Tim Peneliti dan Expedisi Khatulistiwa. Fakultas Biologi, Universitas Gajah Mada Yogyakarta.

Asian Brown Tortoise (*Manouria emys*)
©Agus Triyanto



Mangrove Cat Snake (*Boiga dendrophila*)
©Budi Suryansyah

7. Frogs and Toads

There are 148 species of amphibian identified in Kalimantan¹⁷, consisting of a wide variety of form, from the limbless amphibian or caecilian dwelling in the soil to the tree frogs that glide gracefully from one tree to another. Most of the amphibians, especially the endemics, are found in the forest and closely related to water source. The forest of Kalimantan is home to one of the most unique frogs in the world, the lungless frog *Barbourula kalimantanensis*. The frog, as implies by its name, has no lungs and use skin to absorb oxygen from the rapid waters where they live fully submerged.

Disturbed habitats, such as plantations, villages and mining areas only consist a small number of species, mostly species that distribute widely across Indonesia and thrive in human disturbed habitat such as *Duttaprynus melanostictus*, *Hylarana chalconota*, and *Fejervarya cancrivora*. The number of amphibian species in Kalimantan is expected to increase with increasing survey effort. As comparison, the number of amphibian in Sabah and Sarawak is about 190 species mostly due to high effort of research, for instance by Inger¹⁸.



¹⁷Jenis-jenis Katak di Indonesia. <http://gomumu.blogspot.co.id/2014/06/jenis-jenis-katak-indonesia.html>

¹⁸Inger RF, Lan TF. 1996. Checklist of the Frogs of Borneo. Raffles Bulletin of Zoology.

CHAPTER V: SOCIO ECONOMIC

1. Population

Based on the statistical documents of each districts in HoB, the area in 2015 is inhabited by approximately of 3.52 million people (Fig. 5.1). This number has gone up about 300,000 compare to those population in 2013 (3.21 million people)¹² or increase of 9.65 %; an alarming of population growth. Nonetheless, for the area of 17.9. million ha with average district's density of 11.56 people/km² and average district population growth of 2.41%, might be still acceptable, though caution on population control should be applied and enforced. There are only four districts in the area which possess population growth below national level (1.17%). The remaining districts show high to very high population growth. The high rate of growth perhaps is attributed by immigration of workforce who came in to look opportunity in mining areas and oil palm plantations, which occurs in District of Malinau, Nunukan, and Kutai Timur.

In view of the education development, except for the District Mahakam Ulu, the rest of the districts in the HoB have achieved 100% schooling for elementary school. Compared to the remaining districts, Mahakam Ulu is also lagging behind in educating their young population to enter middle and high school level (see Table 5.1).

2. District Annual Budget

The sources of district annual budget consist of national annual fiscal distribution, district annual income and annual provincial earning share. The budget provision is designated to support routine financial allocation and district development. The average of annual budget for the districts in HoB area for 2010 to 2015 suggests above IDR 1 trillion. During the period, there are nine districts which fortune enough to run the annual budget higher than one trillion IDR with the highest found in District of Kutai Kertanegara. The remaining districts run their budget between IDR 500 billion to 860 billion with the lowest annual budget in District of Gunung Mas in Central Kalimantan province. Compare to other districts in HoB, the gap of annual budget for District of Kutai Kertanegara is considerable high. This perhaps the district has received high annual fiscal from mining activities

¹Ministry of Economic Affairs. 2015. National Strategic Plan, Heart of Borneo 2015-2019. Heart of Borneo National Working Group 2015. Ministry of Economic Affairs, Republic of Indonesia. Jakarta.

²Badan Pusat Statistik. 17 Kabupaten di wilayah HoB tahun 2010-2015. Badan Pusat Statistik. Jakarta.

especially those from coal mining (Table 5.2). Ideally there should be information on the amount of annual spending both for routine and development activities. Unfortunately it was difficult and time consuming to obtain such data.

3. District Annual Income

Compared to the district annual budget, the annual income for the respected district located in HoB area is relative small. The average of annual income for the period of 2010 to 2015 ranges between IDR 22,186 billion to IDR 257,620 billion. These pictures indicate how big and importance is the portion of national fiscal distribution in contributing the annual district budget (Table 5.3).



Mending fish nest
©Agus Triyanto



Table 5.1. Statistic information related to population in the Heart of Borneo area, 2015³.

No	District	Population	Density per km ²	Growth (%)	Sex Ratio	Number of Productive Age	Education (%)*		
							Elementary	Junior High School	High School
1	Nunukan	170,042	11.8	4.51	113.8	50,162	100	86.71	77.36
2	Malinau	74,469	1.8	4.15	117.3	22,952	100	80.99	87.82
3	Bulungan	126,096	9.4	2.53	114.3	40,863	100	95.44	90.00
4	Berau	203,223	9.3	2.96	116.4	64,629	100	96.94	81.81
5	Kutai Timur	306,974	9.7	4.34	118.6	97,468	100	100.00	75.45
6	Kutai Kartanegara	700,439	27.2	2.53	110.8	229,977	100	94.26	68.67
7	Kutai Barat	144,892	9.4	0.61	112.1	60,945	100	95.31	84.86
8	Mahakam Ulu	25,678	1.7	0.84	114.8	n.a	78	87.96	47.28
9	Murung Raya	105,091	5.0	2.51	108.0	60,220	100	96.86	65.16
10	Kapuas	341,558	23	0.99	104.0	66,664	100	96.99	54.33
11	Gunung Mas	104,936	10	2.41	113.0	76,112	100	96.43	68.28
12	Katingan	155,082	9.0	1.66	110.0	56,823	100	98.11	71.46
13	Barito Utara	125,433	15.0	0.85	108.0	41,643	100	98.11	63.31
14	Seruyan	160,576	10.0	4.39	116.0	81,952	100	100.00	43.93
15	Kapuas Hulu	240,410	8.1	2.00	106.0	160,658	100	100.00	96.66
16	Melawi	192,797	18.1	1.81	107.0	130,367	100	94.36	91.81
17	Sintang	390,796	18.1	1.62	107.0	260,510	100	90.29	79.14
Average		209,911	11.56	2.41	111.59	93,872	98.71	95.24	73.37
Total		3,568,492				1,501,945			

*Elementary School: SD (*Sekolah Dasar*), MI (*Madrasah Ibtidaiyah*); Junior High School: SMP (*Sekolah Menengah Pertama*), MTs: *Madrasah Tsanawiah*; High School: SMA (*Sekolah Menengah Atas*), MA (*Madrasah Aliyah*), SMK (*Sekolah Menengah Kejuruan*).

³BPS. 2015. Statistik Indonesia. Pusat Data dan Statistik Kemendikbud. Jakarta.

Table 5.2. Annual budget (APBD; *Anggaran Pendapatan dan Belanja Daerah*; IDR million) allocated for districts located in Heart of Borneo area, 2010-2015⁴.

No	District	2010	2011	2012	2013	2014	2015	Average
1	Nunukan	829,925	958,435	1,128,575	1,770,000	1,630,000	1,893,682	1,368,436
2	Malinau	1,175,000	1,647,000	1,332,554	1,791,000	1,841,569	1,070,112	1,476,206
3	Bulungan	998,694	1,012,733	1,311,166	1,465,724	1,069,448	1,214,646	1,178,735
4	Berau	1,184,063	1,360,000	1,380,533	1,656,000	1,864,491	2,364,491	1,634,929
5	Kutai Timur	1,438,014	1,680,800	2,654,347	2,640,639	2,912,685	3,307,457	1,999,324
6	Kutai Kartanegara	4,795,000	5,626,909	5,950,667	5,001,000	6,119,247	5,686,197	5,529,837
7	Kutai Barat	1,059,493	1,268,564	1,700,000	2,705,501	2,483,663	2,670,000	1,981,203
8	Mahakam Ulu	n.a.	n.a.	n.a.	n.a.	503,000	n.a.	503,000
9	Murung Raya	387,709	662,319	947,000	667,568	920,080	1,023,572	768,041
10	Kapuas	777,292	2,167,000	973,051	1,140,420	1,246,000	1,356,425	1,276,698
11	Gunung Mas	365,547	681,000	572,260	667,568	150,435	1,019,587	576,066
12	Katingan	541,559	583,645	634,246	760,483	933,119	1,710,000	860,509
13	Barito Utara	501,457	1,063,000	563,700	656,700	780,559	735,100	716,753
14	Seruyan	587,818	1,020,000	802,160	677,211	801,984	821,762	785,156
15	Kapuas Hulu	777,292	1,182,000	948,000	1,047,500	1,208,187	1,435,701	1,099,780
16	Melawi	418,624	418,624	534,000	674,000	829,000	932,000	634,375
17	Sintang	687,140	700,000	810,000	1,100,000	1,006,170	1,265,831	928,190
Average		1,032,789	1,377,002	1,390,141	1,361,457	1,547,037	1,781,660	1,371,602

⁴BPS Indonesia. 2010-2015. *Kabupaten Dalam Angka*; documents of 17 districts located in HoB area. Badan Pusat Statistik. Jakarta.



PEMERINTAH KABUPATEN KAPUAS HULU
KECAMATAN JONGKONG
DESA JONGKONG KIRI HILIR
DUSUN KENASAU
KODE POS 7364

Kenasau Sub-Village, Danau Sentarum National Park
©M. Ilyas

Table 5.3. Annual income of districts (*Pendapatan Asli Daerah; PAD*; IDR million) located in Heart of Borneo area (2010-2015)⁵.

No	District	2010	2011	2012	2013	2014	2015	Average
1	Nunukan	35,181	4,489	7,599	9,557	108,188	104,978	44,999
2	Malinau	82,874	91,486	112,426	95,231	98,398	71,625	92,007
3	Bulungan	94,428	84,376	76,643	93,363	126,039	121,416	99,377
4	Berau	109,283	124,830	157,277	178,663	238,689	234,341	173,847
5	Kutai Timur	62,999	53,188	63,362	65,372	69,072	74,302	64,716
6	Kutai Kartanegara	94,782	175,810	280,625	404,024	367,333	223,142	257,620
7	Kutai Barat	38,249	49,200	67,905	88,616	106,502	94,452	74,154
8	Mahakam Ulu	na	na	na	na	na	na	na
9	Murung Raya	16,587	19,348	26,363	2,551	3,819	3,032	11,950
10	Kapuas	18,411	23,953	51,160	45,984	72,331	88,440	50,046
11	Gunung Mas	11,572	15,774	22,690	24,661	30,995	32,592	23,047
12	Katingan	24,890	20,080	30,930	37,220	50,950	40,800	34,145
13	Barito Utara	20,873	23,520	28,659	34,346	41,508	39,971	31,480
14	Seruyan	18,391	28,132	17,162	20,250	30,270	37,930	25,356
15	Kapuas Hulu	18,116	20,616	31,526	31,134	34,300	69,733	34,237
16	Melawi	28,736	17,455	12,278	17,710	27,199	29,739	22,186
17	Sintang	29,117	30,270	49,903	67,399	96,285	103,968	62,824
Average		44,031	48,908	64,782	76,005	93,867	85,654	68,874

⁵BPS Indonesia. 2010-2015. *Kabupaten Dalam Angka* documents of 17 districts located in HoB area. Badan Pusat Statistik. Jakarta.

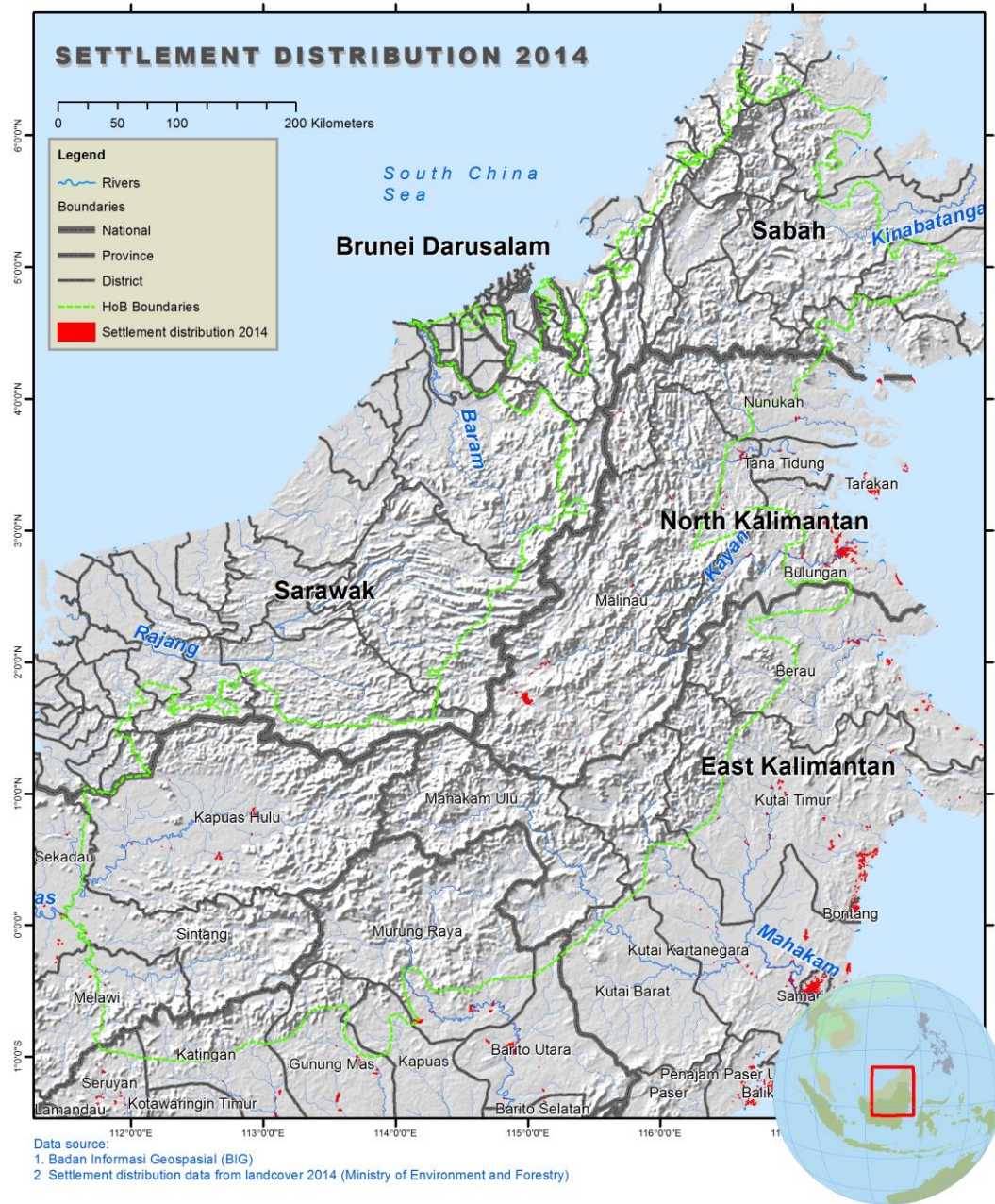


Fig. 5.1. Distribution of settlements inside the Indonesia's Heart of Borneo area.

Source: WWF Indonesia

4. Gross Domestic Revenue and Economic Growth

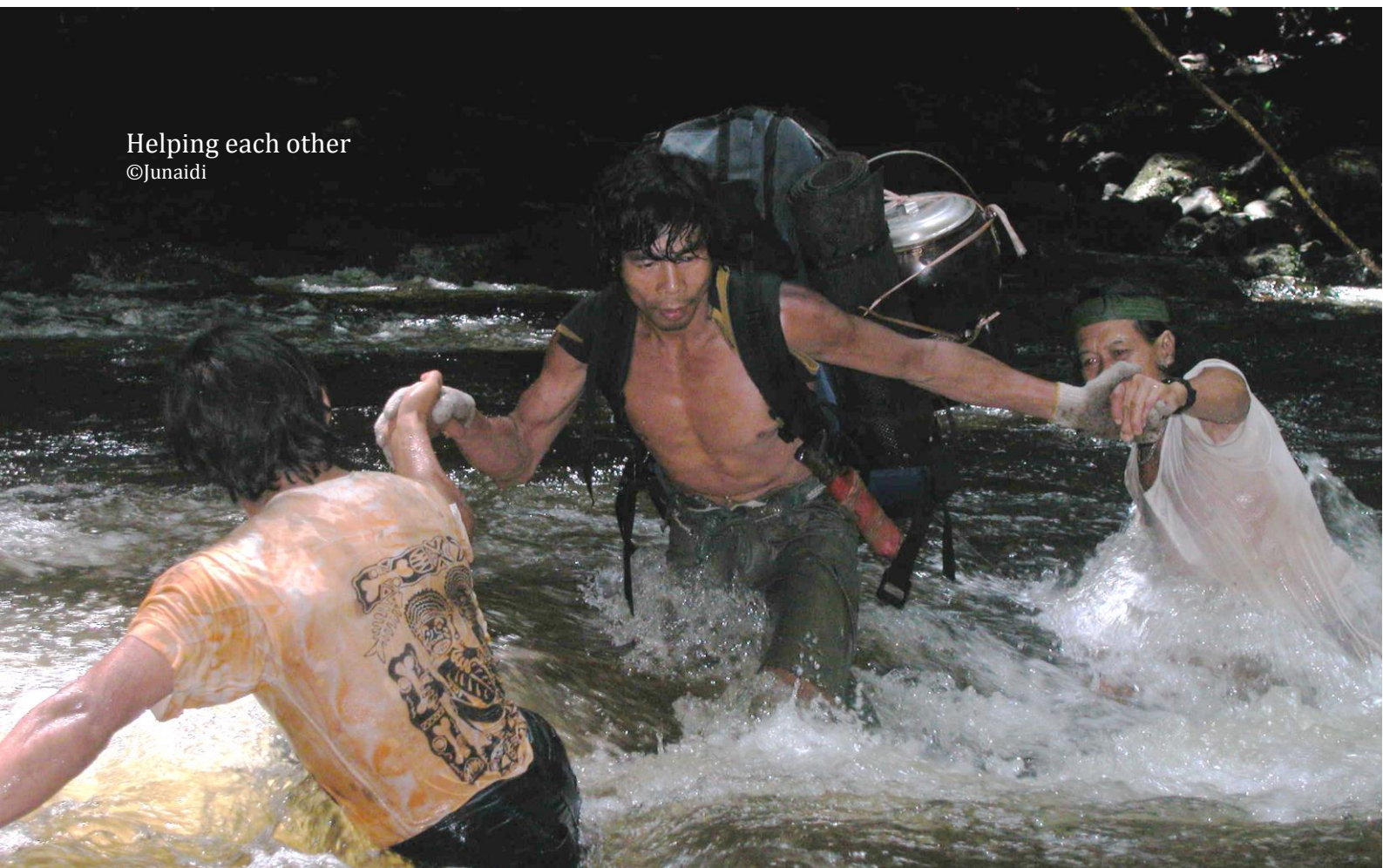
The Gross Domestic Revenue (GDR) was translated from the Indonesian term of *Produk Domestik Regional Bruto* (PDRB). The average of GDR for the districts located in HoB varies from 1,683 to 149,780 trillion IDR. The highest occurs in District of Kutai Kertanegara which in line with its annual budget, whilst the lowest falls in Districts of Mahakam Ulu and Gunung Mas (Table 5.4).

The growth of GDR suggests interesting pictures. District of Kutai Kertanegara over the period of 2010 to 2014 showed the lowest rate in the region, the highest growth rate in the period was District of Berau and followed by District of Kutai Barat (Table 5.5).

5. Human Development Index and Gini Ratio

The means of Human Development Index (HDI) of 2010-2015 of districts located in HoB is 65.87. This achievement is considered moderate. Owing to the large amount of budget allocated to these districts; the achievement of HDI is not rewarded. Even for the District of Kutai Kertanegara which received the highest annual funding allocation, its HDI is relatively modest. As for Gini Ratio (GR) the pictures for 2010-2015 suggested lower coefficient indicating a lower gap in equality of income distribution among population in the region (Table 5.6).

Helping each other
©Junaidi





Remote village in the HoB
©WWF Indonesia

Table. 5.4. Gross Domestic Revenue (IDR billion) of districts located in Heart of Borneo, 2010-2014⁶.

No	District	2010	2011	2012	2013	2014	Average
1	Nunukan	8,721	10,450	12,083	13,686	15,821.00	12,152
2	Malinau	4,708	5,433	5,445	6,404	6,997.00	5,797
3	Bulungan	7,350	10,049	11,516	12,136	12,768	10,764
4	Berau	14,559	20,610	24,907	28,028	29,298	23,480
5	Kutai Timur	59,132	88,497	92,109	98,407	97,024	87,034
6	Kutai Kartanegara	121,349	149,646	167,314	161,297	149,293	149,780
7	Kutai Barat	12,795	15,166	18,046	18,555	18,785	16,669
8	Mahakam Ulu	n.a.	n.a.	n.a.	1,582	1,784	1,683
9	Murung Raya	3,489	4,108	4,445	4,608	4,848	4,300
10	Kapuas	5,964	6,830	7,660	8,521	9,685	7,732
11	Gunung Mas	1,275	1,459	1,634	1,837	3,358	1,913
12	Katingan	2,933	3,359	3,821	4,306	4,878	3,859
13	Barito Utara	4,231	4,979	5,467	6,018	6,320	5,403
14	Seruyan	3,810	4,279	4,724	5,274	5,838	4,785
15	Kapuas Hulu	4,245	4,419	4,629	4,871	5,064	4,646
16	Melawi	2,206	2,433	2,749	3,020	3,313	2,744
17	Sintang	6,032	6,716	7,457	8,398	9,296	7,580
Average		16,425	21,152	23,375	22,762	22,610	20,607

⁶BPS Indonesia. 2010-2015. *Kabupaten Dalam Angka* documents of 17 districts located in HoB area. Badan Pusat Statistik. Jakarta.

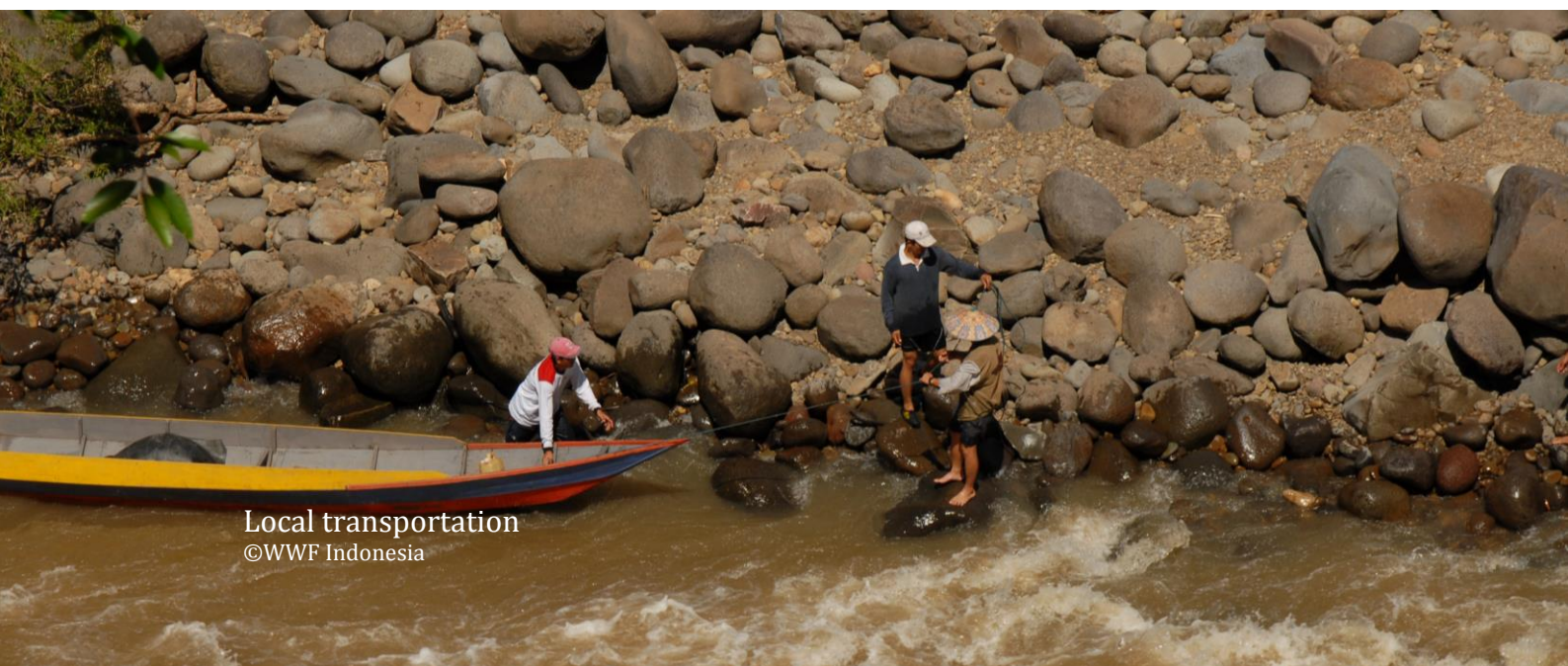
Table 5.5. Growth percentage of Gross Domestic Revenue of districts located in Heart of Borneo, 2011-2014⁷.

No	District	2011	2012	2013	2014	Average
1	Nunukan	9.17	8.95	7.63	7.9	8.41
2	Malinau	3.97	4.23	11.43	10.36	7.49
3	Bulungan	9.00	7.92	5.75	4.94	6.90
4	Berau	21.75	15.47	10.19	7.92	13.83
5	Kutai Timur	17.58	11.54	4.10	3.55	9.19
6	Kutai Kartanegara	1.52	5.49	0.06	-1.35	1.43
7	Kutai Barat	17.59	18.32	2.82	1.24	9.96
8	Mahakam Ulu	n.a	n.a	n.a	4.50	4.50
9	Murung Raya	7.27	7.29	7.47	6.91	7.24
10	Kapuas	5.85	6.48	6.79	7.03	6.54
11	Gunung Mas	6.57	6.29	6.87	6.42	6.54
12	Katingan	6.14	6.23	6.31	6.55	6.30
13	Barito Utara	7.93	6.23	8.13	3.74	6.50
14	Seruyan	4.82	5.16	6.23	5.37	5.39
15	Kapuas Hulu	4.12	4.75	5.23	3.97	4.51
16	Melawi	4.27	6.22	4.85	4.73	5.02
17	Sintang	4.79	5.6	6.47	5.36	5.55
Average		8.27	7.88	6.26	5.24	6.78

⁷BPS Indonesia. 2010-2015. *Kabupaten Dalam Angka* documents of 17 districts located in HoB area. Badan Pusat Statistik. Jakarta.

Table 5.6. Average of Human Development Index (HDI) and Gini Ratio in Heart of Borneo (2010-2015)⁸.

No	District	HDI	Gini Ratio
1	Nunukan	61.69	0.32
2	Malinau	68.75	0.29
3	Bulungan	68.09	0.25
4	Berau	70.67	0.31
5	Kutai Timur	68.55	0.32
6	Kutai Kartanegara	69.39	0.31
7	Kutai Barat	67.19	0.31
8	Mahakam Ulu	64.06	n.a
9	Murung Raya	64.82	0.29
10	Kapuas	64.36	0.29
11	Gunung Mas	67.27	0.24
12	Katingan	62.74	0.25
13	Barito Utara	64.87	0.33
14	Seruyan	62.49	0.29
15	Kapuas Hulu	66.92	0.31
16	Melawi	61.76	0.29
17	Sintang	66.16	0.31
Average		65.87	0.29



Local transportation
©WWF Indonesia

⁸BPS Indonesia. 2010-2015. *Kabupaten Dalam Angka* documents of 17 districts located in HoB area. Badan Pusat Statistik. Jakarta.



Dawn at Tekenang Village, Danau Sentarum National Park
©Deni Sofyan

6. Poverty

In view of poverty, in 2014, the number of recorded poor people in this region is approximately 8.25% (290,225 people) of the total population. Ironically, the highest number of this category at the period was resided in the District of Kutai Kertanegara, the richest district according to the annual budget. On the other the lowest number of poor people during the same period occurred in District of Murung Raya. With annual budget of less than a trillion IDR, the district, for some reasons, also set the threshold line for poor people higher than those in District of Kutai Kertanegara. Leading to the question as to why the richest district in HoB has failing to eradicate poverty.

The effort to eradicate poverty completely appeared to be modestly achieved. Over the period, the number of poor people in this region did not seem to change substantially. The distinctive achievement recorded occurred in 2011 when it was successfully dragged down the poverty from 2010 (Table 5.7).

7. Infrastructures

The Government of Indonesia since 2011 has planned to construct three lines of road across the four provinces in Kalimantan. The northern line about 1,647.3 km will be constructed parallel to the territory boundary of Indonesia with Sabah and Sarawak Malaysia. The central line of 1,680 km will be connecting Samarinda, the capital of East Kalimantan province to Pontianak, the capital of West Kalimantan province via central Kalimantan. The south line of 3,214.33 km will be connecting Samarinda to Pontianak and Malinau in the North Kalimantan via Banjarmasin, the capital of South Kalimantan province.

At the moment the government has been able to construct the east and part of south connection from District of Malinau to Samarinda and continue to Banjarmasin. Along with road construction the government is also constructing electricity, telecommunications, sanitation and clean water, ports and airports (Fig 5.2). This development in particular those located in HoB area obviously might cross some of the protected areas. Hence it is pivotal to have standard guidance for developing infrastructure in HoB. As Kalimantan has already a spatial plan valid until 2027 and similar plan is ongoing discussion for the HoB area, the development in the area has to follow this regulation.

Table 5.7. Number of poor people in districts (thousands people) located in Heart of Borneo (2010-2014)⁹.

No	District	2010	2011	2012	2013	2014	Average	Threshold Line for Poor People (IDR)
1	Nunukan	17.7	15.3	15.2	14.9	15.2	15.6	304,856
2	Malinau	9.6	8.3	8.3	7.2	7.3	8.1	428,015
3	Bulungan	16.6	14.4	14.3	14.2	14.5	14.8	322,878
4	Berau	11.9	10.3	10.3	9.7	9.8	10.3	396,482
5	Kutai Timur	29.3	25.3	25.2	27.2	27.2	26.8	397,482
6	Kutai Kartanegara	54.7	47.3	37.1	52.1	52.1	48.6	362,637
7	Kutai Barat	16.5	14.3	14.2	13.2	13.2	14.2	364,224
8	Mahakam Ulu	n.a	n.a	n.a	n.a	n.a	n.a	n.a
9	Murung Raya	6.9	6.2	5.96	6.8	6.8	6.5	364,994
10	Kapuas	23.4	21.2	20.7	21.2	21.2	21.5	246,679
11	Gunung Mas	7.8	7.9	6.7	7.3	7.2	7.4	341,141
12	Katingan	10.7	9.6	9.3	10.2	10.1	10.0	341,896
13	Barito Utara	8.7	7.9	7.6	7.5	7.4	7.8	385,348
14	Seruyan	14.0	12.6	12.3	14.2	14.2	13.5	338,969
15	Kapuas Hulu	24.1	23.7	22.5	26.4	24.26	24.2	323,790
16	Melawi	24.7	23.3	22.3	26.0	23.97	24.0	378,309
17	Sintang	35.5	33.5	31.6	39.0	35.73	35.1	389,160
Total		312.1	281.4	263.4	297.2	290.2	288.9	
Average		19.50	17.58	16.46	18.57	18.13	18.05	355,429

⁹BPS Indonesia. 2010-2015. *Kabupaten Dalam Angka* documents of 17 districts located in HoB area. Badan Pusat Statistik. Jakarta.



Headwater
©Erick Danzer



Fig. 5.2. Infrastructure (roads and airports) located in and near the boundary of Heart of Borneo

Source: WWF Indonesia

8. Community and Culture

The majority of local community in HoB area belongs to Dayak tribes, at least 19 tribes and more than 120 sub-tribes¹⁰. There are of course other community groups such as Malay or Malayu and Chinese origin or even Javanese who migrated in to the HoB in the early 1960's. As for the Dayak tribes, there are at least seven ethnic groups of Dayak community in the HoB area: Kayan, Kenyah, Iban, Penan or Punan, Lundayeh or Lun Bawang, Kelabit and Barito-Ngaju. They vary in languages, traditional knowledge, cultures and geographic location.

Dayak Barito-Ngaju in general lives in central part of Kalimantan and they are famous for having special spiritual ceremony. They usually perform a second funeral ceremony, months or year after the first funeral. Dayak Penan or Punan, live in east Kalimantan, known as nomad community and heavily rely on wildlife hunting and other forest resources for their subsistence. Sago or forest palm is their normal staples. The Iban community mostly live in west Kalimantan are famous for their ability in exercising *berladang*, traditional shifting agriculture, as well as *bejalai* (migrate to other area for better live and fortune).

The Kenyah and Kayan who live in North Kalimantan are famous for their talented in wood carving and producing accessories as well as dancing and playing music instruments. Last but not least, the Lundayeh who also live in in North Kalimantan is known for their expertise in developing



¹⁰Jacob WA, Riwut T. 1954. Peta Suku-Suku Dayak. Unpublished Document.

Long Alango, Kayan Mentarang National Park
©WWF Indonesia





CHAPTER VI: THE GREEN INITIATIVE

1. The Heart of Borneo Green Economy

Following the UNEP Initiative on Green Economy, released in 2008 and along with a series of international declarations and commitments e.g., UNEP Global Ministerial Environmental Forum in Nusa Dua, Bali in 2010, United Nation Resolution No. 64/236 on Green Economy in context with sustainable development and poverty alleviation, adopted in March 2010 and the Earth Summit in Rio de Janeiro, Brazil in 2012, WWF Indonesia and its family as well their partners since 2010 has discussed the idea of green economy concept for the HoB area.

Since then, WWF Indonesia and its family had produced a number of documents related to green economy, among other, are the “Roadmap for Green Economy in the Heart of Borneo: a Scoping Study” (2008), “Heart of Borneo: Investing in Nature for a Green Economy” (2010) (Box 6.1) and “A Partnership Approach to Economic Sustainability: Building A Green Economy for Borneo through Conservation and Sustainable Development in the Heart of Borneo (2010). The concepts were submitted to the National Working Group of HoB for further consideration.

Subsequent to the series of meeting on that matter, the idea then was formally presented by Indonesia to the 6th HoB Trilateral Meeting on 25-26 September 2012 in Kuching, Sarawak, Malaysia with the title “A Partnership Approach to Economic Sustainability: Building a Green Economy for Borneo through Conservation and Sustainable Development in the Heart of Borneo”. The concept was endorsed by member countries at the 8th HoB Trilateral meeting¹².

As mandated under the Act No. 32 of 2009 on Protection and Management of Environment in Indonesia, as well as commitment to the sustainable development in HoB, the Government of Indonesia - led by the Coordinating Ministry of Economic Affairs - in 2014 has issued the document entitled “Strategy for Developing the Heart of Borneo (HoB) through a Green

¹Report of the 6th HoB Trilateral Meeting on 25-26 September 2012 in Kuching, Sarawak, Malaysia.

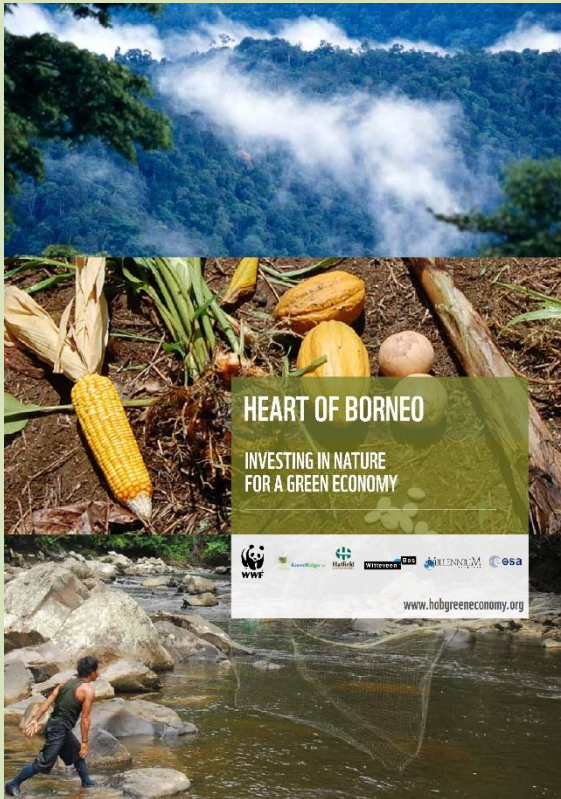
²Report of the 8th HoB Trilateral Meeting on 3-4 December 2014 in Palangka Raya, Indonesia.



Air transportation to places in the Heart of Borneo
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Economy (Box 6.2). This document was also showed the commitment of the Government of Indonesia to reduce emission from the greenhouse effect declared by Indonesia in 2008 and renewed in 2014.

Box 6.1. Heart of Borneo: Investing in Nature for a Green Economy



The document entitled “Heart of Borneo: Investing in Nature for a Green Economy” was presented in the 10th Conference of Parties of the Convention on Biological Diversity (CBD) 10 October 2010 in Nagoya, Japan. The document highlighted the HoB natural capital that must be valued and integrated into economic planning and decision making as well as identified various sources of finance to be explore to incentivize conservation efforts and green investment. It also provides options for optimizing economic growth while maintaining natural capital and its contribution to the climate

change. It offers the system dynamic economic model as one of the tool with the approach of stakeholder engagement and participatory process.

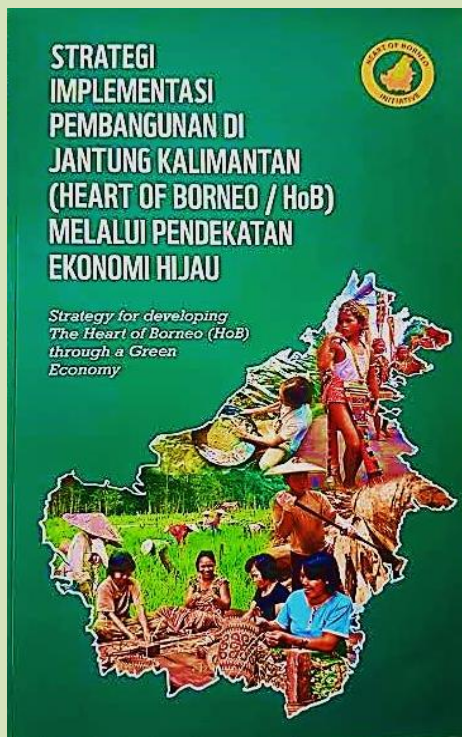
The document identified six clusters of Borneo economy: forest and it’s derivate, oil palm, freshwater fisheries, hydropower, mining and tourism. Based on these capitals the document presents the framework of analysis by grouping into eight scenario assumptions: spatial planning, forestry, oil palm plantation, mining, agriculture, energy, biodiversity based industries, and innovative green sectors. Simulation of spatial plan scenarios for 2009, 2020 (business as usual) and 2020 (Green Economy). The document suggests the green economy solutions by building biodiversity based economies, greening conventional sectors, encouraging innovative green sectors and cross-cutting solutions.

Box 6.2. The Concept of Green Economy of the Heart of Borneo

Dr. Irsyal Yasman

Under the supports of WWF Indonesia and GIZ Forclime in 2012, the Coordinating Ministry of Economic Affairs has established the expert team consisting of Prof. Dr. Akhmad Fauzi of Bogor Agricultural University (Institut Pertanian Bogor; IPB), Prof. Dr. Catur Sugiyanto of University of Gajah Mada, Prof. Dr. Sulimin Gumiri of University of Palangkaraya, Dr. Dian Patria of University of Tanjung Pura, Mr. Iman Kuncoro MSc of University of Mulawarman and Dr. Komara Djaya of University of Indonesia to develop the concept of Green Economy for the Heart of Borneo Indonesia. Following series of meetings and public consultations the draft of document was completed in January 2014.

In July 2014, upon the request of the National Working Group of HoB, the document was reviewed by Prof. Bustanul Arifin of University of Lambung Mangkurat and Dr. Irsyal Yasman, Director of Forestry State of Enterprise – PT Inhutani III. The document highlighted the need to underline sustainability and low carbon for four sectors: forestry, mining, large scale of agriculture and sustainable energy. Succeeding series of consultations in Palangkaraya and



Jakarta, the document entitled “Pembangunan di Jantung Kalimantan Melalui Pendekatan Ekonomi Hijau” (Strategy for Developing the Heart of Borneo Through a Green Economy) was completed and officially launched in Palangka Raya in December 2014 by Prof. Dr. Emil Salim and attended by governors and head of districts within the HoB area. This document marks the commitment of Indonesia to implement the concept of green economy.

2. Ecotourism

The first ecotourism cooperation meeting between West Kalimantan province of Indonesia and Sarawak was held in Jakarta in July 2002. That time the meeting was held under the umbrella of ITTO Project of Betung Kerihun Trans-Boundary Management Plan³. The meeting agreed to develop possible collaborative community ecotourism development between two sides such as training of ecotourism for communities who live along the border of the two countries. This was considered important at that time to reduce the tension between the two countries on the issues of illicit trading of forest products along the border of Kalimantan and Sarawak. However, for unknown reasons until the end of the ITTO Project Phase II, the cooperation was never materialized.

The issues reappeared in the 5th HoB Trilateral Meeting in Balikpapan Indonesia in 2011. This time Indonesia proposed a special discussion on the implementation of trans-boundary protected area management and its possible link to ecotourism development. The proposal received positive response from other member countries and requested Indonesia to revise the ToR and present the progress in the next Trilateral Meeting⁴. At the 6th HoB Trilateral Meeting, Indonesia reported that it has secured funding to support the proposal for ecotourism link in HoB through ITTO project entitled “Promoting Biodiversity Conservation in Betung Kerihun National Park as the Trans-boundary Ecosystem between Indonesia and State of Sarawak Malaysia (Phase III)”. The meeting also agreed set up joint committee and discuss the future development of cooperation on ecotourism which include Brunei Darussalam⁵.

Following the mandate of the 6th HoB Trilateral Meeting on ecotourism, the Joint Committee has met in Bandung on 29-30 January 2013 to discuss the implementation of trans-boundary collaborative ecotourism development. The meeting has also achieved to set up the joint technical committee on HoB Ecotourism (Box 6.3).

³The Implementation of a community-based transboundary management plan for the Betung Kerihun National Park, West Kalimantan, Indonesia. Phase II (ITTO PD 44/00 Rev. 3 (F)).

⁴Report of the 5th HoB Trilateral Meeting on 21-22 September 2011, Balikpapan, Indonesia.

⁵Report of the 6th HoB Trilateral Meeting on 25-26 September 2012, Kuching, Sarawak, Malaysia.

Cultural event to support ecotourism
© WWF Indonesia



Box 6.3. The First Meeting of the Heart of Borneo Joint Technical Committee on Transboundary Protected Areas⁶

The Joint Committee meeting was held on 29-30 January 2013 in Bandung, Indonesia and participated by delegates from Brunei, Indonesia and Malaysia as well as representative of both WWF Indonesia and Malaysia. The meeting presented the transboundary activity related to ITTO's funded project in Betung Kerihun National Park and lesson learned of implementation of ITTO project in Sarawak. The meeting concluded with the identification of possible joint activities to strengthen transboundary cooperation in park management, research and ecotourism and proposal for modalities, rules and procedures of proposed establishment of joint technical committee on the trans-border cooperation.

The result of the Joint Committee Meeting was reported to the 7th HoB Trilateral Meeting⁷. Subsequent to this event, Indonesia and Malaysia were able to set up the final draft Memorandum of Agreement (MoA) between Betung Kerihun National Park in West Kalimantan, Indonesia and Lanjak Entimau Wildlife Sanctuary and Batang Ai National Park in Sarawak, Malaysia and reported to the 8th HoB Trilateral Meeting in Palangka Raya, Indonesia⁸. In the attempt to accelerate the implementation of ecotourism link in HoB, at the 9th HoB Trilateral Meeting, Indonesia proposed to convene series of workshops on green ecotourism with the first one will be hosted in Indonesia.

On the matter of MoA on ecotourism for some reasons Malaysia requested to change the frame of work of agreement into Technical Arrangement (TA). The draft of TA was submitted for domestic clearance in both respective countries⁹. However, the draft was not returned to the next Trilateral Meeting (Box 6.4).

On 2-3 August 2016, the Indonesian HoB National Working Group, as mandated in the 9th HoB Trilateral meeting has successfully convened the 1st workshop on Green Ecotourism. The event was held in Tanjung Selor of North Kalimantan province. The results and recommendation of the meeting was reported to the 10th HoB Trilateral Meeting in Brunei Darussalam in September 2016 (Box 6.5).

⁶Report of the 1th Meeting of the Heart of Borneo Joint Technical Committee on Transboundary Protected Areas. Bandung, 29-30 January 2013.

⁷Report of the 7th HoB Trilateral Meeting on 4-5 September 2013, Bandar Seri Begawan, Brunei Darussalam.

⁸Report of the 8th HoB Trilateral Meeting on 3-4 December 2014, Palangka Raya, Indonesia.

⁹Report of the HoB Trilateral Meeting on 11-12 August 2015, Sandakan, Sabah, Malaysia.

Box 6.4. Challenges in Developing Heart of Borneo Ecotourism
by Cristina Eghenter

Ecotourism has been regarded by many NGOs as an important conservation and livelihood strategy. But ecotourism is more enterprise than conservation, and the market dimension of the enterprise needs strong attention. The business needs to be professionally run to generate revenues and contribute to the local economy in sustainable ways. This is the aspect that is often overlooked.

In parts of Kalimantan, under a wave of enthusiasm generated by visits to well-established and successful community ecotourism in Sabah, local people, supported by NGOs, decided to start to develop ecotourism in their communities. They held training sessions for local guides, opened homestays and drafted guidelines, and agreed on a common pricing policy. This created high expectations that however could not be immediately fulfilled. The development of ecotourism is a long-term process, it requires a strong network, knowledge of the market and the support of business experts. Moreover, in HoB, access to the interior remains unreliable and difficult, and hence it will take longer for a critical mass of tourists to visit unless specific subsidized flights are established.

If the development of ecotourism aims to be sustainable it needs to create lasting economic benefits and help preserve the biodiversity of the area. Moreover, it needs to be developed in ways that are appropriate, that is, to respect the local vision of development, minimize negative impacts towards the territory, culture, and society, and involve local people in the management of ecotourism activities. This way, a fair share of the business can be retained by local stakeholders.

The market and management dimensions of ecotourism can be best strengthened by means of fair partnerships between communities and the private sector, especially ecotourism operators. This is already happening in Kapuas Hulu and Central Kalimantan, and starting in Kaltara and East Kalimantan.

Hospitality is a strong and well-rooted tradition in HoB. This cultural tradition creates indeed a necessary and enabling condition for ecotourism, but, it is not enough to ensure the highest standards of customer care. The latter, with marketing, are probably two of the priority areas for capacity building of local people.

Box 6.5. The Heart of Borneo Green Ecotourism Workshop¹⁰

The Ecotourism workshop organized by the HoB National Workshop in collaboration with the North Kalimantan province and supported by WWF Indonesia was held on 2-3 August 2016 in the University of North Kalimantan, Tanjung Selor, North Kalimantan. The event aims to materialize one of the objectives or pillar of establishment of HoB: development of ecotourism in HoB. In concrete language the workshop targets to (1) promote scenic area and Bornean biodiversity rich of species and ecosystem located in a number of national parks in HoB, (2) enhance cooperation of member parties in promoting ecotourism (3) collaboration in capacity building for ecotourism development (4) generate sustainable livelihood through ecotourism programs and PES (Payment Ecosystem Services) scheme.

The workshop invited relevant institution in Malaysia and Brunei. However, only Director of HoB - WWF attended the meeting. Following ceremonial agenda, the meeting has presented a number of views related to the objective of the meeting such as government commitment to ecotourism programs in HoB, role of private sectors in developing this initiatives, the needs to have reliable infrastructure and supports and capacity building for local community as well as regulation to expedite the development. The workshop ended with a number of recommendations which include (1) establishment of Task Force on HoB Ecotourism with the mandate to develop Road map and business plan for Ecotourism, (2) strengthen commitment of member countries in developing ecotourism, (3) develop partnership with private sectors, (4) develop guidance and standard for ecotourism products in HoB, (5) develop a calendar of HoB ecotourism and prepare monitoring and plan of the impact on ecotourism.



¹⁰ Report of the HoB Green Ecotourism Workshop, 2-3 August 2016, Tanjung Selor, North Kalimantan, Indonesia.

Rice field landscape, Kayan Mentarang National Park
© WWF Indonesia





CHAPTER VII: THE RESOURCES

For decades, the engine economic of the districts in HoB area has been largely dependent on the productions and trades of natural resources which aims for exports and domestic supply. Recently, some of the districts have started to develop agro-based industries from middle to almost high-end quality products such as Medium Density Fiberboard (MDF) and oil palm derivate products. Nonetheless, up to 2014 most - if not all - districts development in the area were still relied on the exploitation of forest, mining and agricultural resources.

1. Forest Resources

During the 1960s to 1980s timber used to be the biggest business in Kalimantan. However, over the year forest resources are depleted heavily due its unsustainable harvest and also miss-management. In addition in the beginning of the third millennium, there was a dramatic conversion of forest in the island mostly for agro-industry purposes such as oil palm and rubber.

Based on the information collected from *Asosiasi Pengusaha Hutan Indonesia* (APHI), between 2009 to 2014 there were 43 logging concession companies (*Ijin Usaha Pemanfaatan Hasil Hutan Kayu-Hutan Alam; IUPHHK-HA*) recorded actively operated in HoB area. Some of the companies' areas were located in the single districts jurisdiction, others located in two or even three districts authorities. Over the period, 12 companies - due to economic and social problems - were recorded inactive or their permits were revoked. However, overall area managed by concession companies during the period appears to be increasing to reach 2,955,490 ha in 2014 compared to 2,767,045 ha in 2009 (Fig. 7.1¹; Fig. 7.2).

¹Asosiasi Pengusaha Hutan Indonesia. 2014. Unpublished Report.

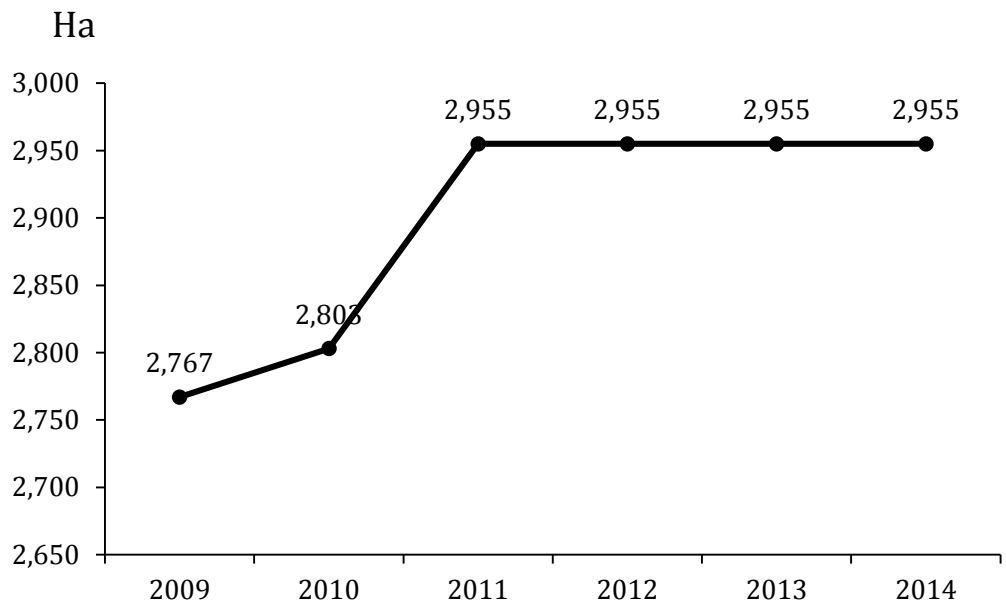


Fig. 7.1. The area (ha) of forest concession in Heart of Borneo area in 2009-2014.



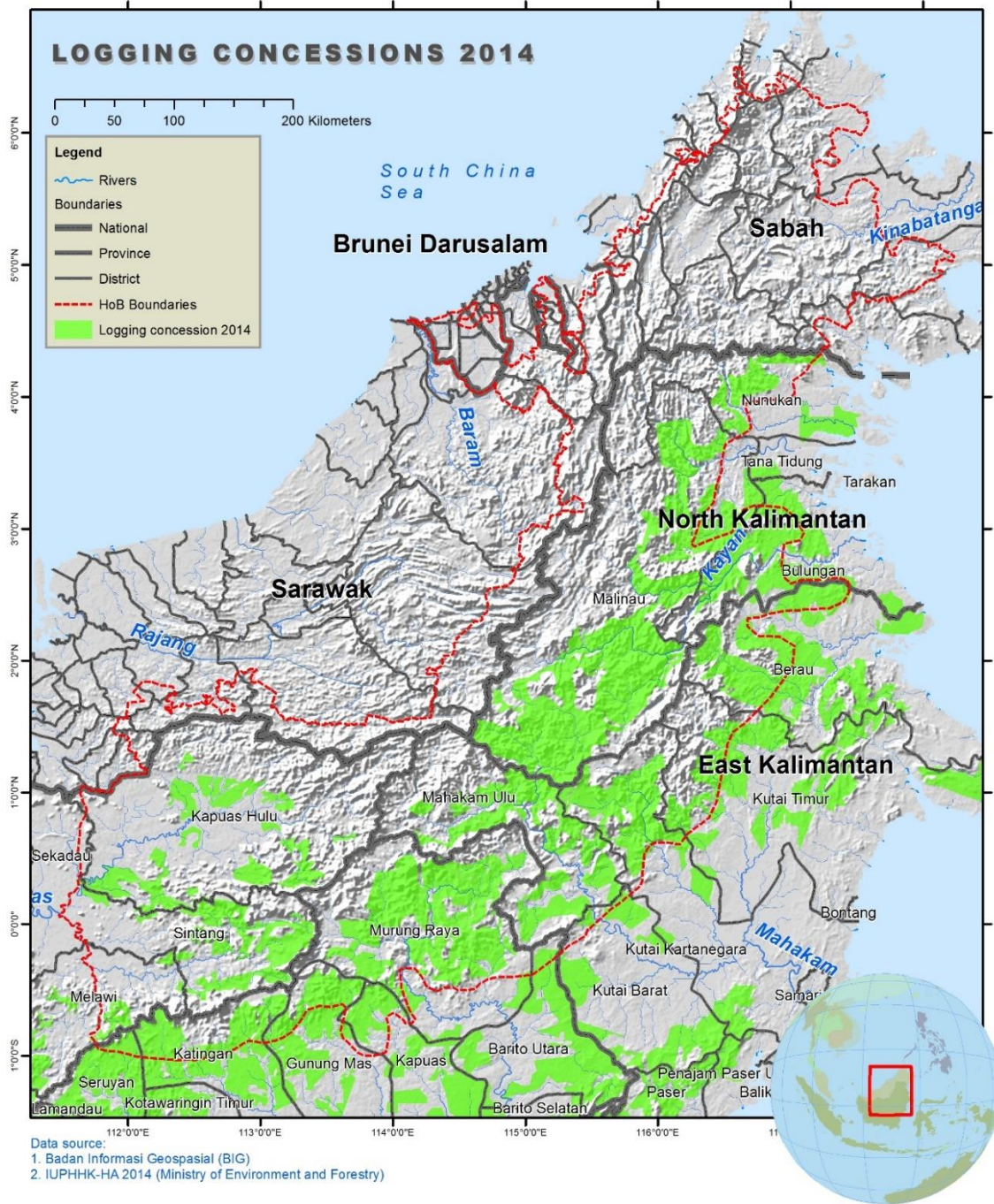


Fig. 7.2. Location of logging concessions (*Ijin Usaha Pemanfaatan Hasil Hutan Kayu-Hutan Alam*) within Indonesia's Heart of Borneo.

Source: WWF Indonesia

In term of timber production from logging concession, data were collected from two different sources, namely Directorate General Forest Utilization (Ministry of Forestry, in Jakarta), and Provincial Forest Services (*Dinas Kehutanan*) in each province within HoB. The data from Directorate General Forest Utilization showed a relatively stable over the period of 2009 to 2014, slightly increased in 2014. On the other hand, the data on timber production from Provincial Forest Services suggested a much higher volume (Fig. 7.3).

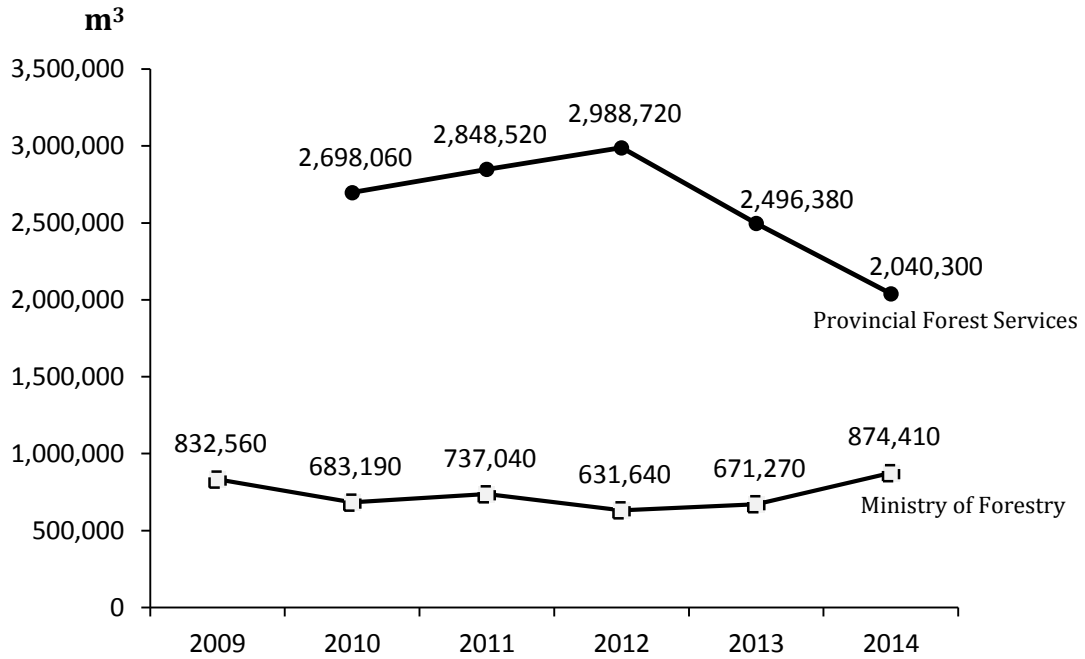


Fig. 7.3. Annual timber productions (m³) from forest concessions located in the Heart of Borneo area in 2009-2014, based on two different data sources.

In the mid1990s, the Ministry of Forestry has intensively issued permits of concession for timber plantation (*Ijin Usaha Pemanfaatan Hasil Hutan Kayu pada Hutan Tanaman Industri; IUPHHK-HTI*) operated in logged-over area and degraded forest. The purpose of issuing the *IUPHHK-HTI* was to replant the area by fast growing species for pulp and paper industries. In HoB area, up to 2012 the government has issued permits for 65 units of concession of timber plantation (*IUPHHK-HTI*) covering approximately 2,301,652 ha (Table 7.1 and Fig. 7.4),

Table 7.1 Annual issuance of concession by Ministry of Forestry for timber plantation area (*Ijin Usaha Pemanfaatan Hasil Hutan Kayu pada Hutan Tanaman Industri; IUPHHK-HTI*) for pulp located in districts within the Heart of Borneo area, 1992-2012².

Year	Annual Permit (ha)	Cummulative Permit Area (ha)
1992	127,980	127,980
1996	675,660	803,640
1997	213,890	1,017,530
1998	138,120	1,155,650
1999	20,500	1,176,150
2003	201,820	1,377,970
2004	272,150	1,650,120
2005	22,070	1,672,190
2006	11,280	1,683,470
2007	56,950	1,740,420
2008	25,400	1,765,820
2009	163,900	1,929,720
2010	115,460	2,045,180
2011	239,890	2,285,070
2012	16,600	2,301,670

Unfortunately, following the euphoria of democracy in Indonesia in 1998, most of the concession has encountered conflict and tenure problems with local communities and even some of the concession area were claimed as customary forest. Consequences, many of the companies were not operating properly or even some of them were only having permit without even started to do anything in the field. This case also occurred to those companies operated in the districts located in HoB area. Because of the said problems the productions of timber from plantation forest in HoB area declined to 45,207 m³ in 2015 from 1,328,937 m³ in 2012(Table 7.2).

²Dinas Kehutanan Propinsi Kalimantan Barat, Kalimantan Tengah, Kalimantan Timur dan Kalimantan Utara. 2011-2015. Unpublished Reports.

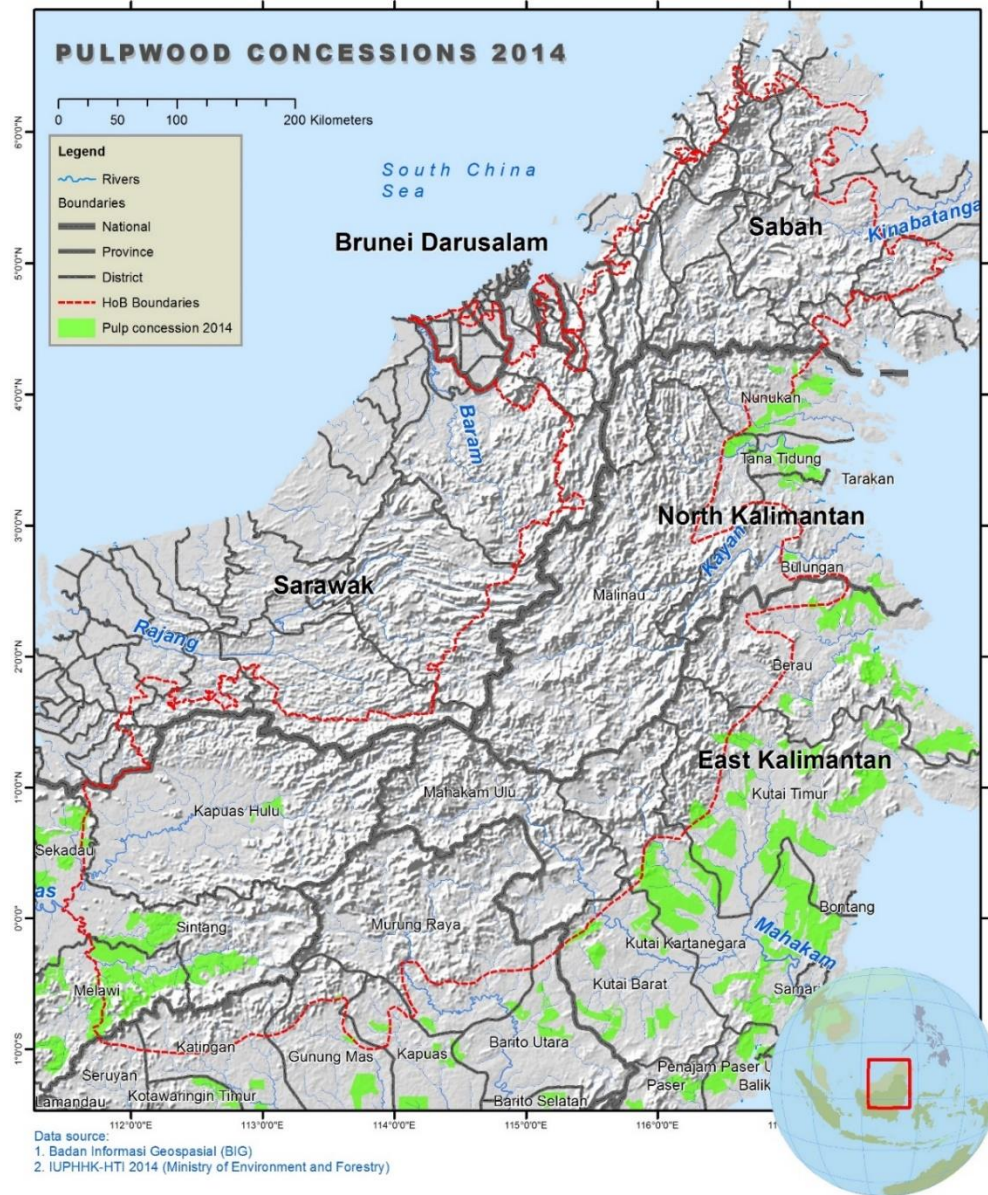


Fig. 7.4. Location of concession of plantation aims to produce pulp for paper industries in the districts located within Heart of Borneo.
 Source: WWF Indonesia

Table 7.2. Pulp productions from timber plantations located in districts within the Heart of Borneo, 2012-2015².

Year	Production (m ³)
2012	1,328,937
2013	102,115
2014	382,389
2015	45,207



Timber resources
©Erick Danzer

2. Coal

Following the sunset of forest industry in Kalimantan, mining in particular coal and gold, became a big business (Fig.7.5). Unfortunately, it was difficult to obtain data on gold mining as seemed of the mining were located spread out and some were operated by communities who live at nearby the mining areas.

As for coal mining, the extractions are operated by local companies as well as big scale companies. For the last two decades coal has becoming black gold business in Kalimantan including in the HoB area.

Under the Act No. 4 of 2009 pertaining Mineral and Coal and Ministerial Decree of Energy and Mining of Indonesia No.1409.K/ 201/M.PE/1996, there are two types of permit for exploiting coal in Indonesia, namely *IUP* (*Ijin Usaha Pertambangan*; permit for mining exploration). The issuance of *IUP* varies in accordance to the mining location, e.g., Mining area located in district the *IUP* will be issued by the head of district (*Bupati*). On the other hand if the mining area located across districts, the *IUP* will be issued by the governor and for mining area located across two or more province the permit will be the in the hand of Ministry of Energy and Mining.

The second type of permit is called as *PKP2B* (*Perjanjian Karya Pengusaha Penambangan Batubara*) Agreement on coal mining operation between the Government of Indonesia and international or national or joint venture private company). This is an old type permit issued prior to year 2000 or before the era of reformed government and was only issued upon the endorsement of *Dewan Perwakilan Rakyat-DPR* or House of People's Representative. To avoid environmental problems all mining permits shall be equipped by the environmental assessment process and will be under regular monitoring by the Ministry.

In view of *IUP*, up to 2014 there were 356 companies, ranging from small scale to big scale companies operated in HoB area, covering of 2,546,511 million ha of mining operation³. Unfortunately this study was only able to collect data from seven big scale coal concessions companies. From 2008 to 2014 the seven companies recorded to produce 302 million ton (Fig 7.8). As for the *PKP2B* permit until 2014 there were 24 coal joint venture companies operated in the HoB area, minus west Kalimantan, with the total concession of 360, 184 ha³.

³Directorate of Coal Mining of the Ministry of Energy and Mineral Resources (2014). Unpublished Document.

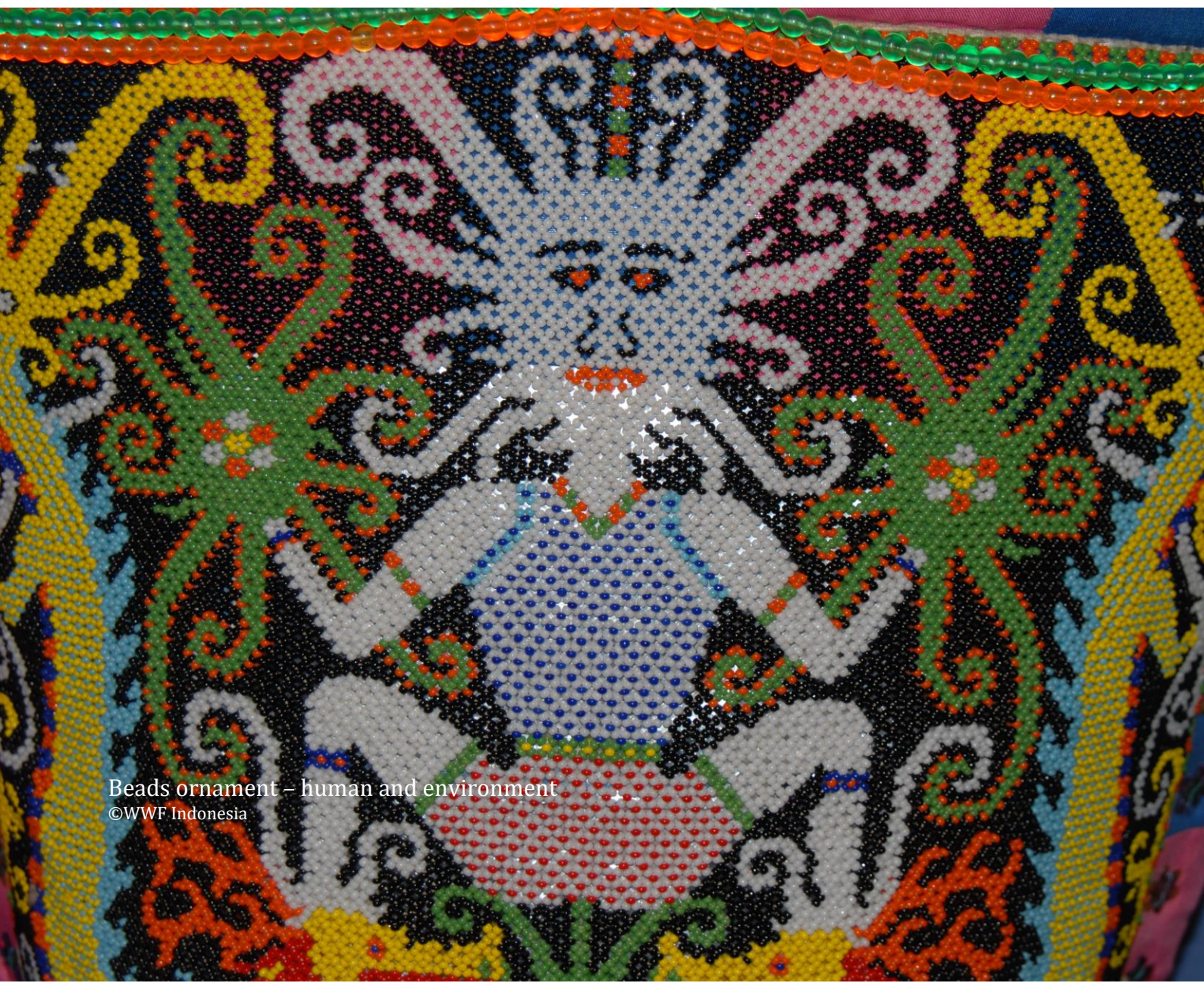
Their operations vary from within single district to more than two districts in the same province, or even in difference provinces. The total production of the concession under PKP2B for 2008-2014 was approximately 732 million tons of coal or more than double of those of seven recorded IUP productions (Table 7.3).

Table 7.3. Coal production in Heart of Borneo area from under two different permits, 2008-2014³.

Year	Production (million ton)	
	IUP*	PKP2B
2008	19.66	83.83
2009	16.64	94.54
2010	22.52	110.00
2011	46.33	119.70
2012	38.16	117.78
2013	82.65	147.36
2014	76.30	143.25

* IUP: Ijin Usaha Pertambangan

**PKP2B: Perjanjian Karya Pengusaha Penambangan Batubara



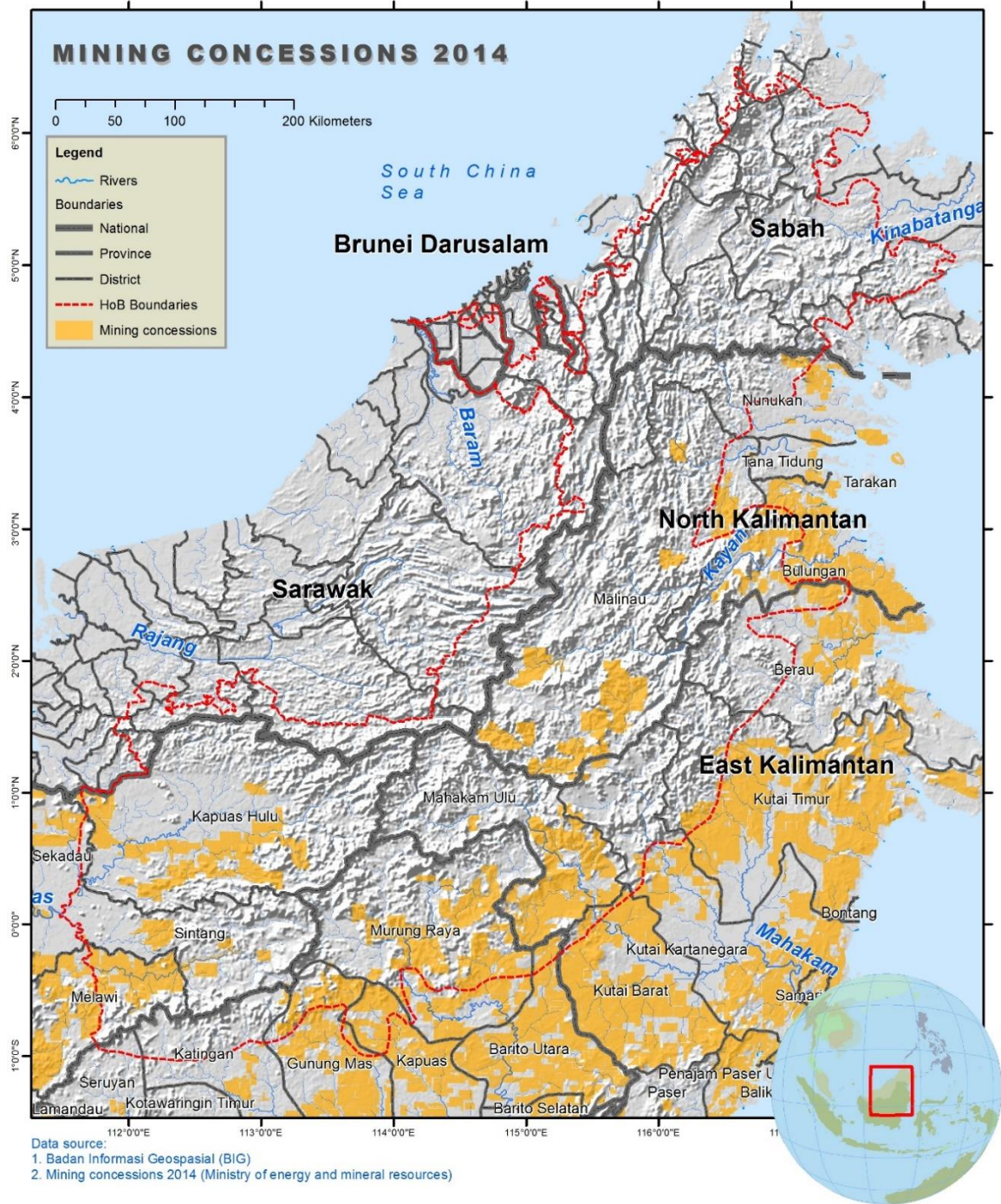


Fig. 7.5. Mining concession which include coal and gold operated within the Indonesia's Heart of Borneo².
 Source: WWF Indonesia

3. Plantation

There are four major types of commercial plantations occurring in the HoB area: oil palm, rubber, coffee and cacao. For the first type, the owners are divided into three categories: small scale plantation which normally owned by local community, state-owned companies, and private companies. The remaining types of plantation for some reasons are not clearly classed in such a way.

Oil Palm

In view of agriculture sector oil palm is the major agricultural industry in the HoB area and perhaps in Indonesia in general. The recent growing global commercial demand of this product for various purposes such as cooking oil, cosmetics and energy has driven the investment of oil palm industry in HoB. Over the years the area of oil palm plantation in HoB area was growing to approximately 1.6 million ha (2014) from about 900 thousand ha (2008).

The expansion of oil palm unfortunately was the cost of forest area. It also pressurized the government from district to national to keep changing the spatial plan for accommodating the expansion area for this plantation. The very aggressive development of oil palm plantation at the period occurred in the districts located in East Kalimantan province followed by those in Central Kalimantan province. The growth of expansion within this period was about 43.7%, an alarming number to the HoB area (Table 7.4; Fig 7.6).

Total production of oil palm in 2014 was 9.41 million ton with the biggest production of oil palm in HoB area came from districts located within the East Kalimantan provinces. Compared to those in East Kalimantan, the productivity of plantations in the remaining provinces for unknown reasons appears to be much lower (Table 7.5).

Table 7.4. Area of oil palm plantations located within the delineated Heart of Borneo, 2008-2014⁴.

Year	Area (ha)				Total
	North Kalimantan	East Kalimantan	Central Kalimantan	West Kalimantan	
2008	62,609	251,054	21,710	58,800	394,174
2009	68,551	332,419	55,595	96,928	553,494
2010	99,972	412,962	55,596	126,376	694,906
2011	106,837	534,171	386,642	134,435	1,162,085
2012	133,118	617,410	386,750	175,899	1,313,177
2013	156,664	737,428	416,589	214,912	1,525,593
2014	177,346	788,300	424,524	246,779	1,636,949

Table 7.5. Production of oil palm plantations located within the delineated Heart of Borneo, 2008-2014⁴.

Year	Production (ton)				Total
	North Kalimantan	East Kalimantan	Central Kalimantan	West Kalimantan	
2008	21,754	778,939	30,364	115,305	946,362
2009	65,451	1,257,980	38,964	117,982	1,480,377
2010	93,638	1,787,732	18,973	142,040	2,042,383
2011	389,764	2,648,399	392,157	149,707	3,580,027
2012	513,435	3,739,345	432,996	163,395	4,849,171
2013	698,683	6,493,109	388,281	172,295	7,752,368
2014	1,179,169	7,818,187	209,664	205,541	9,412,561
Total	2,961,894	24,523,691	1,511,401	1,066,265	30,063,251



Oil palm nursery
©Wiwin Effendy – WWF Indonesia

⁴BPS 17 districts within the HoB area from 2008-2014.

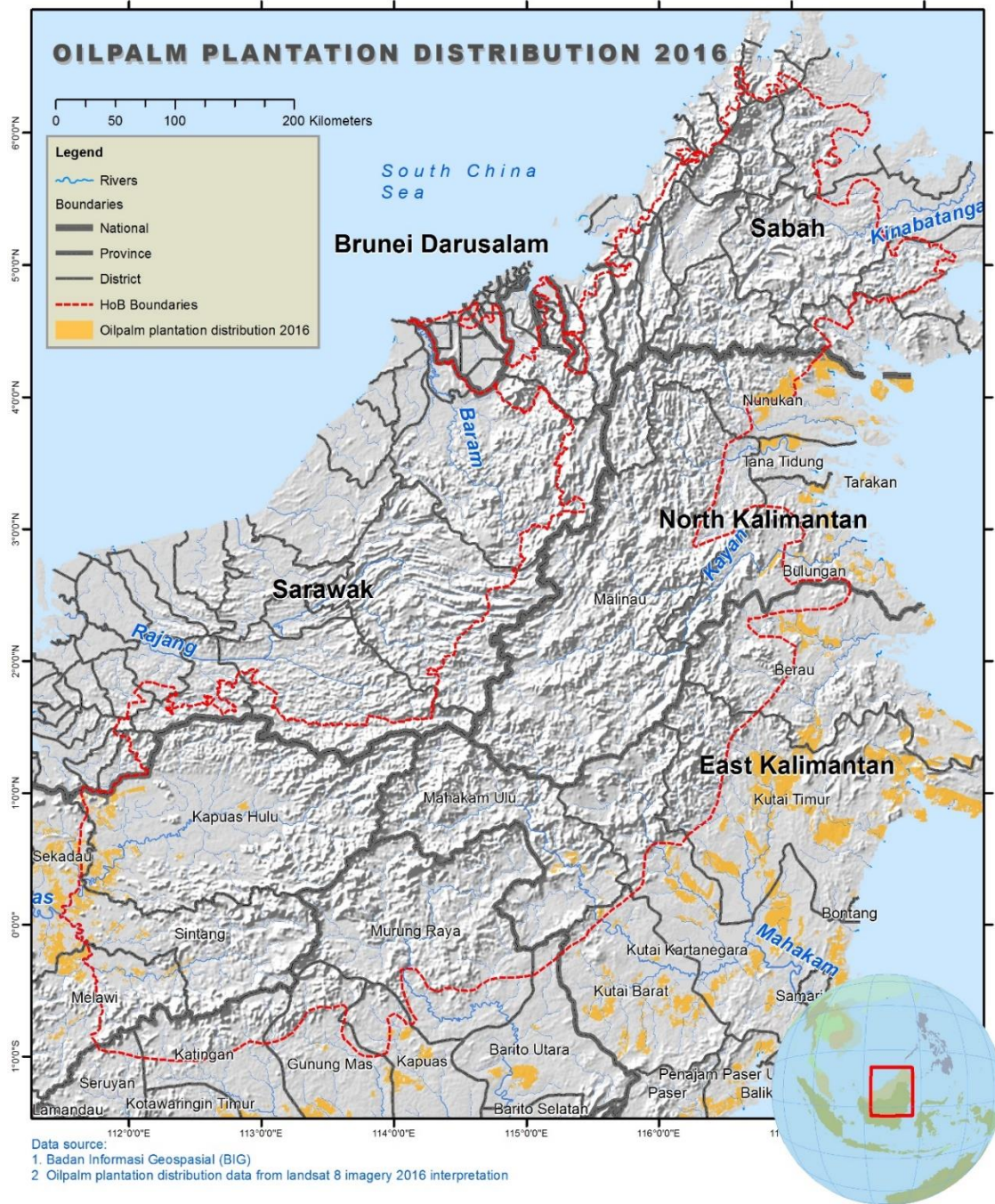


Fig. 7.6. Oil palm plantations located in districts within Heart of Borneo area.
 Source: WWF Indonesia



Rubber plantation
©Sugeng Hendratno – WWF Indonesia

Rubber

Latex used to be dependable livelihood products to financially support local community in Kalimantan. However, the recent declined of its price, due to the low and not comparable quality of their latex⁵, has hurting the local economy in the area including those who live in HoB area⁶. Up to 2014 the area of rubber plantations within the HoB area, has reached approximately 337,378 ha. The biggest area were located in the districts of West Kalimantan reaching 171,990 ha (Table 7.6).

The production of rubber from the plantations in HoB area in 2014 was reaching approximately slightly over 1 million tons. The highest productions came from plantations in West Kalimantan and followed those in East Kalimantan province. No information was available on production of the plantations from North Kalimantan province (Table 7.7).

⁵Prospek dan arah pengembangan agribisnis. 2015. Badan Litbang Pertanian, Kementerian Pertanian.

⁶Harga karet anjlok, tiga tahun ribuan petani menderita. 2015. Pro Kaltim. Kaltim. Prokal.co.

Table 7.6. Area of rubber plantations located within the delineated Heart of Borneo, 2008-2014⁷.

Year	Area (ha)				Total
	North Kalimantan	East Kalimantan	Central Kalimantan	West Kalimantan	
2008	468	56,004	68,752	149,048	274,272
2009	655	52,042	54,786	155,603	263,086
2010	862	53,608	54,786	159,416	268,672
2011	927	56,318	93,639	162,221	313,105
2012	1,753	61,797	93,639	164,376	321,565
2013	1,946	70,728	93,185	167,051	332,910
2014	1,986	83,021	80,381	171,990	337,378

Table 7.7. Production of rubber plantation located within the delineated Heart of Borneo, 2008-2014⁷.

Year	Production (ton)				Total
	North Kalimantan	East Kalimantan	Central Kalimantan	West Kalimantan	
2008	n.a.	34,774	45,953	61,241	141,968
2009	n.a.	34,767	30,782	62,741	128,290
2010	n.a.	34,974	39,006	64,849	138,829
2011	n.a.	51,430	52,944	65,707	170,081
2012	n.a.	40,807	52,404	68,059	161,270
2013	n.a.	46,561	38,766	69,131	154,458
2014	n.a.	47,398	30,303	70,172	147,873
		290,711	290,160	461,900	1,042,772

n.a.: data not available



Fishes for aquaculture
©Direktorat Jenderal KSDAE

⁷BPS 17 districts within the HoB area from 2008-2014.

Coffee

Indonesia was the four largest producer coffees in 2014⁸, after Brazil, Vietnam and Columbia. The famous Indonesian coffee are came from Sumatra, Java, Sulawesi, Bali, Sumba, Flores and Papua. Unfortunately, none of coffee from Kalimantan is in high demand. However, not to surprise there are considered large coffee plantations in the area including those in HoB area.

Up to 2014, there were almost 6,000 ha coffee plantation across the area of HoB. The biggest plantation area occurs in East Kalimantan, followed by North Kalimantan provinces. Nonetheless, entire picture of coffee area in HoB from 2008 to 2014 was declining, perhaps because of its less competitive with oil palm and other agricultural products⁹ (Table 7.8).

The overall feature of coffee production from HoB area during the same period was juggling. The production of East Kalimantan province which manages the largest coffee plantation appears to be free fall to 281 tons (2014) from 1,665 tons (2008). On the contrary there is a steady increased, at least for the last two years, of production from the North Kalimantan province (Table 7.9).

Table 7.8. Area of coffee plantations located within the delineated Heart of Borneo, 2008-2014¹⁰.

Year	Area (ha)				Total
	North Kalimantan	East Kalimantan	Central Kalimantan	West Kalimantan	
2008	5,622	6,170	2,456	483	14,731
2009	5,864	5,929	2,456	478	14,728
2010	3,328	4,415	2,456	481	10,680
2011	3,293	4,229	2,548	482	10,552
2012	2,808	3,974	2,548	461	9,791
2013	1,158	3,423	2,450	429	7,460
2014	1,225	3,096	1,191	423	5,935

⁸ [http://www.ico.org/trade statistic](http://www.ico.org/trade%20statistic)

⁹ Utomo, R.S. 2014. Kelayakan Industri Kopi di Propinsi Kalimantan Barat. *Jurnal Bina Praja- Journal of Home Affairs Governance*. Vol. 6 (3) p. 205-215.

¹⁰ BPS 17 districts within the HoB area from 2008-2014.

Table 7.9. Production of coffee plantation located within the delineated Heart of Borneo, 2008-2014¹⁰.

Year	Production (ton)				Total
	North Kalimantan	East Kalimantan	Central Kalimantan	West Kalimantan	
2008	893	1,665	696	137	3,392
2009	959	1,342	396	132	2,829
2010	415	1,206	479	135	2,235
2011	350	1,340	758	140	2,588
2012	285	1,061	779	137	2,262
2013	678	480	858	117	2,133
2014	745	281	520	104	1,651
	4,325	7,375	4,489	902	17,093



Young coffee beans
©Ani Mardiastuti

Cacao

Most of cacao plantation in Kalimantan including in HoB area are belonging to and managed by local community^{11,12}. There is not too clear the history of cacao plantation in Kalimantan. However, for years the product has been associated with local economy. Up to 2014, there were 20,434.5 ha of cacao plantation in the HoB area, a considered relative small area compare to those of oil palm and rubber but much larger then the area of coffee. Originally, the biggest area of this plantation occurred in districts located within the East Kalimantan province, though over the year it was steadily declining. On the other hand plantation area in North Kalimantan province seems to be picking up. The other two provinces in the HoB area appeared to be not too interested in developing cacao business (Table 7.18).

On the contrary to the scale of plantations area, the productivity of cacao plantation in East Kalimantan province, which managed the largest area, indicated lower than those of North Kalimantan. Nonetheless, the total production of cacao from HoB area in 2014 was about 17,787.3 tons or almost triple from those in 2008 (6,135 tons) (Table 7.10).

The three agriculture commodities (rubber, coffee and cacao) even though was not native species to Kalimantan island, they were associate long ago with local community and became the dependent livelihood for them. This is also the case for community who live in the border of the HoB area in particular the Malay community who are more open to introduction from the outsider (Fig. 7.7).

Table 7.10. Area of cacao plantations located within the delineated Heart of Borneo, 2008-2014¹³.

Year	Area (ha)				Total
	North Kalimantan	East Kalimantan	Central Kalimantan	West Kalimantan	
2008	3,652	14,920	442	342	19,356
2009	3,908	14,091	449	338	18,786
2010	4,055	12,341	450	383	17,229
2011	4,540	12,380	518	534	17,972
2012	10,924	10,912	516	496	22,848
2013	10,817	10,426	517	481	22,241
2014	10,273	9,202	569	390	20,434

¹¹Gernas Kakao. 2015. Pendampingan Program Gerakan Nasional (GERNAS) Kakao di Kalimantan Barat. BPTP. Kalimantan Barat. Badan Penelitian dan Pengembangan Pertanian. Kementerian Pertanian Republik Indonesia.

¹²Dinas Perkebunan Kalimantan Timur. 2015. Unpublished Report.

¹³BPS 17 districts within the HoB area from 2008-2014.

Table 7.11. Production of cacao plantation located within the delineated Heart of Borneo, 2008-2014¹³.

Year	Production (ton)				Total
	North Kalimantan	East Kalimantan	Central Kalimantan	West Kalimantan	
2008	692	5,219	131	93	6,135
2009	732	5,062	65	88	5,948
2010	742	6,464	141	96	7,443
2011	743	5,501	154	98	6,496
2012	3,162	5,103	151	73	8,489
2013	8,330	6,074	155	70	14,630
2014	13,609	3,968	137	73	17,787
Total	28,010	37,392	936	591	66,929



Harvesting cacao
©Sugeng Hendratno

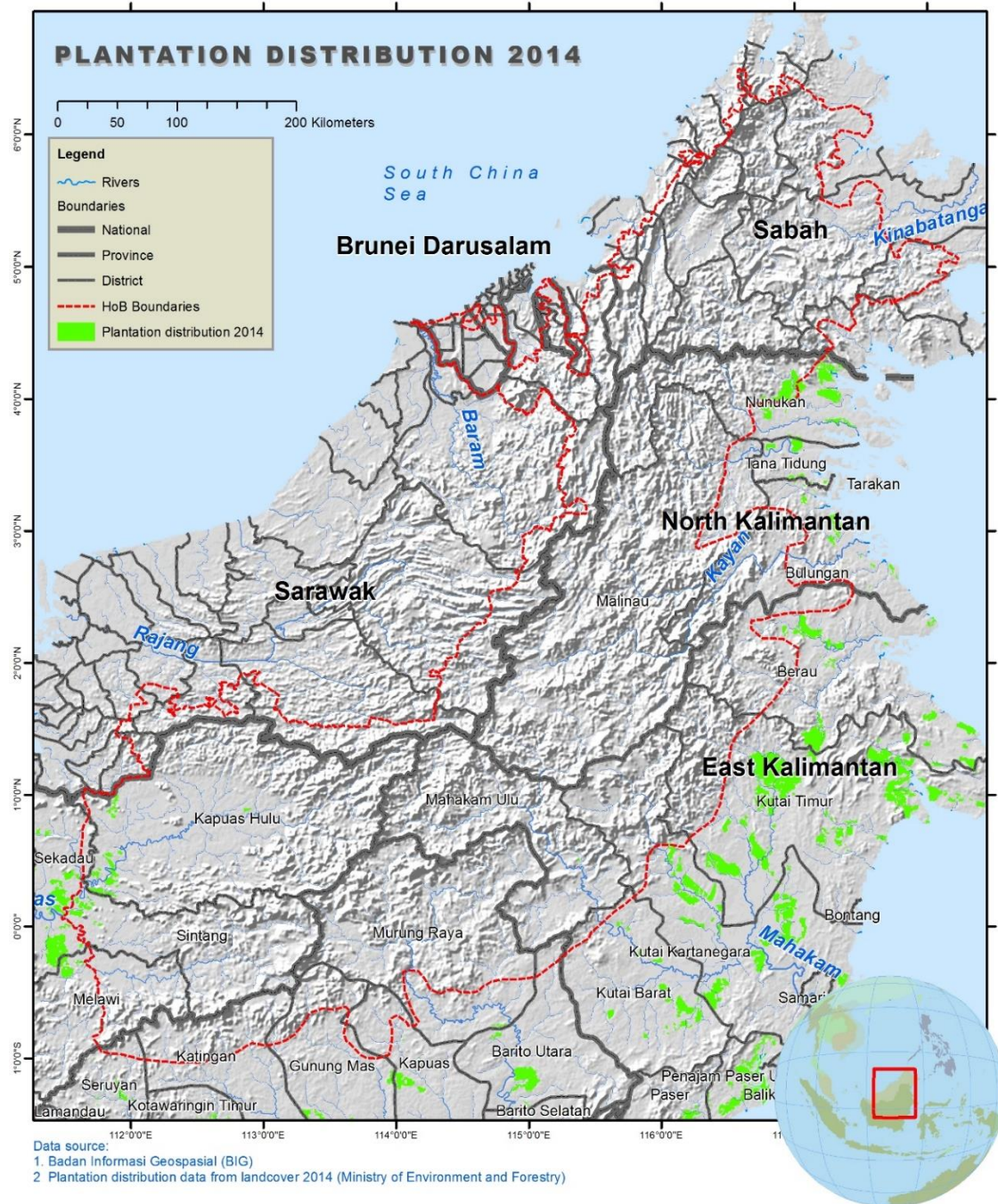


Fig. 7.7. Distribution of plantations other than oil palm (rubber, coffee and cacao) in the districts located in Heart of Borneo area.
Source: WWF Indonesia



CHAPTER VIII: FINANCING THE HEART OF BORNEO

Despite a seemingly abundant annual funding available in each districts located in Heart of Borneo (HoB) area, most of the budget in the districts appeared to be allocated for basic infrastructure, health and education in their own administrative areas. Therefore financial support to materialize the HoB programs in particular related to sustainable management of forest and biodiversity adopted in Strategic Plan is still a challenge. For years funding to support such a program was largely depended on international donors or agencies and charities channeled through civil society such as WWF Indonesia, German Government through GiZ (Deutsche Gesellschaft für Internationale Zusammenarbeit - German Corporation for International Cooperation) and USAID (US Agency for International Development) via Yayasan Keanekaragaman Hayati (KEHATI) Indonesia.

The first investment on the initiative of connectivity across the Borneo of important ecosystem in placed in 1993 when International Tropical Timber Organization (ITTO) supported the trans-boundary project “Development of Bentuang Karimun Nature Reserve as a National Park”¹. The ITTO funding for this initiative extended to other part of Borneo connecting Kayan Mentarang National Park with Pulong Tau National Park in Sarawak and Ulu Padas Forest Concession in Sabah², both of them are located in Malaysia.

To strengthen the connectivity collaboration, to date ITTO is still supporting Betung Kerihun National Park through the third phase³. Further, as the HoB idea was officially launched in 2007, the supports from a number of donors for the HoB programs started appearing, in particular through WWF Indonesia. Unfortunately, the funding scheme seemed to be not in sustainable means (Box 8.1). The following sections describe summary supports for HoB programs.

¹ITTO PD 26/93. Rev.1 (F): Development of Bentuang Kerimun Nature Reserve as National Park (Phase I).

²ITTO PD 38/00. Rev. 1 (F): Management of Kayan Mentarang National Park to Promote Transboundary Conservation Along the Border Between Indonesia and Malaysia, State of Sabah and Sarawak.

³ITTO PD 617/11. Rev 1 (F): Promoting Biodiversity Conservation in Betung Kerihun National Park (BKNP) as the Trans-Boundary Ecosystem between Indonesia and State of Sarawak Malaysia (Phase III).



Reaching the target
©WWF Indonesia

Box 8.1 Sustainable Funding for the Heart of Borneo

The needs for having sustainable financing for the Heart of Borneo (HoB) had been raised by Indonesia at the third HoB Trilateral Meeting in Sabah 2009. At that time Indonesia was proposing to develop the funding scheme through REDD+ mechanism and brought the idea to the side event of the 15th Conference of Parties of United Nations Framework Convention on Climate Change (UNFCCC) per country bases. However, since the modalities and institutional arrangement within the HoB has not yet established, the idea for sustainable financing not really a passionate matter, rather complicated issues among parties.

The idea then reemerged during the international workshop on corridor held in November 2015 in Kuching, Sarawak, and Malaysia. At that time, the Asian Development Bank (ADB) brought back the idea by proposing endowment fund scheme taken from a joint HoB project developed by parties. Perhaps because it needed internal and cross party arrangement in HoB, once again the initiative was not eagerly responded by the participants of the workshop.

1. WWF Indonesia

As the facilitator of the HoB creation, WWF Indonesia since the beginning has been a major supporter and leader of HoB development in Indonesia. Even following the handover of the HoB initiative to the Government of Indonesia; since the signing of Trilateral Agreement and officially launching the HoB programs in Denpasar, Bali Indonesia in 2007, WWF Indonesia continued to provide supports and facilitate the implementation of the HoB programs. In 2010 WWF Indonesia in collaboration with the HoB National Working Group has also conducted a special study on feasibility assessment for financing of the HoB. The study produces six recommendations (Box 8.2). WWF Indonesia along with the HoB National Working Group has convened a number of meetings in 2010 and 2011 to discuss the possibility of having HoB Trust Fund. Up to the 2016 WWF Indonesia continues to fund raise at domestic and global to support the HoB initiative.



Box 8.2. Feasibility Assessment for Financing the Heart of Borneo Landscape⁴

WWF Indonesia and the HoB National Working Group in 2010 have contracted Starling Resources Asia to conduct a feasibility analysis for financing the HoB area. The aim of the study is to find the best options and recommendation for ensuring future management and financing strategies to support the HoB. Nonetheless the recommendations from this study appear to be normative and required further analysis; (1) align the HoB Strategies with national development strategic plan and action, (2) understanding financial requirements and implication of HoB initiative, (3) develop HoB business plans which covers Brunei, Indonesia, Sabah and Sarawak, (4) strengthen enabling conditions, (5) leverage regional political forum and (6) pursue a joint responsible tourism.

The sources funding of WWF Indonesia allocated to HoB are among others; ITTO, WWF Family such as WWF US, WWF Germany, WWF Switzerland, WWF Netherlands, WWF France, WWF UK, WWF Japan, WWF Australia, WWF Sweden, WWF Denmark and WWF Singapore and Government Aid Agency which provide support to WWF Indonesia. The total funding facilitated by WWF Indonesia up to 2015 was USD 16.84 million (Fig 8.1).

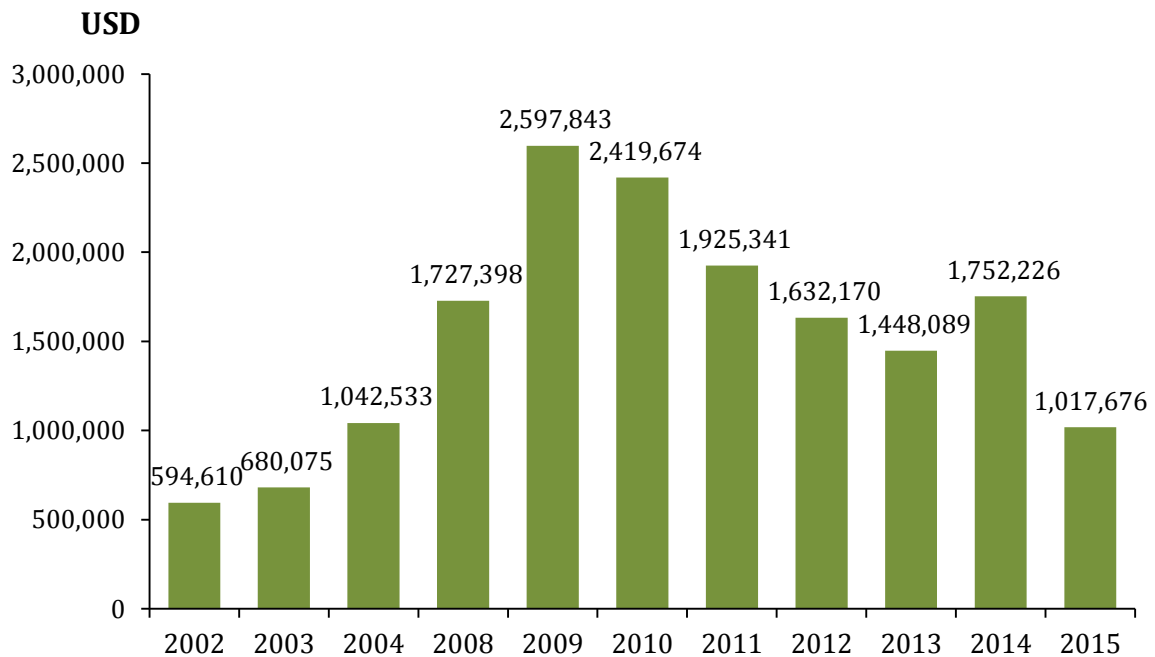


Fig. 8.1. Funding support to Heart of Borneo Indonesia facilitated by WWF Indonesia. Data are not available for the year 2005-2007⁵.

⁴WWF Indonesia 2011. Feasibility Assessment Report for Financing the Heart of Borneo Landscape.

⁵WWF Indonesia. 2015. Financial Support to HoB. Unpublished Document.

2. National Budget

A reasonable amount of funding was allocated annually to institutional unit operated in the province and districts. For the case of Ministry of Forestry such funding was allocated for supporting national parks and monitoring annual harvest of timber and non-timber forest products, managing watershed and re-forestation and land rehabilitation (Table 8.1). This type of budget was come from the annual National Development Budget (*Anggaran Pendapatan dan Belanja Negara*; APBN) directly channeled to the regional office in the provinces and districts. Unfortunately, it was difficult to collect similar data from other sectors.

As for the Ministry of Forestry programs, during the period of 2010 to 2015 it has been able to allocate budget for the HoB area of approximately IDR 10 trillion. Except for funding to the national parks; it did not quite clear how this type of funding was managed. Those allocated to regional unit for rehabilitation normally was managed by their own but the activities are spread out within the selected districts in HoB.

Table 8.1. Funding allocated to national parks and Regional Unit for Forest Rehabilitation and Degraded Land in 17 districts located in Heart of Borneo, 2010-2015^{6,7}.

Year	Contribution (IDR)
2010	94,914,910,010
2011	97,240,131,011
2012	103,165,396,012
2013	107,657,782,013
2014	125,269,854,014
2015	104,346,105,015



On the edge
©M. Ilyas

⁶APBN Taman Nasional Kayan Mentarang, Bukit Baka-Bukit Raya, Danau Sentarum dan Betung Kerihun 2010-2015.

⁷APBN BPDAS seluruh Kalimantan 2010-2015.

Togetherness
©WWF Indonesia





3. District Budget

As indicated in Chapter 5, the average annual budget of districts within the HoB for the period of 2010 to 2014 ranged from IDR 500 billion to IDR 5 trillion. The total annual funding for each district also was increasing over the year (Table. 8.2). This showed the seriousness of government in developing the districts within the HoB area. Unfortunately, there was no information on budget allocation for developing and maintaining the HoB initiative such as coordination among districts and capacity building for sustainable management of resources. Perhaps, the majority of funding was allocated for infrastructure and economic development.

Table 8.2. Total annual budget (*Anggaran Pendapatan dan Belanja Daerah; APBD*) of the 17 districts located in Heart of Borneo area⁸.

Year	Total APBD (IDR)
2010	16,524,625,805,121
2011	22,032,029,697,470
2012	22,242,257,588,591
2013	21,783,315,585,539
2014	25,796,635,478,556
2015	28,506,562,733,190

⁸BPS. 17 Kabupaten Dalam Angka di Wilayah HoB. Data diolah

4. GIZ FORCLIME

In the effort to assist the government of Indonesia in reducing gas emission from LULUCF (Land Use, land-use change and Forestry) sector and to conserve forest biodiversity and to implement sustainable forest management within the HoB region, the German government through KfW (Kreditanstalt für Wiederaufbau; the German government-owned development bank, based in Frankfurt) since 2011 has committed to finance the Forest and Climate Change Programme (FORCLIME) of Euro 20 million. The funding was channeled through the Ministry of Environment and Forestry (formerly the Ministry of Forestry) and allocated for the said objectives in three districts in HoB namely Malinau, Berau, and Kapuas Hulu (Fig. 8.4).

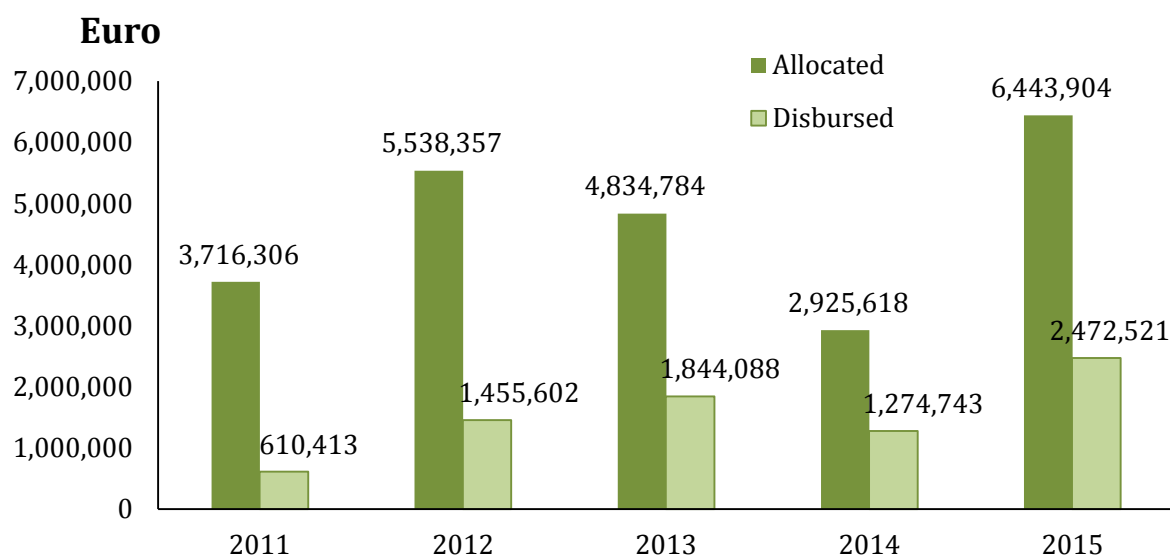


Fig. 8.2. Annual budget (in million Euro) and disbursement of FORCLIME (Forest and Climate Change Programme), allocated through the Ministry of Forestry (now Ministry of Environment and Forestry), 2011-2015⁹.

⁹GIZ-FORCLIME Project in the Ministry of Environment and Forestry. 2017. Unpublished Document.



5. Asian Development Bank and The World Bank

In cooperation with the Ministry of Forestry, the Asian Development Bank (ADB) since 2014 has agreed to support the HoB programs through project of Sustainable Forest and Biodiversity Management in Borneo of Indonesia. The project has a duration of three years starting August 2014.

With a total funding of USD 4.477 million, the project is financed by three donors: GEF (USD 2.527 million), Climate Change Fund (USD 1.250 million) and Regional Cooperation and Integration Fund (RCIF; USD 700,000). This project has three components: (a) capacity building on sustainable management of forest and its biodiversity in Borneo part of Indonesia, (b) developing pilot model which include carbon and non-carbon in two districts - Malinau and Kapuas Hulu, and (c) supporting the implementation of management plan of two national parks in HoB - Kayan Mentarang National Park and Betung Kerihun National Park.

In addition, in 2010 the ADB team up with Multilateral Development Bank (MDBs), the International Bank for Reconstruction and Development (IBRD) and International Finance Cooperation (IFC) had agreed to partner with Indonesian Government to set up a Forest Investment Program (FIP) under the scheme of Strategic Climate Fund. The project worth of approximately USD 77.7 million is targeted to support the effort of reducing emission from deforestation and forest degradation and enhancement of carbon stocks (REDD+) and (for the case of Indonesia) will be channeled through the development of Forest Management Unit (FMU). The ADB's FIP Indonesia grant (USD 17 million) will be concentrated in Districts of Kapuas Hulu and Melawi of West Kalimantan Province while the World Bank grant (USD 22 million) will be focused in East Kalimantan Province. It took almost five years for the FIP Indonesia to prepare project documents acceptable to relevant stakeholders and endorsement from the government, to select the pilot areas and to set up the project management. In 2016 the FIP Indonesia was in the stage of selecting the consultant to run the project.

Looking from a better angle
©Franky Zamzani



6. Tropical Forest Conservation Action Kalimantan

The Tropical Forest Conservation Action (TFCA) Kalimantan is a debt swap cooperation program between Indonesia and the United States of America for forest conservation in Kalimantan. This cooperation was also consorting with The Nature Conservancy (TNC) and WWF Indonesia swap partners. The TFCA Kalimantan, which has been agreed by the government of Indonesia in 2012, facilitates a number of conservation programs such as restoration ecosystem, sustainable management of forest, conservation of endangered species, as well as reducing carbon emission from deforestation and forest degradation (REDD+).

Part of the TFCA Kalimantan funding (USD 8,961 million) will be allocated to save the biodiversity and forest within the HoB area. Focus activity in HoB will be in four districts: (a) Districts of Kutai Barat and (b) Districts of Mahakam Ulu to save and conserve the very endangered species in Kalimantan - Sumatran Rhino, (c) District of Berau to implement the REDD+ program, and (d) District of Kapuas Hulu for sustainable funding from non-timber forest products. Following the completion of support management and infrastructure, the project has departed to work in the field in 2014 and expected to end in 2019 (Fig. 8.5)¹⁰.

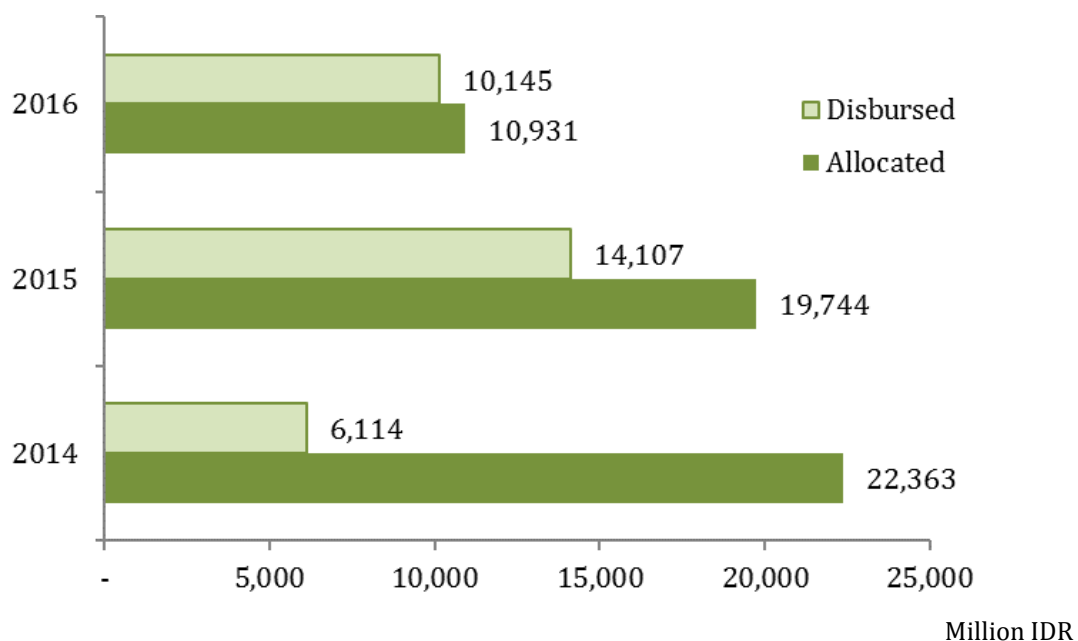


Fig. 8.3. Tropical Forest Conservation Action Kalimantan funding commitment and disbursement for four districts in Heart of Borneo, 2014-2016¹¹.

¹⁰TFCAkalimantan.Org 2017

¹¹KEHATI TFCA Admin. 2017. Unpublished report



Path to a better future
©Direktorat Jenderal KSDAE



CHAPTER IX: CORRIDOR INITIATIVE

In order to ensure genetic flow and to maintain genetic variation of biodiversity within the HoB area, WWF Indonesia, as the major supporter of the HoB, since 2005 has drafted the idea of connectivity among the protected areas within the region through a corridor system. Later, to lure the support of the stakeholders in the area, in particular local authorities, the notion was enriched by integrating the concept of green economic into the corridor system. Hence, the corridor concept not only focusing on conservation biodiversity but also embraces the sustainable development and low carbon growth along the corridor.

1. Corridor Labian-Leboyan

The first biodiversity and green economic corridor in the western part of HoB is Labian-Leboyan, located in the District of Kapuas Hulu, West Kalimantan Province (Fig 9.1). This corridor connected two national parks: Betung Kerihun in the north and Danau Sentarum in the southern part. The two National Parks are located in the same watershed system namely Kapuas and sub-watershed Labian-Leboyan. The idea was initiated in 2005 through number of studies such as biodiversity, social and economic, the later was done particularly in the buffer zone of the two National Parks. The studies was categorized into seven thematic issues; (a) social, (b) climate change, (c) ethnobotany, (d) ecology, (e) carbon, (f) freshwater fisheries and (g) biodiversity corridor.

This initiative was extensively deliberated before the decision makers and counselors (Counselor; *Dewan Perwakilan Rakyat Daerah*) as well as relevant stakeholders in the districts. In 2014 the corridor was integrated into district spatial plan through a District Regulation no. 1/2014. The regulation indicated that Labian-Leboyan corridor was adopted to accomodate the objectives as (a) hydrological protection for sub-watershed Labian-Leboyan, (b) biodiversity corridor, (c) green economic development and (d) preserving local social-culture. In 2016, the corridor was adopted as the strategic development area of District of Kapuas Hulu¹ (Box 9.1).

¹Tjiu A. 2016. Proses Penetapan Koridor Labian-Leboyan. WWF Indonesia.

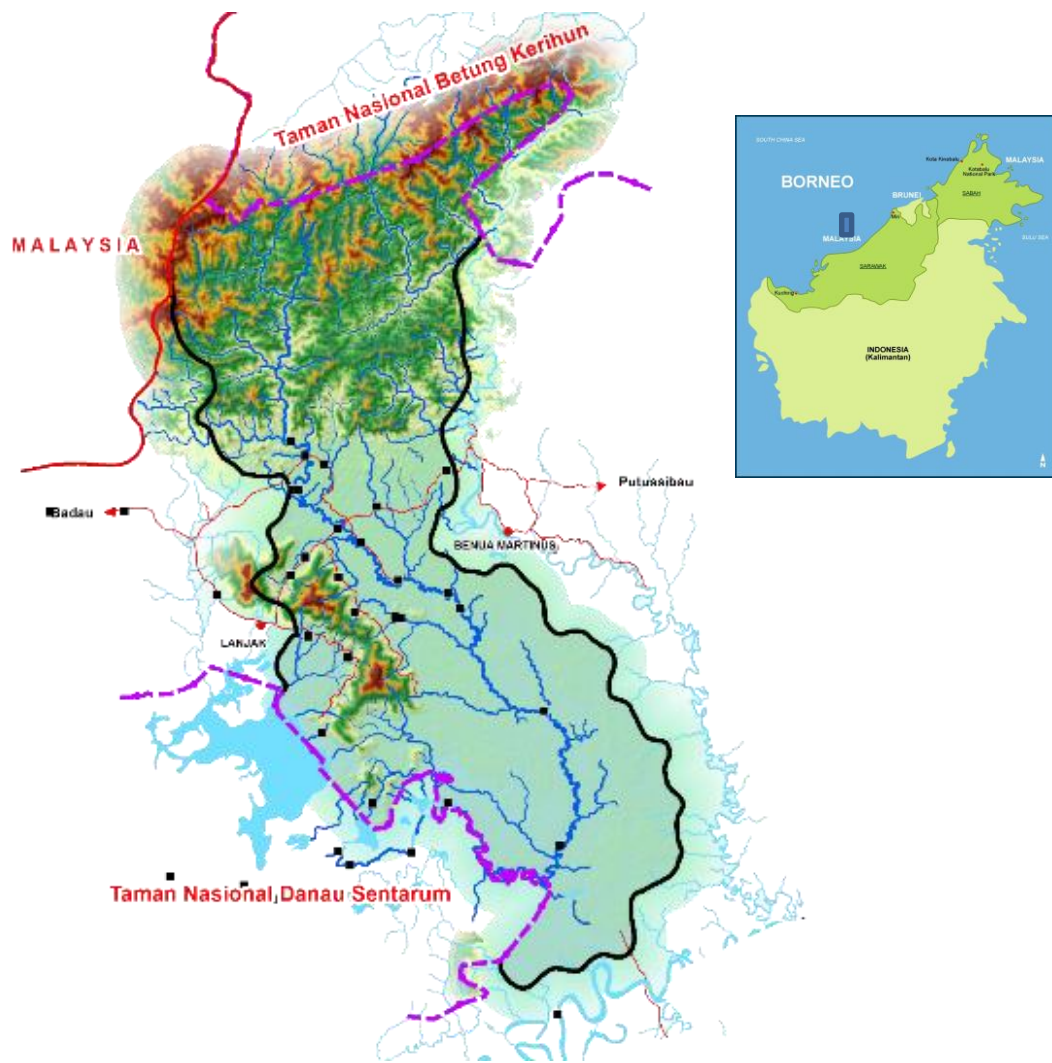


Fig. 9.1. Corridor Labian-Leboyan in District of Kapuas Hulu, West Kalimantan Province.

Source: WWF Indonesia



Rubber tapping
©Betung Kerihun National Park

Box 9.1. Corridor Labian-Leboyan: The History

by Albertus Tjiu, WWF Indonesia-Kalimantan

The idea of having biodiversity corridor was drafted in 2005 by WWF Indonesia before the relevant institution dealing with spatial plan in district of Kapuas Hulu. At that time when it was introduced, the notion of corridor was not popular among the local decision makers as the flavor was tend too much on conservation issues. Many of them against the idea as it would prevent economic development along the proposed corridor.

Later, following the introduction of green economic concept to the district by WWF Indonesia and HoB National Working Group to District of Kapuas Hulu, slow but sure decision makers and politician in the district accepted the idea of corridor as long as accommodated the scheme of sustainable development and low carbon growth. The corridor initiative finally accepted by the district and integrated into their spatial plan through district regulation No. 1/2014. It took more than nine years in District of Kapuas Hulu to accept and support the idea of green corridor.

2. The Proposed Heart of Borneo Corridor Project

Whether it inspired by the positive outcome of developing corridor of Labian-Leboyan Indonesia, were not sure, during the 6th HoB Trilateral Meeting in Kuching held on 25-26 September 2012 there was an informal discussion between the Director of Sarawak Forest and the CEO of HoB Centre of Brunei Darussalam on the issues of possible development on connectivity of the three countries from Sungai Ingei Conservation Forest in the southwestern Brunei to Gunung Mulu National Park in the northwestern part of Sarawak Stat and to the Kayan Mentarang National Park in the northwestern park of Indonesia.

The objective this project was to create a corridor incorporating through well managed forest located in three members of HoB management areas and sustainable land uses to become a connected conservation area crossing the three countries. With that the existing collaboration of member countries can be enhanced².

This concept was officially submitted and presented to the 7th Trilateral HoB meeting in Bandar Seri Begawan by Brunei Darussalam as proponent. In response to the Brunei Darussalam's proposal the meeting requested Brunei Darussalam to organize workshop to discuss the proposal for further consideration at the 8th Trilateral meeting³.

²Report of 6th The Heart of Borneo (HoB) Trilateral Meeting and its Annexes.

³Report of 7th the Heart of Borneo (HoB) Trilateral Meeting and its Annexes.

At the 8th Trilateral meeting of HoB, Brunei Darussalam returned back with an updated proposal on HoB corridor initiative. The updated proposal was completely different with the one presented in the 7th HoB Trilateral meeting. The new conceptual corridor proposal embraced much bigger landscape which link up a number of protected area and sustainable management land uses including agriculture areas in the three member countries. Those area include Sungai Ingei Conservation Forest and Ulu Temburong National Park in Brunei Darussalam, Crocker Range - Kinabalu National Park, Danum Valley Conservation Area, Meliau Basin and Imbak-Canyon in Sabah State Malaysia, Pulong Tao National Park, Gunung Mulu, Gunung Buda, Batang Ai National Park and Lanjak-Entimau Wildlife Sanctuary in Sarawak State Malaysia as well as Kayan Mentarang, Sebangau, Danau Sentarum and Betung Kerihun National Parks in Indonesia side⁴. In response to the new proposal, both Indonesia and Malaysia appreciated for the initiative and requested an ample of time to discuss the proposal internally.



⁴Report of 8th the Heart of Borneo (HoB) Trilateral Meeting and its Annexes.

At the 9th HoB Trilateral meeting held in Sandakan, Sabah State, Malaysia on 11-12 August 2015, Brunei Darussalam reiterated the importance issues of having HoB corridor project. In relation to this, the country then sought an endorsement of (a) establishment of Technical Committee to review the current proposal, (b) draft term of reference (ToR) of the Technical Committee and (c) proposed possibility of State Sarawak to host the HoB corridor international workshop on November 2015. In response to this request, Indonesia and Malaysia welcome and supportive with the proposal and endorsed the plan for having the international workshop. The meeting also noted and appreciated to WWF to support the workshop in November 2015⁵.

At the 10th HoB Trilateral meeting in Brunei Darussalam on 5-7 September 2016, Brunei Darussalam reported the results of the International Workshop on HoB Corridor held in Kuching in November 2015 (see Box 9.2). As the proposal has been submitted since 2013, the host requested the supports and endorsement from other member countries. In respond to this both Indonesia and Malaysia appreciated to the initiative but reminded the meeting that as the proposed corridor will span into the country territory there is a sovereignty issues that need to be discussed internally in both countries. Hence, the proposal was forwarded to the technical committee for further assessment. The meeting also requested Brunei Darussalam to take up the coordinating role with the three countries to identify existing bilateral cooperation in the proposed corridor line and look into possible solution to transform it into HoB cooperation in order to move out into total connectivity cooperation.



Coleogyne asperata
©Ngurah Pradnyana

⁵Report of 9th the Heart of Borneo (HoB) Trilateral Meeting and its Annexes.



Tropical rainforest of Betung Kerihun National Park
©Ngurah Pradnyana

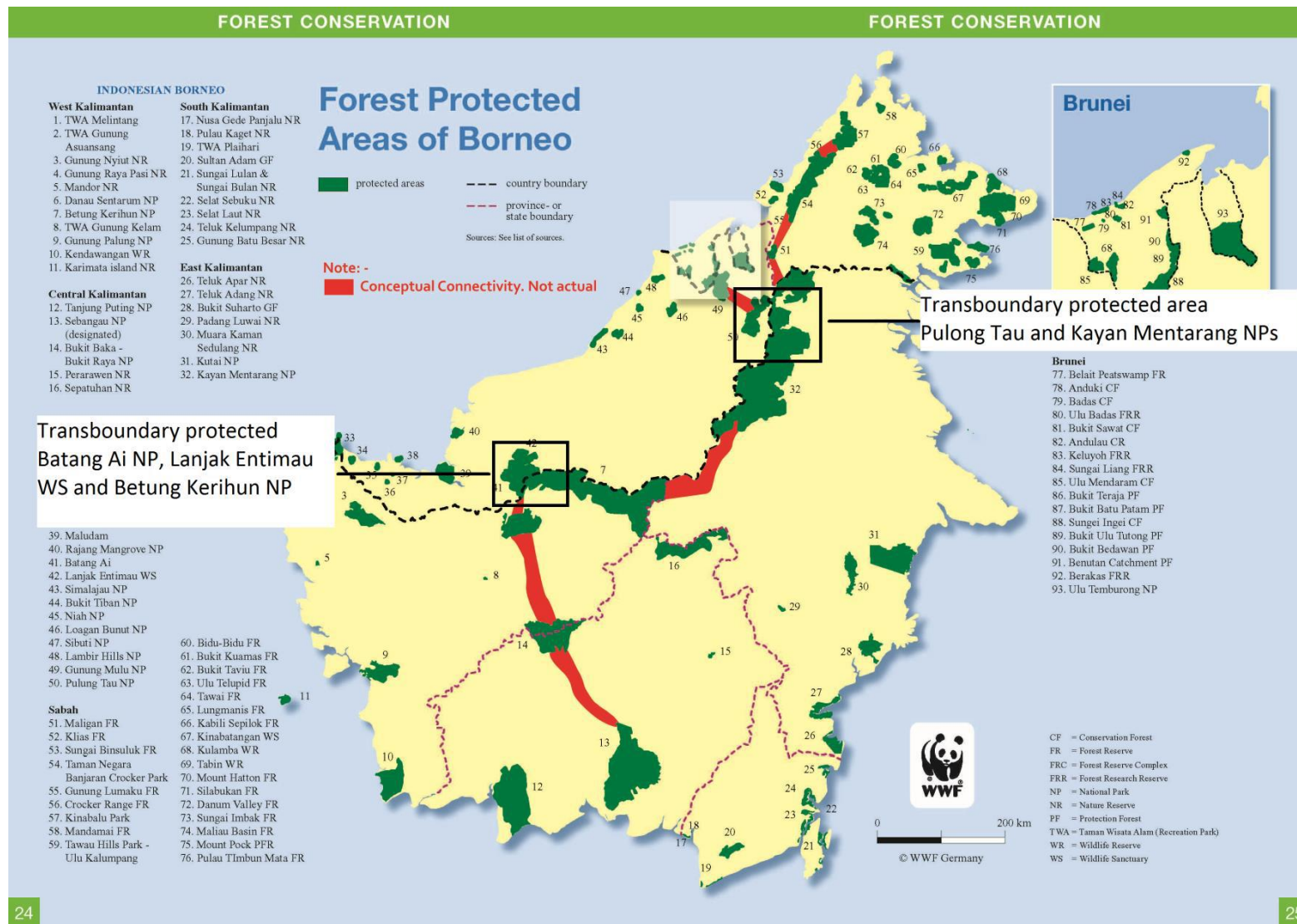


Fig. 9.2. Conceptual Heart of Borneo corridor initiative presented by Brunei Darussalam at the 8th Heart of Borneo Trilateral Meeting in Palangkaraya 2014⁴.

Source: WWF Indonesia

Box 9.2. International Workshop on the Heart of Borneo Corridor Project Implementation

The international workshop on HoB corridor was conducted in Kuching, Malaysia on 3-4 November 2015. The workshop which supported by Forest Department of Sarawak, WWF, HoB Initiative was mandated by the 9th HoB Trilateral meeting in Palangkaraya, Indonesia. The workshop aims to further develop and fine-tune the current proposal on HoB corridor that has been submitted and deliberated to the HoB Trilateral meeting since 2013. The event was attended by more than 100 participants which include scientists and practices from governments, lecturers, international agencies and civil society from many different of countries including Brunei Darussalam, Indonesia, Canada, Hong Kong, the Netherlands and other States of Malaysia.

The organizing committee of the meeting grouped the speakers into three thematic issues; (a) proposed attributes for the HoB, (b) corridor project, (d) sustainable financing and followed by focused discussion for each thematic topic. The event ended with the conclusion that HoB corridor would create connectivity between landscapes helps to preserve ecological integrity, enhance the flow of ecosystem services and facilitate gene flow as well as build resilience in changing climate. The HoB corridor crossing through the three member countries over the length of more than two thousand miles and cover of approximately four million hectares is a vision concept that possible to be materialized in the future. This project is expected to allow for comprehensive conservation and sustainable development in HoB area.

Source: Proceedings of International Workshop on the Heart of Borneo (HoB) Corridor Project Implementation - 2015





CHAPTER X: THREATS TO THE HEART OF BORNEO

1. Deforestation in Heart of Borneo Areas

For the last decade, the HoB area has been under pressure from a number of development activities starting from infrastructure development, agro-industry, mining to expansion of urban areas. Such activities in principle are unavoidable, as people who live in the area need to have better lives to catch up with their friends in other developed regions in Indonesia.

Other leading reasons for dramatic changes in the area are perhaps the HoB area at the moment is the remaining place with rich resources in Kalimantan or might be even in the entire Borneo Island. Although the extraction of natural forest appears to be declining due to its shortage of timber resources, the removal of other resources, in particular mining and investment for agro industry, seems to be on the opposite direction¹.

The record of deforestation in Kalimantan varies from one source to another. This document uses the official data published by the Ministry of Environment and Forestry. The rate of conversion of natural forest in HoB appears at the alarming rate of about 161,898 ha per year from 2003 to 2014. In addition the rate of conversion of forest allocated for other purposes (called non-forest) during the same period was approximately 221,154 ha per year. The total deforestation at the period was about 1,745,321 ha or about 290,886 ha per year (Fig. 10.1)².

Despite the government effort to rehabilitate degraded forest in the region, the speed of deforestation and degradation appear to be surpassed. For the provinces located in HoB area the highest deforestation rate between 2003 to 2014 occurred in the province of North Kalimantan and East Kalimantan totaling 664,800 ha or about 189,940 ha per year and followed by West Kalimantan (574,180 ha or about 164,050 ha per year). The calculation of deforestation was based on the province level, not inside of the HoB boundary delineation (Fig. 10.2)².

¹Borneo Future, Science for Change. 2017. www.Borneofuture.org.

²Directorate of Forest Inventory and Forest Management of the Ministry of Environment and Forestry 2017. Unpublished Report.

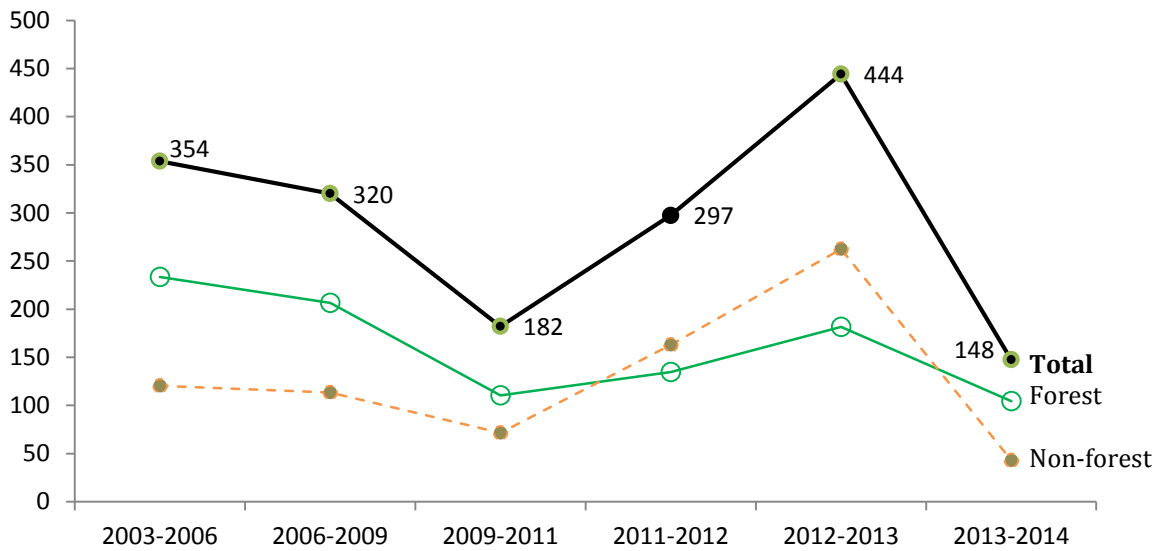


Fig. 10.1. Deforestation rate of forest and no-forest area in Heart of Borneo, 2003-2014.

Note: Non-forest is originally forest area allocated for non-forest development. Deforestation rate was calculated on the basis of province where Hob is located.

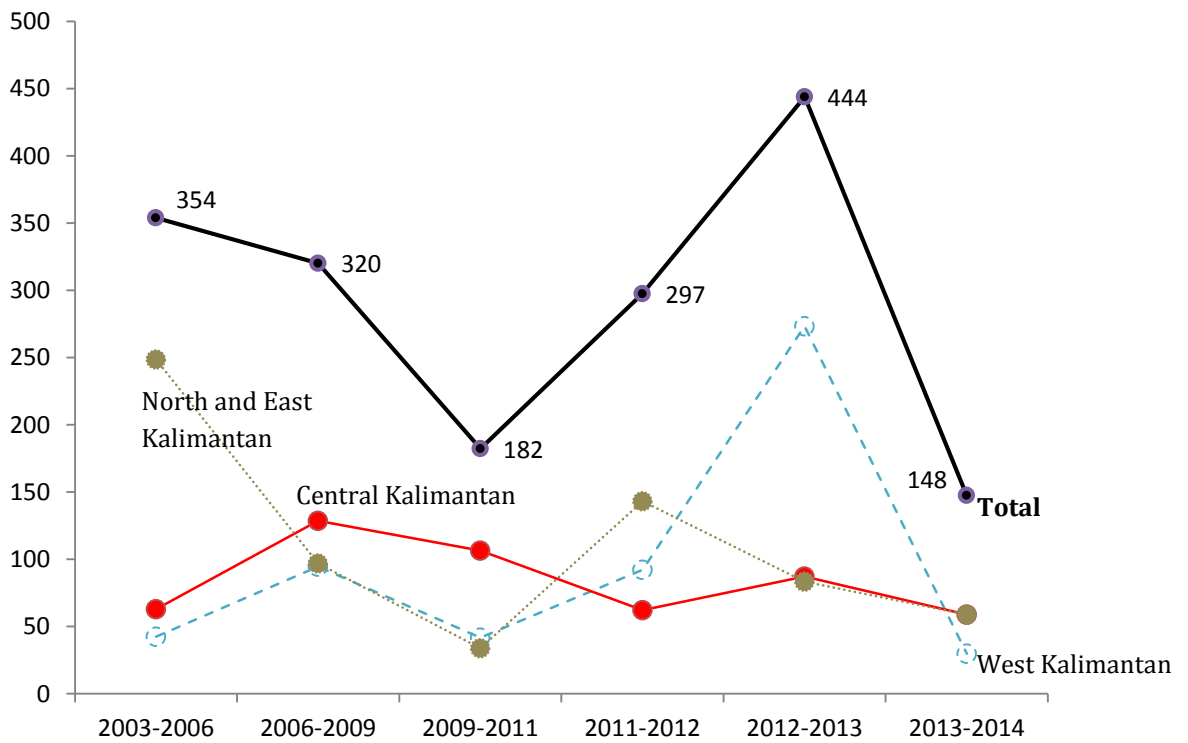


Fig. 10.2. Deforestation rate in four provinces located in Heart of Borneo; North, East, Central and West Kalimantan between 2003-2014.

Note: Non-forest is originally forest area allocated for non-forest development. Deforestation rate was calculated on the basis of province where HoB is located. For consistency, the calculation for North and East Kalimantan was clumped into one value¹.



Deforestation caused by timber cutting
©Direktorat Jenderal KSDAE

2. Deforestation by Province

The peak of deforestation in the province located in HoB varies from one province to another. The highest deforestation across the four provinces occurred in West Kalimantan province during the period of 2012 to 2013 approximately 273,360 ha, while the second biggest forest conversion about 248,500 ha during the observation period happened in 2003-2006 in North and East Kalimantan, precisely in East Kalimantan Province as at that time the North Kalimantan province was still part of East Kalimantan Province (Fig. 10.3, 10.4, 10.5)². The annual deforestation of the North Kalimantan and East Kalimantan, Central Kalimantan and West Kalimantan Provinces sequentially were about 164,050 ha, 144,670 and 164,050 ha.

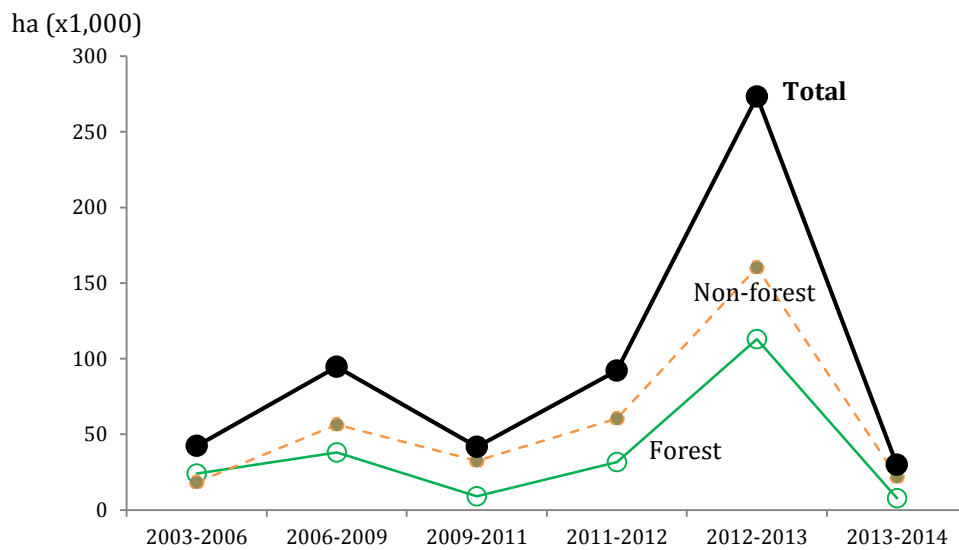


Fig. 10.3. Deforestation in West Kalimantan Province, 2003-2014. The non-forest area originally was forest area allocated for non-forest development.

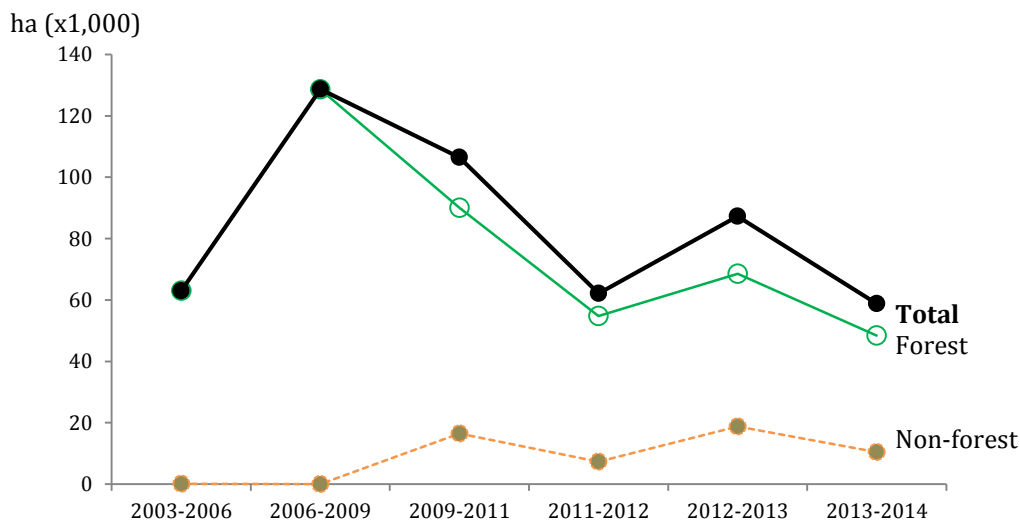


Fig. 10.4. Deforestation in Central Kalimantan Province, 2003-2014. The non-forest area originally was forest area allocated for non-forest development.



Timber seizures
©Direktorat Jenderal KSDAE

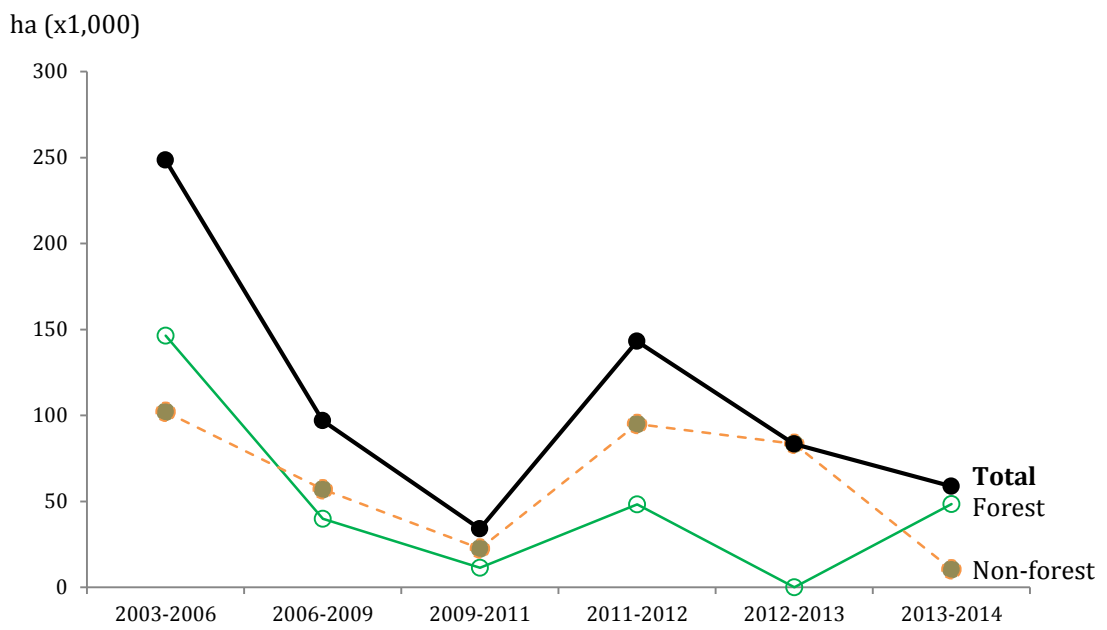


Fig. 10.5. Deforestation in North and East Kalimantan Province, 2003-2014. The non-forest area originally was forest area allocated for non-forest development².

3. Forest Fire

Fire, whether natural or intentionally set out by human, either for traditional purposes such as shifting cultivation or land clearing, is prohibited by the government³. Using fire for land clearing for agriculture estate is also againsts the Law No. 36/ 2014 Article 56 pertaining Agricultural Estate (*Undang-Undang Republik Indonesia No. 36 tahun 2014 tentang Perkebunan*). Yet, fire has been persistantly threaten to the forest area and large scale of agricultural and pulp industries.

The highest number of hotspot occurred in 2006 in the provinces of Central Kalimantan of about 40,000 spots and West Kalimantan of about 29,000 spots. From that period it indicated that the number of hotspots has declined to about 10,000 with the average annual spots of 17,918 (Fig. 10.6, Fig.10.7).

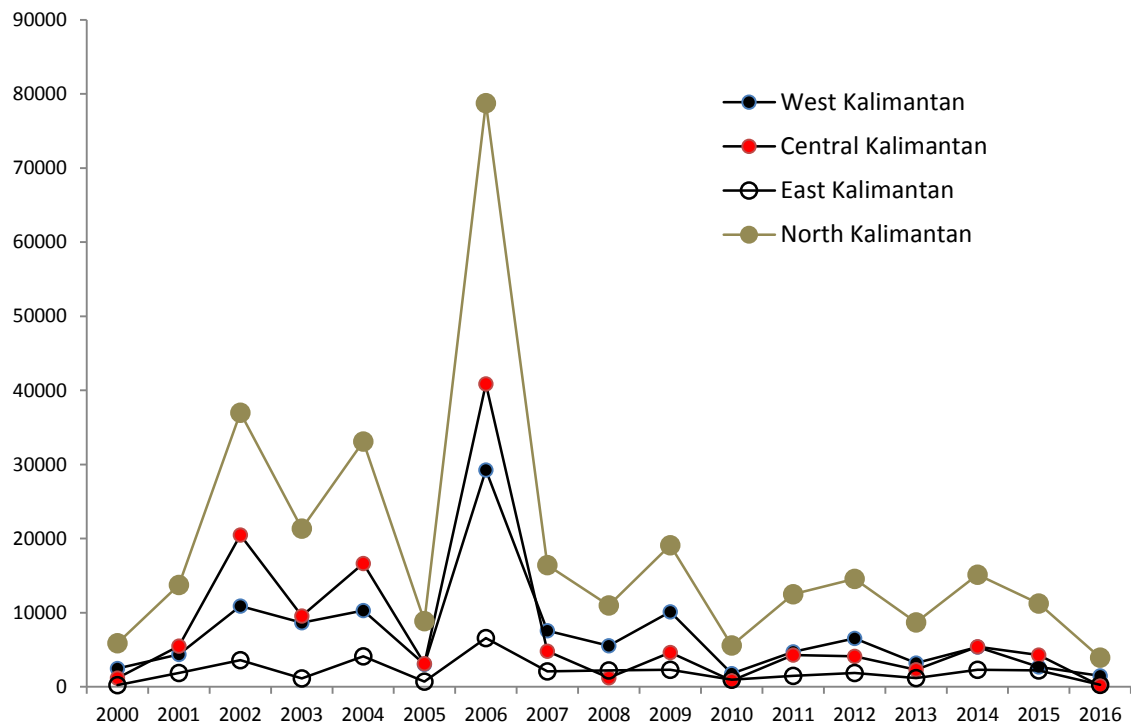


Fig. 10.6. Number of recorded hotspot across the four provinces located in the Heart of Borneo areas⁴.

³Undang-Undang No. 32 tahun 2009 tentang Perlindungan dan Pengelolaan Lingkungan Hidup, Pasal 69 dan 108.

⁴Directorate of Forest Fire Prevention and Management of the Ministry of Environment and Forestry. 2017.

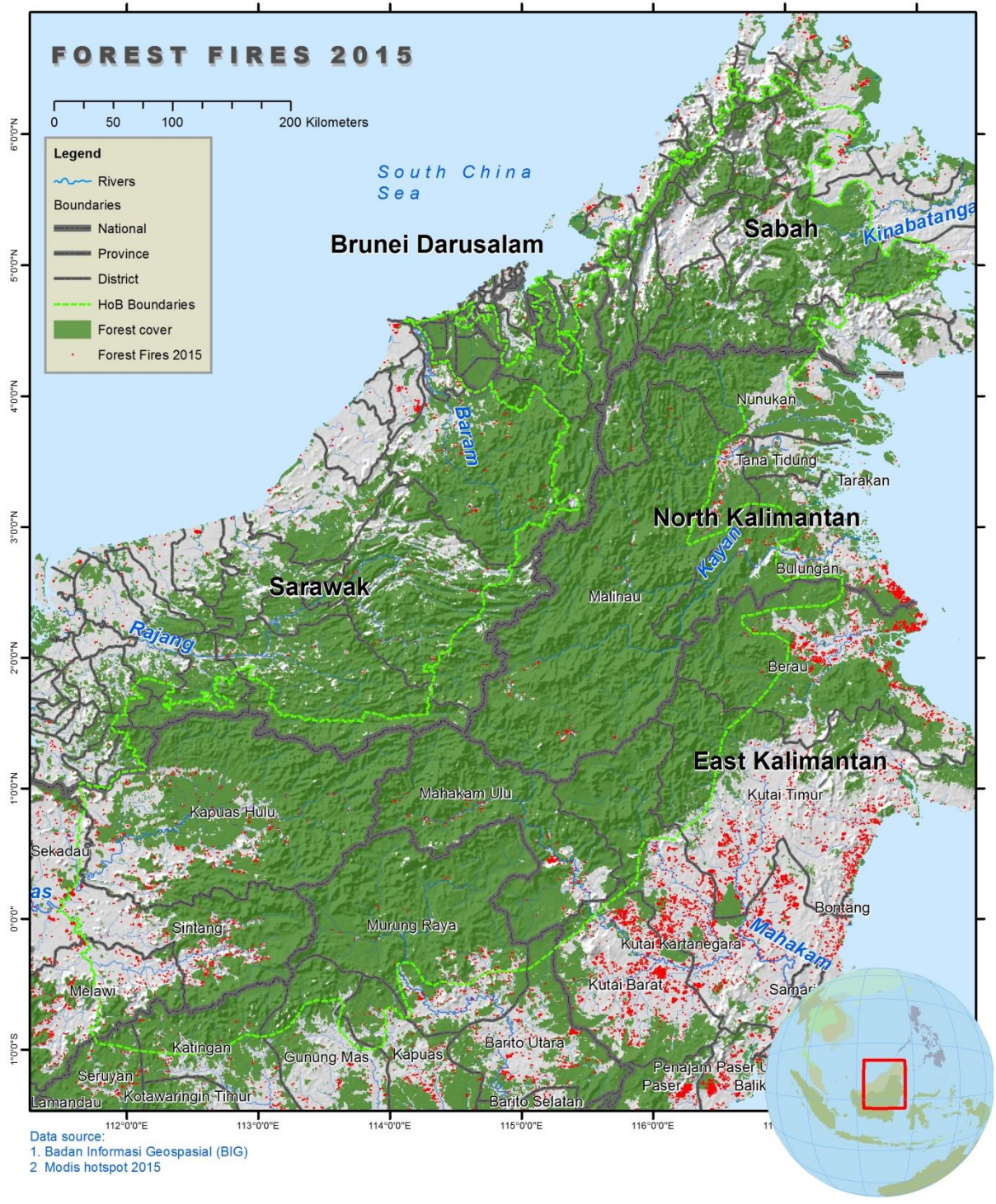


Fig. 10.7. Distribution of hotspot in Heart of Borneo Indonesia in 2015.
Source: WWF Indonesia

Forest fire brigade
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4. Illegal Timber Practices

Since long ago timber is always considered as precious products from Indonesia due to its commercial demand and relatively good prices. Since early 1980's Indonesia was notorious for marketing illegal timber products⁵. Since 2001 the Government of Indonesia has been invested all effort to curb this illegal activities throughout the countries, through various cooperation with a number of multilateral governments and agencies such as ITTO, the European Government, ASEAN, the World Bank and others to establish the forest good governance^{6,7}. In 2010, in cooperation with European Government and the United Kingdom Indonesia has been able to set up a *Sistem Verifikasi dan Legalitas Kayu* (SVLK; Indonesia's Legality Timber Assurance System)⁸. Since then, the cases and seizure of illegal timber harvesting sharply declined to about 29,387 pieces of wood in 2014 from 7,677,408 pieces of wood in 2006 (Fig. 10.8).

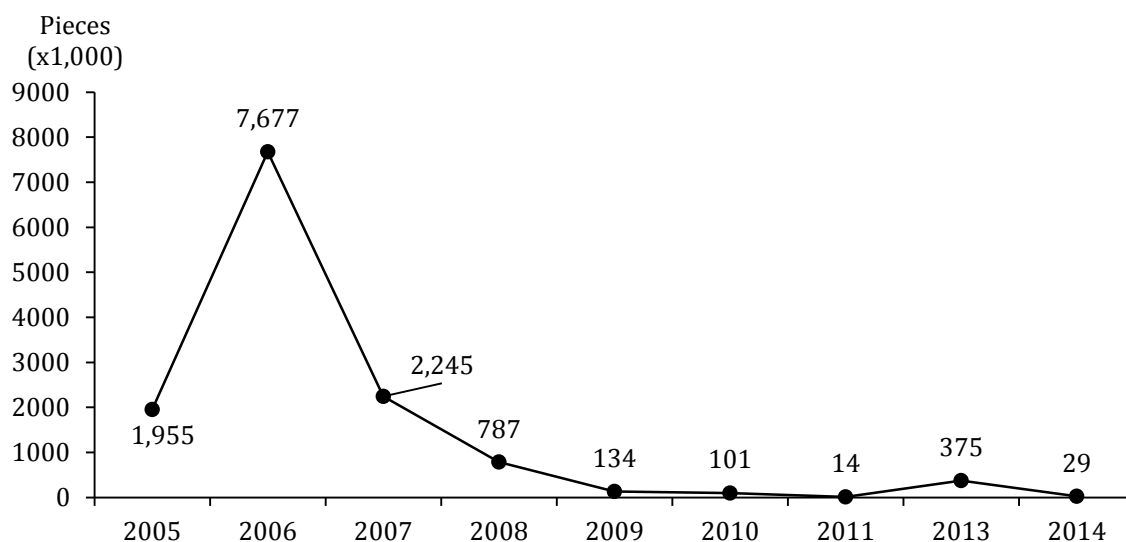


Fig.10.8. Volume of wood intercepted (pieces) and seizure in four provinces in Kalimantan (North, East, Central and West) located in Heart of Borneo area. Some of them were sized in the districts located in Heart of Borneo region⁹. A pieces of wood defines as lumber of 2-3 m long or 4 square of wood of 2-3 m long. No data available for year of 2012.

⁵<https://www.theguardian.com>. 2017.

⁶Wardojo W, Suhianto, Purnama BM. 2001. Law enforcement and Forest Protection in Indonesia. Paper presented on the East Asia Ministerial Conference on Forest Law Enforcement and Governance, Bali, Indonesia, September 11-13, 2001.

⁷Southeast Asian Nations Share Progress in Addressing Illegal Logging and Timber Trade. 2016.

⁸Biro Humas Kementerian Lingkungan Hidup dan Kehutanan. 2016. Indonesia has revised SVLK regulation in 2014 and 2016. Press released document.

⁹Directorate of Forest Protection and Investigation of Ministry of Environment and Forestry. 2016. Unpublished Report.

In addition, Indonesia also has signed Voluntary Partnership Agreement on timber trade with European Union (EU) in 2013 and in 2016 Indonesia and EU has announced that the trade in timber has met the final major VPA requirement. Hence the FLEGT licensing began in November 2016¹⁰.



Illegal timber harvesting
©Direktorat Jenderal KSDAE

5. Carbon Emission

Records of carbon emission within the HoB area were collected from the Sign Smart, under the Ministry of Environment and Forestry's website. For the purpose of this Book, only Land Use, Land-Use Change and Forestry (LULUCF) emission posted by 17 districts in HoB or available in the website were analyzed. Unfortunately, not all the districts posted their LULUCF emission. The posted data of annual LULUCF emission in the period of 2009 to 2014 within 17 districts located in the HoB was 494 million ton (Fig. 10.9).

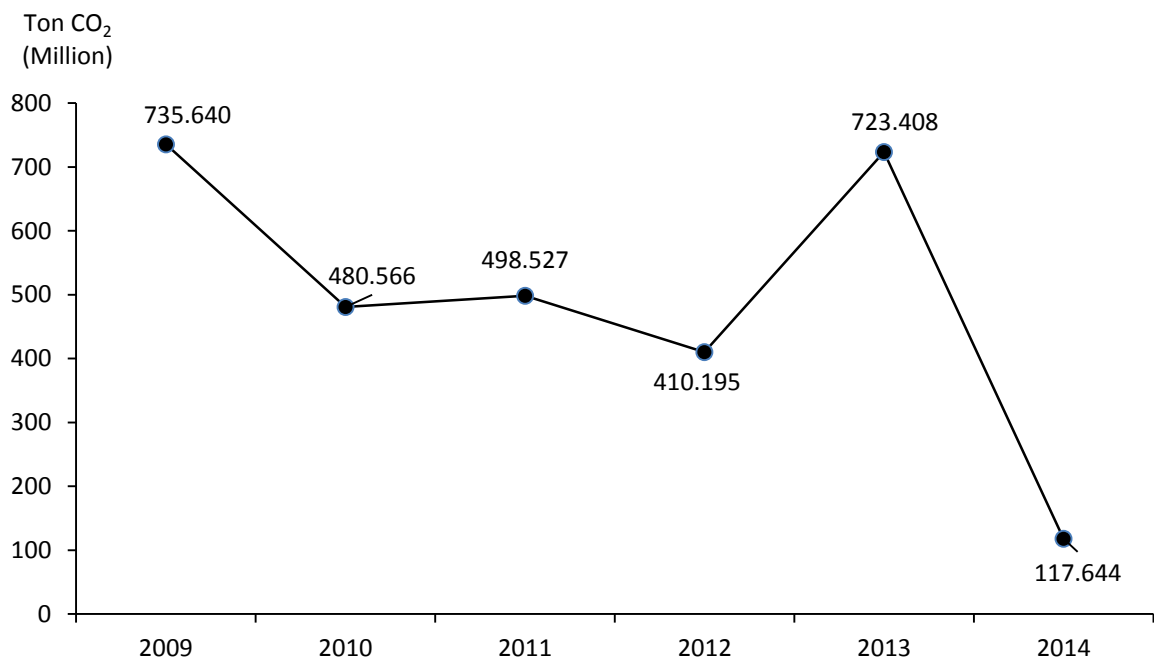


Fig. 10.9. Emission from Land Use, Land-Use Change and Forestry (LULUCF) from 17 districts within the HoB, 2009-2014¹¹. Data emission of districts within the same province posted similar and not all districts in the HoB posted LULUCF emission data.

¹¹Sign Smart. 2017. <http://Signsmart.menlhk.go.id>.



Getting ready for the dry season
©Direktorat Jenderal KSDAE



CHAPTER XI: SPATIAL PLAN AND HEART OF BORNEO AS A STRATEGIC AREA

1. National Strategic Area (*Kawasan Strategis Nasional*)

In the effort to spatially manage and develop the national economic properly and sustainably across the nation, the government has launched the initiative on National Strategic Area (NSA). The initiative defines as the area whereby the spatial plan is prioritized due to its status for the national sovereignty, defense and national security, economy, social and culture and/or environment including those areas declared as world heritage. As for today, the Government of Indonesia has appointed 76 NSAs throughout Indonesia.

The following are policies for NSA development:

- a. Conserve and enhance the NSA environmental carrying capacity to support and improve ecosystem stability, biodiversity richness, landscape uniqueness and national heritage;
- b. Enhance NSA function for the purpose of defense and nation security;
- c. Develop and improve its function for economic national byway of productive, efficient, and competitive at global level;
- d. Utilize NSA resources optimally using high end technology to achieve the prosperity of the society;
- e. Conserve and enhance social and culture of the society;
- f. Conserve and protect the areas within NSA that have been declared as world heritage, biosphere reserve and RAMSAR sites;
- g. Develop the less developed areas within the NSA to reduce disparity among the nation.

Through the Government Regulations No. 26/2008 dated 10 March 2008, the Heart of Borneo (HoB) is listed as a National Strategic Area (NSA)¹. Hence the development and intervention of programs in the HoB areas has to follow the aforementioned policy.

¹Peraturan Pemerintah Republik Indonesia Nomor 26 Tahun 2008 tentang Rencana Tata Ruang Wilayah Nasional.



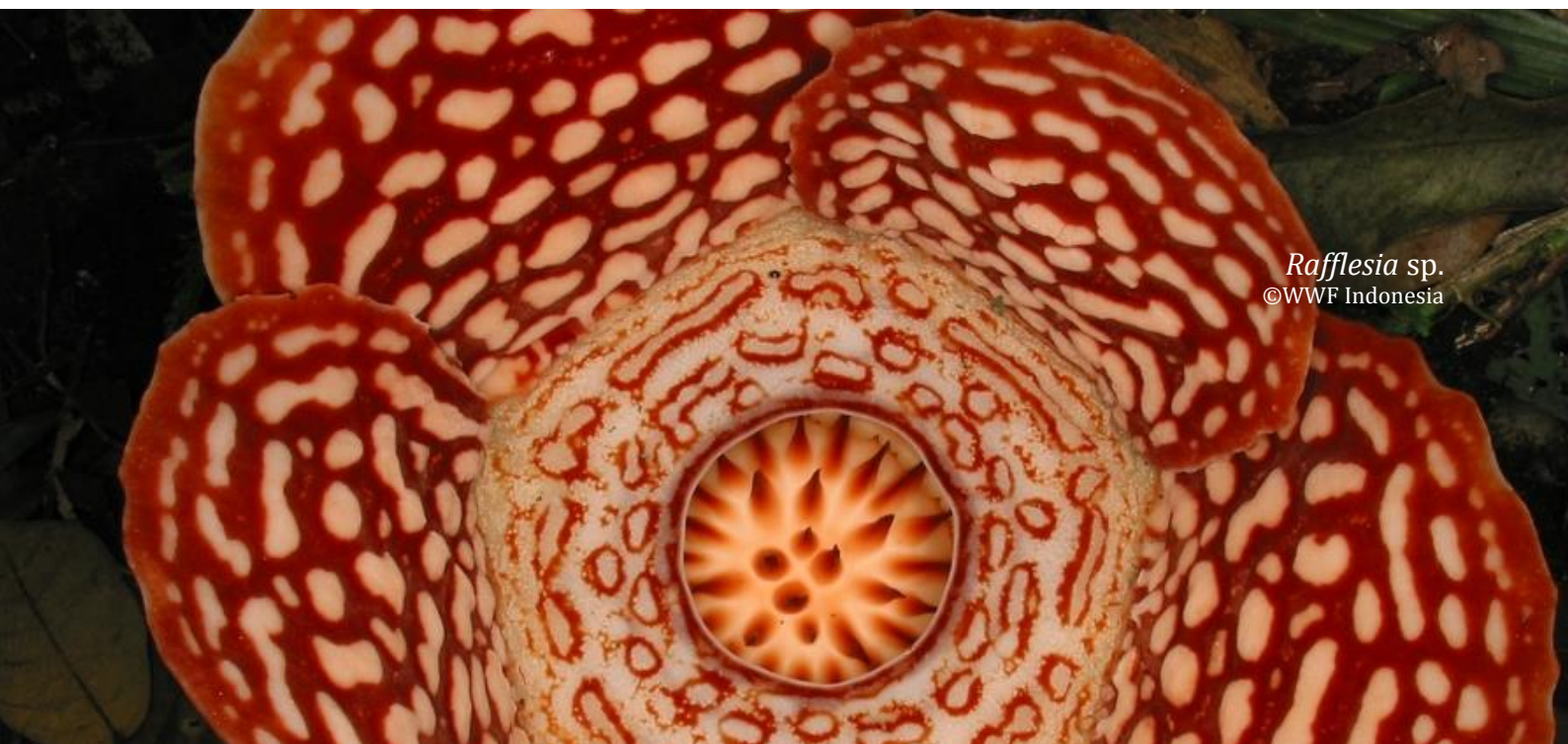
Lutung River, Kayan Mentarang National Park
©WWF Indonesia

2. Spatial Plan of Kalimantan

Following the issuance of the Presidential Decree No. 26/2008, the government has issued the Presidential Regulation No. 3/2012 pertaining Spatial Plan of Kalimantan Island which valid until 2027 (Fig. 11.1). The Plan defines the Heart of Borneo (HoB) as the part of the lung of the world located in Kalimantan agreed by Indonesia, Malaysia and Brunei Darussalam to be managed on the bases of principals of conservation and sustainable development. The plan is also included the term of corridor for ecosystem which defines as corridor for protected wildlife including protected marine biota as part of protection areas and or development area to facilitate the wildlife migration or marine biota between conservation areas².

3. Spatial Plan of the Heart of Borneo Area

Subsequent to the issuance of the Government Regulations No. 26/2008 on the NSA of the HoB, the government of Indonesia has started to develop a spatial plan of the area. Stocking of ideas and discussions on this issue at the relevant districts, provinces and national level has initiated since March 2011. At the moment the draft of the plan is under ongoing discussion and negotiation among the relevant ministerial to ensure that the plan is acceptable to the key stakeholders and authorities in the area where HoB located (Fig. 11.2).



²Peraturan Presiden Republik Indonesia Nomor 3 Tahun 2012 Tentang Rencana Tata Ruang Pulau Kalimantan.



Tawang River, Danau Sentarum National Park
©Budi Suryansyah

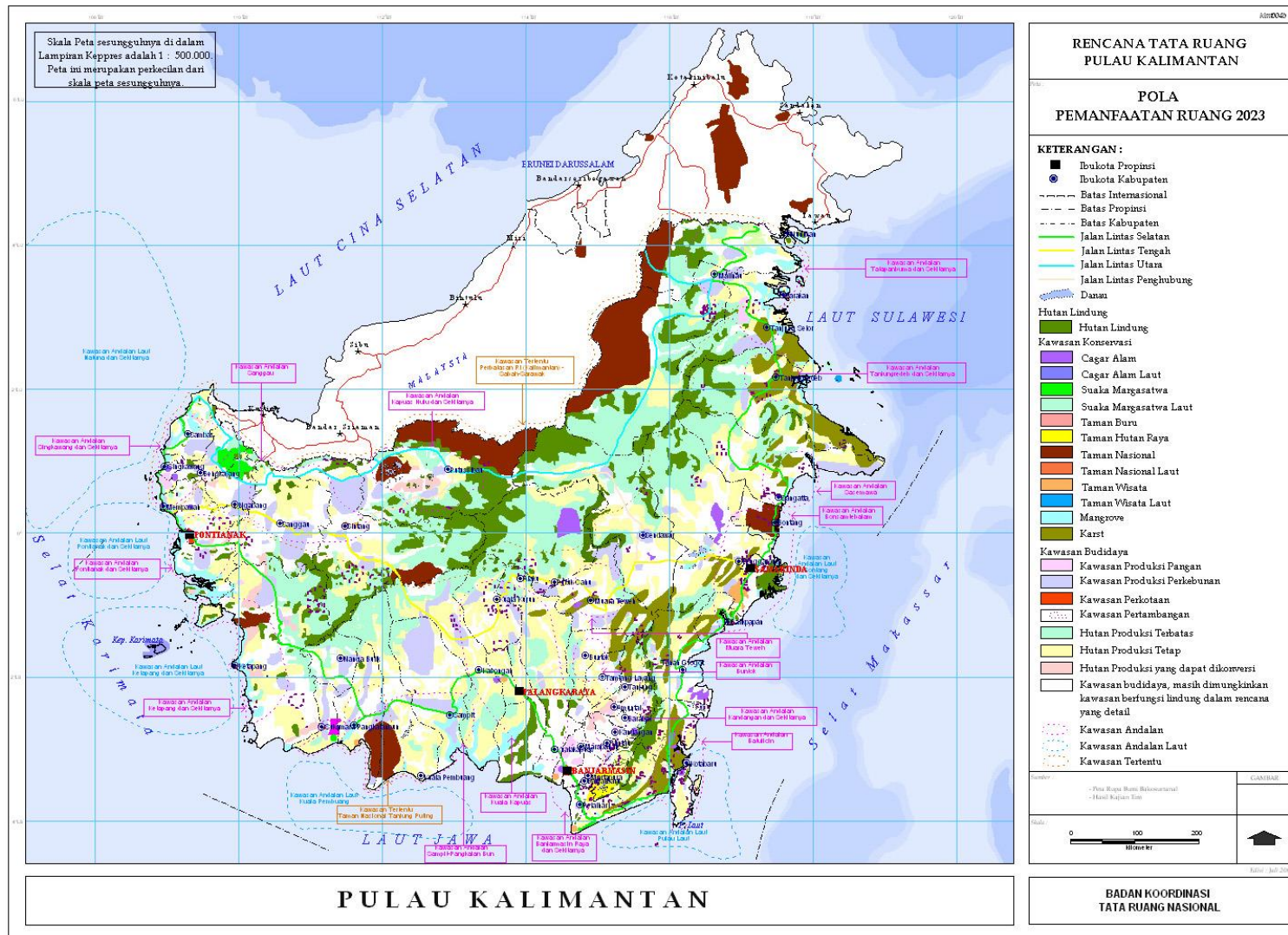


Fig. 11.1. Spatial Plan of Kalimantan, valid until 2027².
Source: WWF Indonesia

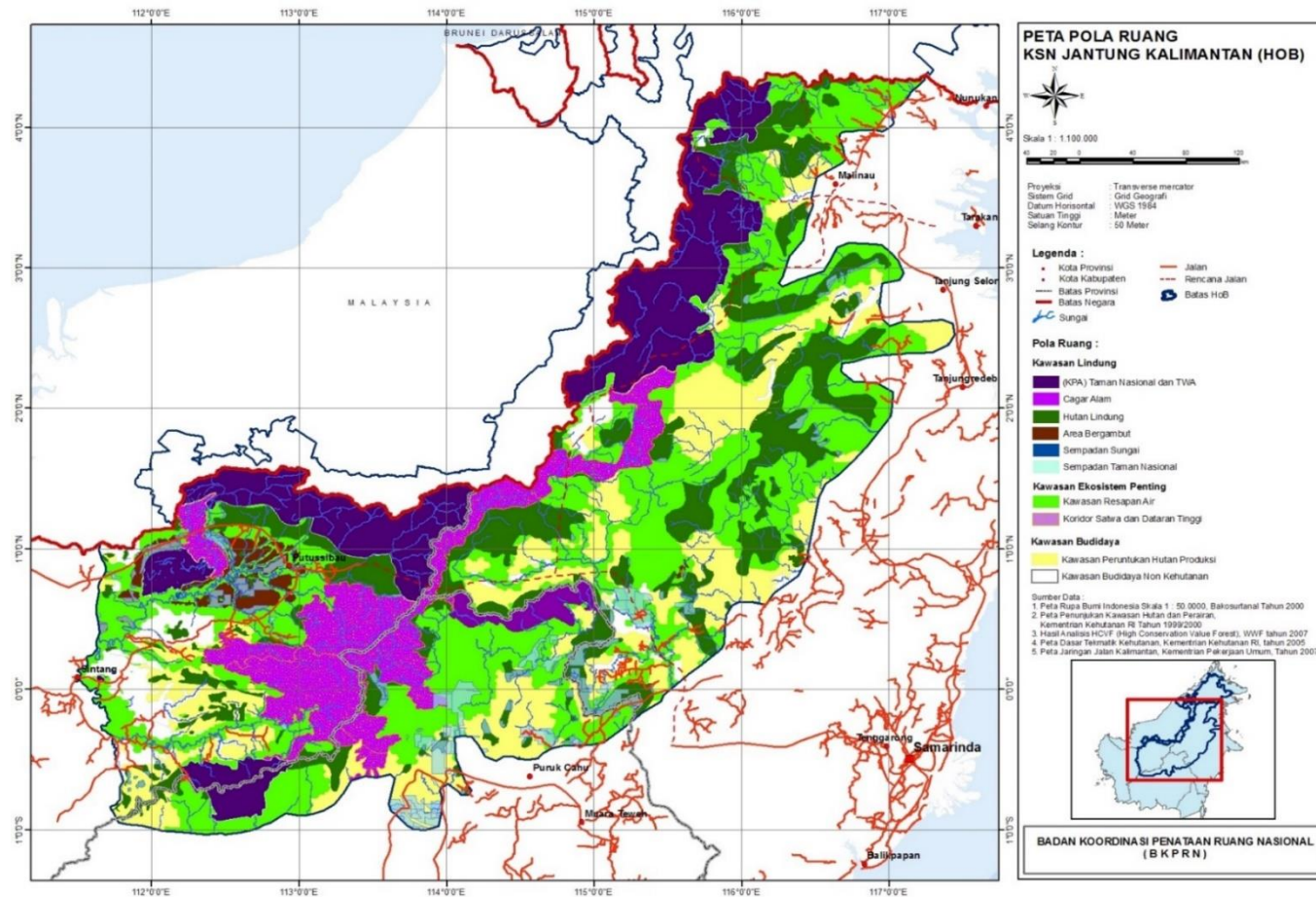
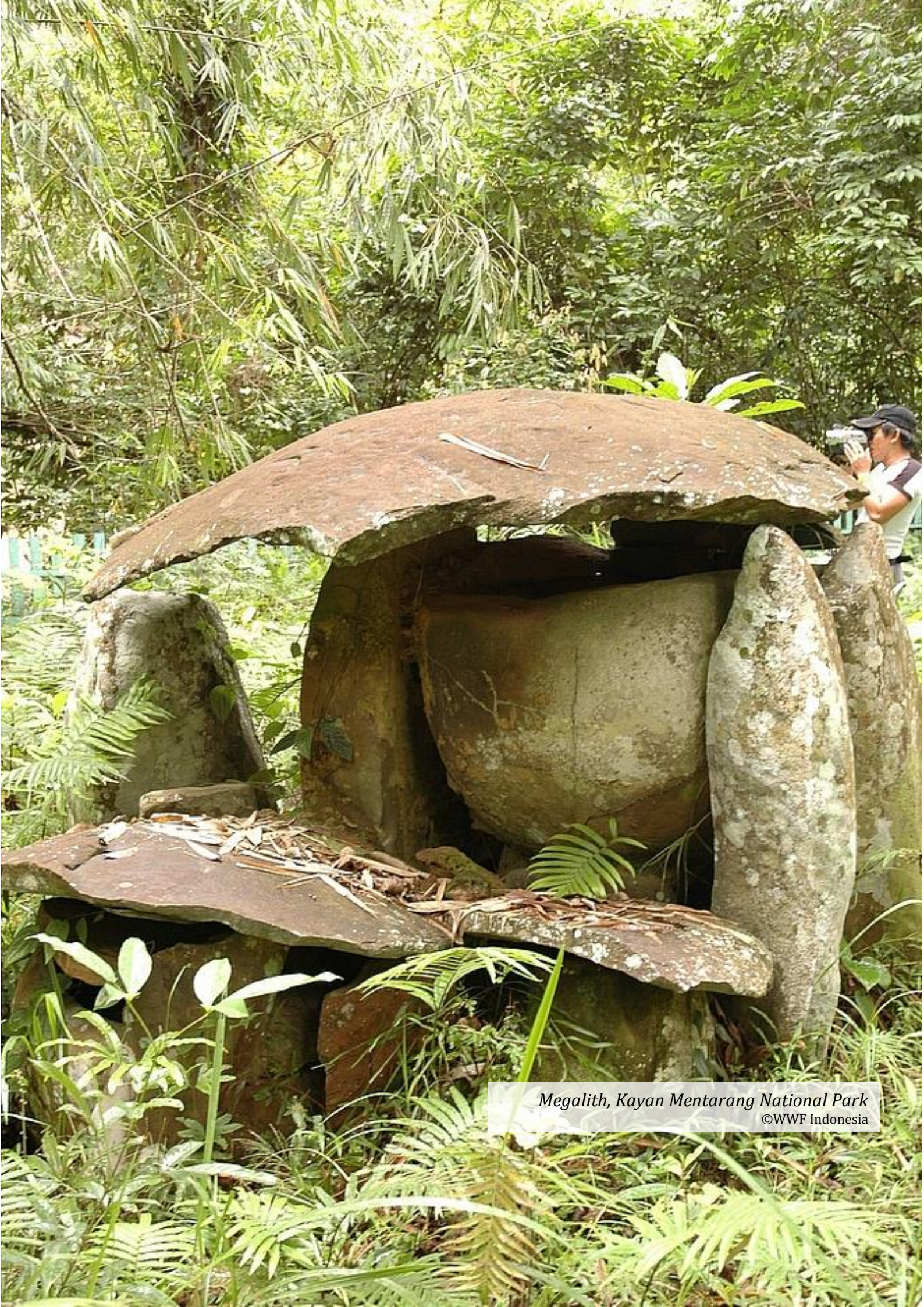


Fig. 11.2. Draft of Spatial Plan for Heart of Borneo area³.
 Source: WWF Indonesia

³Directorate General of Spatial Plan of the Ministry of Agrarian and Spatial Plan. 2017.



Megalith, Kayan Mentarang National Park
©WWF Indonesia



Tree trunk
©Erick Danzer



CHAPTER XII: THE OUTLOOK

This Chapter attempts to elaborate the likely future condition of the HoB initiative at national level, as well as the view of regional cooperation given the current condition in maintaining the landscape of HoB at both levels. Although the Book is mainly describing the section of Indonesian HoB with the constraints and challenges, for the purpose farsighted the regional effort to maintain the initiative, this Chapter presents a view point on current condition at the trilateral level.

1. The Heart of Borneo Trilateral Meeting

Following the HoB declaration in Bali in February 2007, the initiative of the three countries was brought and reported to the 8th Conference of Parties of Convention on Biological Diversity (CBD) in Curitiba, Brazil on 20-31 March 2007 as well as the 9th CBD in Bonn, Germany. Since then, the Parties of CBD met regularly to discuss the issues and innovative idea for supporting the sustainable development in HoB. The host of the meeting was arranged on rotation basis: Brunei Darussalam, Indonesia and Malaysia. Until 2016, Parties has met for 10 times and the last meeting was organized in Bandar Seri Begawan, Brunei Darussalam on 4-6 September 2016.

There are many agenda that have been listed since the first Trilateral Meeting, including institutional arrangement and modalities, sustainable financing, ecotourism development, biodiversity corridor, Geographical Information System (GIS), green economy, bird watching programs, and logo for the HoB. Except for the easy agenda such as logo and video for the HoB, other issues and programs became outstanding agendas from one meeting to another.

Subsequent series of Trilateral Meeting, member country to HoB, has adopted HoB logo and video. In addition it has agreed with a number of collaboration agenda such as Green Economy for HoB Development and Ecotourism Workshop. Other outstanding agenda such as GIS and biodiversity corridor as well as sustainable financing and institutional arrangement has been hanging around since the 3rd HoB Trilateral Meeting due to its sensitivity considered by some of the member countries.

Looking to the reports of the meetings and experiences attending a number of meetings, it appears that parties hesitated to deal with agenda related to contribution or domestic issues or sovereignty. Hence for reasons of the needs for further internal consultation and respect other member countries such an agenda normally be proposed to be deliberated in the next meeting or forward it to the technical committee for further assessment. The danger of maintaining such practice is the Trilateral Meeting could become not productive and interested and in the end become a business as usual whereby member countries are obligated to meet annually in HoB forum no importance issues were made for the HoB. It seems there is crucial need to revive the spirit of having HoB otherwise it become a symbol of cooperation among the three countries.



2. Institutional Arrangement and Modality

The issues of institutional arrangement and modality have been evaporated since the 4th HoB Trilateral Meeting in Bandar Sri Begawan, Brunei Darussalam in 2010. Member countries at the meeting decided that HoB was still in the infancy so that effort and resources should not be invested too much. Parties prefer to maintain existing institutions in the respective countries to serve the needs of the HoB initiative and even have approached the ASEAN Secretariat for secretariat support.

Since then there has been no agenda for reviving the idea of having institutional structure and modalities for this regional cooperation. It appears that member of countries are hesitate to revisit the idea. Instead each country is doing its own programs along the trans-border area based on their own priority and interest. Nonetheless, member countries solitarily seeks financial and program support from a number of donors using the name of HoB.

It is understandable the complexity and difficulties to set up the regional institutional support, not to mention the complications for running the institution, but without having such an arrangement, the joint initiative seems to have difficulties to capture large scale of funding from international donor or agencies. Though for the case of HoB Indonesian section up this time the supports related to forest, biodiversity and climate change, to some degree, are considerably high.

Aware of that condition, since 2014 WWF Indonesia and Malaysia has formed a shareholder group of HoB. The group then appointed HoB Leader which the role to facilitate and liaise programs in the three member countries. However the role and effectivity in motivating and encouraging the engine of each country to implement the joint programs of HoB are not as function as expected.

Looking to the series of recent of HoB Trilateral reports, member countries only meet once a year in a seemingly ceremonial event to report its own progress under HoB initiative which might not be too important or relevant to other countries. The last joint initiative meeting or workshop was related to ecotourism held in Tanjung Selor North Kalimantan in August 2016, for some reasons, was deserted from participants other countries. That was like a reflection of insignificant spirit of HoB. With that in mind, perhaps it is about time for the member countries to start reviewing the need of institutional arrangement and modality as part to revitalizing the spirit of HoB.

3. Program Coordination and Supports

Since the HoB declaration in 2007, initially due to its area and vision related to forestry, the administrative and management of HoB Indonesia was coordinated by the Ministry of Forestry. Later for reasons of better coordination among the relevant ministries operated in HoB area, the chairman of HoB was handed over to the Coordinating Ministry of Economic Affairs. To supervise and guide the direction of the initiative, the Ministry through its Decree No. 108/2014 forms the HoB National Working Group. The group consists of representative of the relevant Ministries and Civil Societies working in HoB and deals with sectors at the national level. On the provinces and district levels, the Ministry requested the relevant Governors and head (*Bupati*) of districts to form similar groups to function and facilitate the initiative at field level.

Politically, in Indonesia the support to the HoB initiative appears to be more than adequate. Through the Government Regulations No. 26/ 2008 the HoB area has been declared as the National Strategic Area (NSA). The government also recognizes the HoB area under the Spatial Plan of Kalimantan through the Presidential Regulations No. 3/2012. Further, the government, for the last five years, has been working to produce a spatial plan for HoB area. Technically for the purpose of providing directions and programs to the relevant ministries and stakeholders concern and interested to support the HoB, the Coordinating Ministry of Economic Affairs has issued the 2nd Strategic Plan of Action for the HoB 2015-2019. Unfortunately the group was not equipped with sufficient financial and capacity support. Perhaps because of many reasons such as (a) lack of understanding of the initiative, (b) lack of direct advantage, (c) the image and flavor of HoB programs more tended to conservation of biodiversity, members of the group at the national level appears to be lacking of commitment to support the initiative, leaving the group in limbo condition.

For years the engine to support the programs was largely supported by the initiative and supports of WWF Indonesia and other financial agencies such as GEF, GIZ Forclime, Tropical Forest Conservation Act (TFCA) KEHATI, ADB and the World Bank. These supports are all the in the form of sinking fund which may dry out in the future. Without excessive and relentless fund raising financial support for HoB programs may be completely ended.

4. The Commitment of Province and District

At the province and district levels, the implementation HoB programs are relied on the blessed and contributions of the province and district government and active participation of its working groups. Though, in reality the implementation of the programs was done through civil society like WWF Indonesia and projects such as Forclime, USAID, TFCA, KEHATI, ADB and the World Bank and local NGOs.

Politically the four provinces located in the delineation of HoB are considered very supportive to the HoB programs. Some of them have even regularly allocated financial support through local budget and form provincial working group as well as actively involved in the programs. However, their supports appear to be juggling depending on the political atmosphere of the decision makers in the province. On the district bases the condition is completely different. It seems there is a need of substantial effort from the National Working Group to invest in clarifying the concept of the HoB to their decision makers.

The seemingly persistent block of challenges in convincing local government for joining the programs is the HoB conservation images which is reflected in its vision as three country one conservation vision. The authorities and politician in both local government hesitated to join the initiative for reasons that they will be limit of space for their development programs and activities. In addition the aggressive economic development in the region it might affect the spirit of HoB initiative at local level.

The government through the National Working Group to some degree has invested its best works to enlighten the provinces and districts on the concept of HoB which allows development as long as it delivered based on the sustainable principle. Yet by far it has not been wholehearted accepted by local key stakeholders due to the fact the conservation principles has not proved that has greatly improve local economy. The fact that only 4.8% or about 759 thousand ha of HoB area out of 18 million ha in HoB region are allocated for non-forest purposes (Table 2.3) has even more frighten to the local government. On the other hand provinces and districts in HoB have tabled a long list planning for infrastructures, urban area and not to mentioned for agro industry development. Hence, a long and winding road is still far ahead to convince the provinces and districts to commit on the HoB initiative.

Dillenia sp. buds
©Ani Mardiastuti



5. The Remaining Precious Resources

HoB area is blessed with abundant economical resources from forest products and its biodiversity rich to high commercial mineral in particular coal and gold. Unlike other areas in Kalimantan, most parts of the HoB area have not been affected by intervention of development. Economically forest in particular harvesting timber in the region might not be too fascinating any longer as most remaining forest area are located in the mountain and high slope. However for tourism industries it would be very different story. HoB area not only possesses with biodiversity rich and unique ecosystem but also amusing with local cultures and these could be striking for tourism investment.

As for mineral resources, many districts located in HoB since long ago have been dependent on coal and gold exploitation to support their economic development. Unfortunately some of the mining are not completely follow the code of conduct on sustainable and green mining in particular those belonging to local and small mining companies. Their mining industries operated without reclamation and ecosystem restorations, leaving a number of big and depth hole behind creating endangerment not only for human but also for wildlife.

Likewise for the gold, most of the mining area for long has been occupied by local and illegal mining supported by mafia or *taukeh investors* from the same region and or other region who taking advantage from the business. Most of them are applying low technology using high content of mercury for gold purifying and extraction. Unfortunately their tailings are routed to the closest rivers or lakes, polluting the area and massively killing its biodiversity. This phenomenon occurs almost in all district and provinces in HoB where gold mining occurs.

Despite all disadvantage and problems of mining industries, the provinces and districts in HoB appear to enjoying their profit from the business. For reasons of local economic development local government hesitates to control properly the business. For that reason it is hard for the government in both levels to commit with the HoB initiative, as it may face with a number of rules and commitments that might not in line with the current practices of mining activities.

The HoB National Working Group has repeatedly reminding the provinces and districts to stop allowing the not environmental sound extraction of resources. Such a practice could ruin ecosystems and might lead to the environmental tragedy. At the same time it would diminish potential value of tourism or ecotourism industry in the future. But as usual without comparable economic options such advice might be easily evaporated.



Oil palm plantation
©Wiwini Effendy - WWF Indonesia

6. The Target Area of Agro Industry Expansion

Apart from timber and minerals, the districts in HoB also actively promoting agro industry to improve their economic development. The dramatic of forest conversion at national level which include Kalimantan Island and HoB region into agro industries and timber estate during the last two decades was attributed to the development of oil palm, rubber and cacao. With soaring prices of these commodities the speed of conversion including those illegal one even faster. Nonetheless, the recent declining global and domestic prices of oil palm and rubber appear to decelerating the process of forest conversion.

At the moment according the Unit Office of Directorate General of National Forest Inventory and Planning (*Planologi*) in the four provinces-BPKH (East, Central and West Kalimantan) there are about 2.8 million of forests in the 17 districts allocated for non-forest purposes or eligible for conversion for non-forest purposes (Table 3.4). However, for reasons that there is no field boundary demarcation along the HoB area, the unit offices have not in the position to declare the precise area of convertible forest in HoB area. This allocated area might have been placed in the said companies' strategic plan for the expansion of economic development.

Up to the 2014, the area of agro-industry has reached about 2.8 million ha. These plantation areas are located within or in the fringing of HoB region. The fact that based on the Fig. 7.11 and 7.19 some of the industries are located in the edge of HoB boundary, when commercial prices of the commodities are increasing, regardless land and soil suitable, it might expand to the core area of HoB area.



Lubuk Pengail Sub-Village, Danau Sentarum National Park
©Budi Suryansyah

7. Spatial Plan

The government seemed about the future land allocation condition in nation. In the 2008 through the Government Regulations No. 26/2008 the government has issued the National Spatial Plan. These regulations aim to guide the plan of land utilization and development both terrestrial including coastal area and marine range within the Indonesian territory. The regulation also intended to optimize land productivity, harmonize development and environment as well as to avoid negative impact to the environmental. The regulations also stipulate and define National Strategic Area (NSA) which has to protect, maintain and develop sustainably in accordance to its key resources environment, social and culture characteristics. Under this regulation the HoB has declared as the NSA.

In order to ensure that the act 26/2008 will be implemented accordingly, the government has issued the Presidential Decree No. 3/2012 pertaining Spatial Plan for Kalimantan Island. This decree has further elaborated the need to sustainably develop provinces and districts in accordance to land suitability, productivity, environmental condition and local social culture. It further requested the relevant ministries and institutions to develop the spatial plan of NSA located in the island of Kalimantan. Subsequent to this Presidential Decree, and acknowledged the status of HoB as NSA the Ministry of Agrarian and Spatial Plan since 2012 has started marathon public consultation and discussion with relevant sectors, provinces and districts to develop the HoB spatial plan for 2023.

The process of adopting HoB spatial plan is take longer than expected as the plan should accommodate not only the plan for cities and towns development in the districts within the HoB but also should provide spaces for urban development, infrastructures such as energy, road, rail way, ports, telecommunication, irrigation, clean water, and agro-industries, not to mention the needs to allocate catchment areas, protected area, conservation area as well as customary forest that all need to cautiously protected. For the case of Indonesia, infrastructure development in particular road construction are normally followed by legal and illegal urban development. Up to 2015 the urban development associated with road construction of 184.47 km in Kalimantan has costed of illegal forest opening of 73,171.07 ha (in East Kalimantan), 52,851.28 ha (in Central Kalimantan) and 57,635.12 ha (in West Kalimantan)¹. A simulation of HOB figure for 2020 green economy was developed by WWF Indonesia (Fig. 12.1).

¹Perambahan Hutan Kronis. 2017. Beri ruang bagi masyarakat setempat untuk menjaga. Kompas. Rabu 15 Februari 2017.

For that reasons the deliberations of HoB spatial plan of 2023 obviously may be a very complex issues and take a long period to adopt the best consensus that might acceptable to the majority of key stakeholders. Yet once the concensus is made, there would be an agreed plan that should direct and escort decision makers, legislators, key stakeholder in developing HoB area.

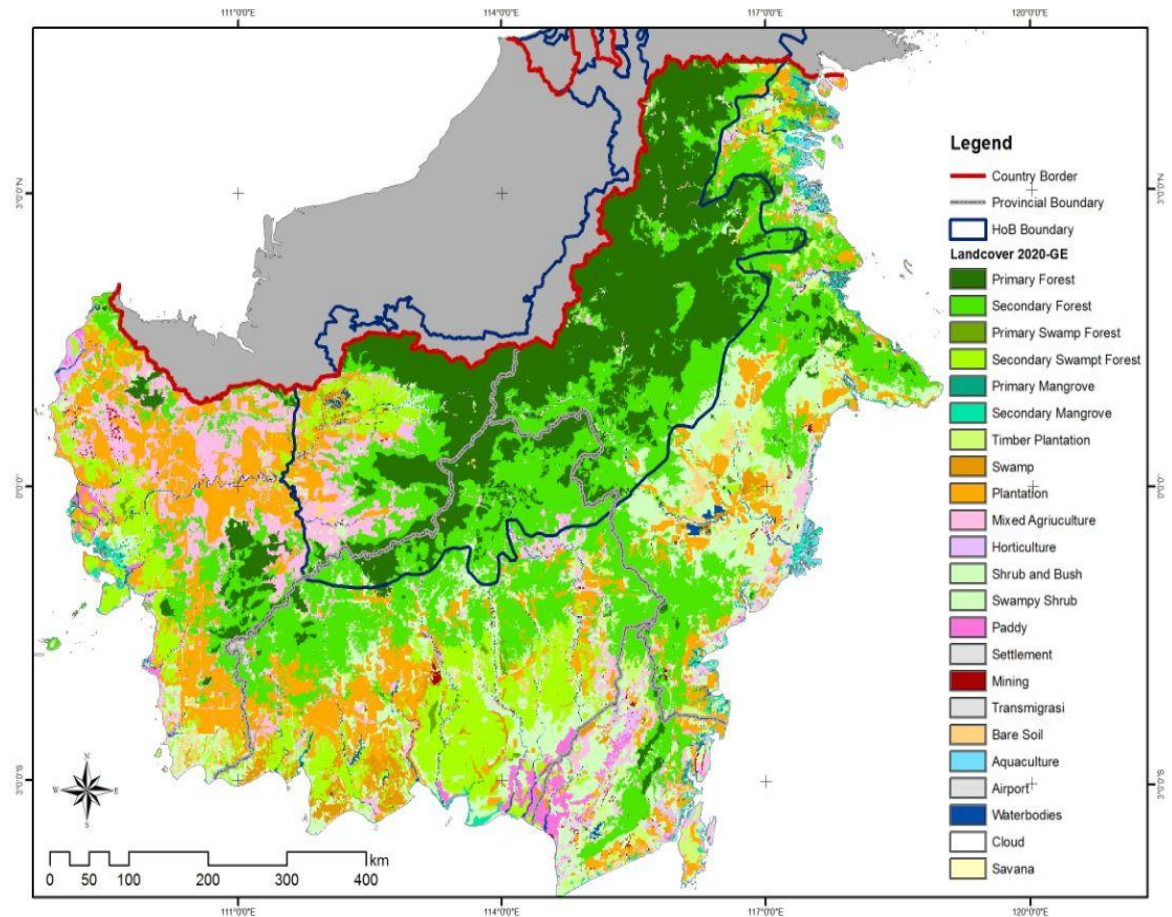


Fig.12. 1. Simulation of spatial scenario of Heart of Borneo area in 2020².
Source: WWF Indonesia

²van Paddenburg A. 2012. Heart of Borneo: Ecosystem and Biodiversity. Investing in Nature for a Green Economy (an Economic Policy Package). WWF Heart of Borneo Network Initiative.

Box 12.1. The Heart of Borneo (HoB) Initiative: Opportunities and Challenges
By Prabianto Mukti Wibowo (National Coordinator of the Indonesia HoB)

We are living beyond the earth's means. A quarter of the Earth's potential net primary production is already used by humans, either through direct cropping (over 50%), or land-use-induced productivity changes. One of the biggest combined impact on natural ecosystems is in South East Asia. Indonesia is a lower middle-income country and one of the world's largest and fastest growing economies. Much of this growth comes from the utilisation of natural resources with agriculture and forestry accounting for 15% of GDP. Demand for resources and productive land (e.g., for food, feed, fibre, fuel), energy and water is however still growing. This is happening while the effects of climate change are rapidly increasing in scale and intensity. There is urgent need for solutions that try to balance economic, social, and environmental aspects, and ensure long-term, responsible land and resource governance.



The Heart of Borneo (HoB) is the initiative of three countries, Brunei, Indonesia, and Malaysia that share the island of Borneo and, in 2007, committed to conserve, enhance connectivity and sustainably manage the forests and essential water catchments at the center of the island. Comprising approximately 30% of the island of Borneo's land area, more than 22 million hectares of tropical rainforest and the sources of fourteen major rivers or 70% of the water needs, the Heart of Borneo delivers ecosystem products and services for at least 11 million people. Borneo holds an estimated 6% of global biodiversity. Thirteen primate species have been recorded, 350 bird species and 15,000 species of plants. These include charismatic flagship species of global concern such as the Bornean orang utan, the Asian elephant, as well as locally distinct species such as hornbill and proboscis monkey. The Sumatran rhinoceros was shown in 2013 to still exist in Kalimantan despite previously thought to be locally extinct. The natural assets of the HoB are invaluable, and so are the social and cultural capital of the people living in the Heart of Borneo, especially the almost 1 million Indigenous people who directly depend on its forests for their livelihoods, food, income, water and culture, and have contributed to maintaining the forests

and preserving the rich and extraordinary biodiversity of the Heart of Borneo based on their customary regulations and conservation values.

Borneo is one of the most biodiverse places on earth. However, it has lost over half of its forest cover, with almost a third disappearing in the last three decades, and a further 10% of the Heart of Borneo forest has disappeared since the HoB Initiative was launched. Degradation is also an issue. The Heart of Borneo is also an economically productive landscape. In Kalimantan, over 7 million hectares are active logging concessions, 2 million hectares are active plantations (timber and oil palm),

The HoB Initiative remains an opportunity to change the path and steer the development away from exploitation of natural resources and neglect of ecosystem services to where the environment is regarded as a key asset in laying the foundation for sustainable development. It is only when nature is factored in as a component of the 'capital' directly contributing to growth, and environmental losses are translated into economic costs, that countries and private sector start to pay attention.

- The cost of abusing the natural basis of growth and impairing essential ecosystem services to be felt over the long term.
- The costs of natural disasters including forest fires
- The cost of social conflicts over land and resources are likely to increase when agribusiness, timber exploitation, mining operations expand and encroach upon customary lands,
- The cost (with long-term impact) associated with people deprived of their main sources of livelihoods, and the opportunity costs of local residents.

In Indonesia, the Strategy for developing the HoB through a Green Economy represents the response to the loss of biodiversity and deforestation that can directly undermine the ecological pillar of sustainable growth. HoB is the area where the conditions are such that can still support a different development paradigm which is more sustainable, fair, and inclusive.

While the conditions are there and some progress towards sustainability has been made in terms of sustainable forest management (Timber harvesting with reduced impact logging techniques), international and Indonesian standards for certification (timber and oil palm), focus away from fossil (coal and oil) to safe, sustainable and renewable energy (hydroelectric power), more integrated spatial planning, emerging attention to green budgeting, and new prospects like ecotourism are being explored, the rapid increase in demand and the relatively short-term economic scenario (5-10 years) often entertained by policy makers require the acceleration of Green Economy strategy and a strong incentives and disincentives policy framework to more aggressively address the drivers of deforestation and business as usual in the form of natural resource extraction.

Two additional conditions, the reorganization of administrative boundaries with a new province (North Kalimantan), and planned new districts and sub-districts, and the political agenda to develop the border area, can be both an opportunity and a challenge for the Heart of Borneo.

For Green Economy strategy in HoB to deliver effectively and timely to strengthen the resilience of landscapes, ensure environmental security, and improve the economy of the islands and the livelihoods of local people, some aspects need attention:

- Ensure that local values, traditional knowledge and practices inform policy development and land use planning

- Distributional equity. One of the most important challenges in setting up positive incentives for conservation is to make sure that they accrue to the right beneficiaries, and maintain the conditions that enable local stakeholders to derive benefits from natural resources (access and control, capital, knowledge, access to market).
- Tenure security starting from the local natural-resource dependent communities in Borneo
- More accurate pricing of carbon that benefit sustainable forest management, including traditional stewards of the forests of the interior
- Ensure inclusive decision-making and participation of the multiple users of the landscape in development policy. A model of decentralized polity would enable greater buy-in and achievement of accountability, and transparency.
- Encourage small-scale sector in forestry, fishery, and agriculture.





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