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untuk Kehidupan Jangka Panjang

Topik Utama

Perbaikan Lingkungan Hidup dan Sosial





PPI JEPANG

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dan
Membuka Indonesia Untuk Dunia*

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The Role of Heart of Borneo Initiative in Protecting Tropical Rainforest in Southeast Asia

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1. Introduction

According to the Forest Resources Assessment 2000, forests cover about 3,870 million ha, or 30 percent of the earth's land area. Tropical and subtropical forests comprise 56 percent of the world's forests, while temperate and boreal forests account for 44 percent. Forest plantations make up only about 5 percent of all forests; the rest is natural forest.¹

Covering an area of roughly 287,000 square miles, Borneo is the third-largest island in the world and also one of the most important equatorial rainforest in the world. Borneo was once covered with dense rainforests with its overall size of nearly 743,330 square kilometers (km²). The tropical rainforest covers almost 30 percent of the island. It is divided into four political regions: Kalimantan belongs to Indonesia; Sabah and Sarawak are part of Malaysia; a small remaining region comprises the sultanate of Brunei which are Malaysia (Sabah and Sarawak) (26.7%), Brunei Darussalam (0.6%) and Indonesia (Kalimantan – West, Central, South, and East) (72.6%)² which can be seen from Map 1. Located southeast of the Malay Peninsula and southwest of the Philippines, Borneo is primarily mountainous, with dense areas of rain forest. The highest peak in Borneo, Mt. Kinabalu, stands at 13,455 ft. With a generally hot, wet climate, rain is more common than not, with some portions of Borneo receiving between 150 and 200 inches of rainfall annually. Between October and March, monsoons buffet the island. This area of forest is also famously known as the "Heart of Borneo" (HoB) which is now being threatened from all sorts of threats that are mostly human made.³

In view of these threats and the fear of losing the HoB, the three countries in the island have come up with a joint conservation effort to protect the forests from further destruction with the help of the World Wildlife Fund (WWF). This article will look into the features of the Heart of Borneo initiative forest and its importance, and also the threat faced by the areas in the three countries. Finally, we will examine the main issue of this article, that is, the formulation and the role of the HoB initiatives in protection of rain forest in Southeast Asia and its progress.

2. Heart of Borneo initiative forest

The Heart of Borneo, one of the most biologically diverse habitats on earth, comprises the central highland rainforests of Borneo and transcends the international borders of Brunei, Malaysia and Indonesia.

Given the abundance of rainfall, it makes sense that Borneo's flora is among the most diverse in the world. Borneo has nearly 11,000 species of flowering plants, about a third of which are indigenous. How dense is the vegetation? In one 16 acre area of Borneo's lowland forest, over 700 species of trees have been recorded. In comparison, there are only 171 native tree species in all of eastern North America.⁴

The HoB covers a total of 220,000 km² of equatorial rainforest. It also contains most diverse creatures in the planet, from the Orang Utans, Rhinoceros and also other unique plant species. The HoB is conservatively estimated to hold 222 mammals (including 44 endemic – not found anywhere else in the world), 420 resident birds (37 endemic), 100 amphibians and 394 fish (19 endemic). There are 10 primate species, over 350 bird species, and 150 reptiles and amphibian species. At least 15,000 plants, of which, 6,000 are found nowhere else in the world.

Between 1994 and 2004, at least 361 new species have been described from Borneo, which are, 260 insects, 50 plants, 30 freshwater fishes, 7 frogs, 6 lizards, 5 crabs, 2 snakes and a toad.⁷



Figure 1. Map of the administrative of Borneo [Source: www.panda.org]

HoB initiative is the answer for the island fortification. It will ensure sustainable development, protecting part of the island valuable resources and contents from exploitation, protecting species and diverse ecological livelihood and most importantly preserving the island's natural heritage for future utilization.⁸

3. Threats to the Borneo forest

One of the main challenges faced by the three Borneo nations is the value of the natural resources to be found in the Heart of Borneo. The sought-after commodities do not end with timber. Palm oil plantations have become one of the prominent features on Borneo at times dominating the landscape.

According to the United Nation's Food and Agriculture Organization (FAO), Indonesia has experienced the greatest destruction of forest of any country in the Asia Pacific Region and especially in Borneo. The World Bank has predicted that in Kalimantan there will be no lowland rainforest left outside protected areas by 2010 if the current destruction rate continued.⁹

In the mid 1980s the forest cover of Borneo was still at 73.7%. In 2005 only 50% of Borneo remained under forest cover. Between 1985 and 2005 Borneo lost an average of 850,000 hectares of forest every year. If this trend continues, forest cover will drop to less than a third by 2020. Moreover, the rate of deforestation in Kalimantan is increasing. Between 2000 and 2002, deforestation rose to 1.2 million hectares a year. Together with forest loss in Sabah and Sarawak, this would amount to total forest loss of 1.3 million hectares a year. This is the equivalent of 140 hectares every hour and 2.5 hectares a minutes.¹⁰

⁷ Persatuan Pelajar Indonesia (PPI) Jepang: *Membuka Dunia untuk Indonesia dan Membuka Indonesia untuk Dunia* 14

Deforestation is the biggest threat to the equatorial rainforest of the HoB. This can be seen from the figures of the rate of deforestation in Figure 1. Road-building, logging, agriculture, forest fire and illegal wildlife trade are just some of the causes that led to deforestation of these areas. It all started with industrial road construction. The initiator of deforestation in the HoB is mainly due to the introduction of two simple machines in the 1950s, that is, the chainsaw and the caterpillar tractor. With these two machineries, the construction of road is made easier, which also results in the easy reach of previously unexplored forest whose trees can be felled in a matter of minutes. Since, then, the development of road has been a key factor, changing the face of Borneo. With the construction of new roads, it led to an increase in agriculture in previously inhabitable areas and also increased the opportunity of business and individuals to do logging, either legal or illegally, as they see the profit gained from selling the timbers from the area.

Another cause of deforestation in the HoB is from oil palm plantation, which is most common in Malaysia and Indonesia, as they are the two largest exporters of palm oil in the world. Vast areas of the forest have to be cleared in order to make way for the oil palm plantation. In 2004, over 37% of Malaysia's oil palm plantations were in Sabah, while Sarawak accounted for just over 13% of palm oil production.⁴ In Sabah, more than 16% of the land was utilized for oil palm plantation. It has about 1.3 million hectares of oil palm plantation with a potential for expansion to up to 1.7 million ha. Lahad Datu was chosen for the site of Sabah's first POIC because of its location within the major oil palm growing belt in the State. State-owned Sawit Kinabalu Sdn Bhd is developing the State's second palm oil cluster near Sandakan to take advantage of the vast acreage of oil palm in the Sandakan district, and neighboring Kinabatangan and Beluran district.⁵

More farmers are converting to oil farm cash crop with its high yields and quick returns. Indigenous tribes are encouraged to convert their forested land, palm oil plantations are springing up all over Sarawak and it is catching up with Sabah in terms of production. The implication of these economic activities would be a massive threat to the tropical rainforest whereby increase in private palm oil plantation would lead to shifting cultivation, inefficient and hazardous clearance of land. Clearing land by fire and illegal logging has already threatened the tropical forest in both Sabah and Sarawak.

The Indonesian government has licensed 9.7 million hectares of oil palm plantations, with 7.9 million hectares already planted by 2009. Some sources even mention plans for the establishment up to 20 million hectares of palm oil plantations through 2025 – an area the size of England, the Netherlands and Switzerland combined.⁶

To set up these plantations, however, more often than not rainforests and along with them traditional agro forestry and farmland are destroyed. Since the giant plantations in Sumatra are fast reaching their geographical limits, the plantation companies are concentrating more and more on Kalimantan and Papua.

"In Central Kalimantan alone, one of the most important habitats of the *orangutan*, there were 1.2 million hectares of oil palms planted by 2008 – half of it just recently due to the new boom." Altogether, around four times as many plantations are planned for the province, 70 percent of it in forest areas.⁷

A study by Greenpeace claims Indonesia destroyed 28 million hectares of its rainforests since 1990 – mainly for the cultivation of oil palms – making it the world's biggest deforester. The slash-and-burn method used to clear forests for plantations also exposes the rich peat soil beneath, releasing an estimated 1.8 billion tons of carbon dioxide a year into the atmosphere. Peat and forest fires are the second-biggest sources of manmade CO₂ after transportation, and have made Indonesia the world's third-biggest greenhouse gas producer after China and the United States. The Agriculture Ministry, however, continues to deny any link between palm oil production and deforestation in Indonesia.⁸

Moreover, Kalimantan has already vastly exploited its resources through mining activities—mine and quarries have been set up to extract precious stones and minerals. Mining had a serious effect on Kalimantan surface; mines and processing unit for basic raw materials are source of water contamination. Also open pits are hazardous to both wildlife and human being. Mining areas have been reported to impede parts of Kalimantan's natural drainage patterns.²⁸

Indonesia has recently caused a controversial an environmental issue in Borneo, when it again failed to control its logging activities causing deforestation, shifting cultivation and forest fire. Finally, Indonesia has not signed the ASEAN Agreement on Transboundary Haze Pollution.

Brunei Darussalam is heading towards the phrase of diversifying its economy. This will involve utilizing land, forest, forest contents. The economy will concentrate itself away from the nation's chief export of oil and gas production.

The resulting outcome will be a major threat to nation's forest resource. Brunei Darussalam has already extracted its forest resource from its logging activities. Although logging is controlled and permitted to authorized loggers, the problem of illegal logging activities is persisting within the country.

Further, the agriculture sector both private owned and state registered stakeholders are threatened to the forest. This problem is becoming an issue and needs to be assessed as Brunei Darussalam is trying to achieve national rice dependency output of 70% by 2015.²⁹ This national target will require land to be utilized more for rice production.

Another problem that threatens the forest in Brunei Darussalam is the shifting cultivation; improper clearing of land that continues to be practiced by local farmer such an open burning could destroy the natural habitats, species and ecology of the forest.

Projection of Borneo's Forest Cover 1985-2020

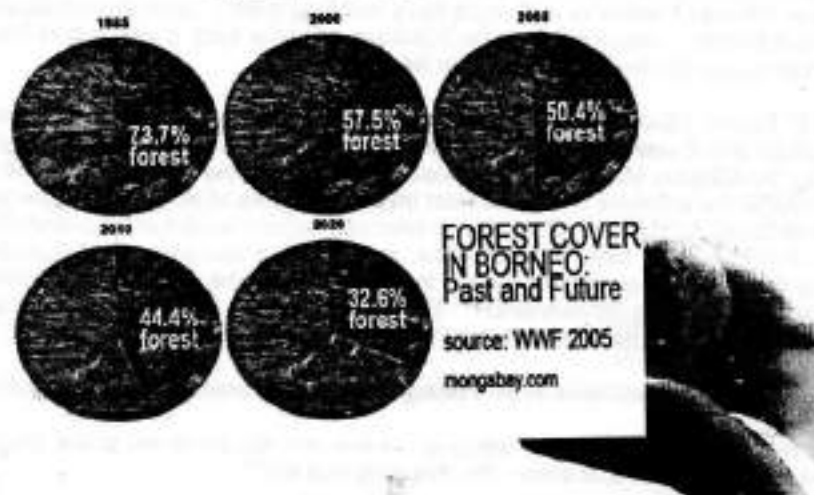


Figure 2. The rate of deforestation in Borneo [Source: WWF 2005]

4. Heart of Borneo initiative

The Heart of Borneo initiative is one of the most fundamental approaches in protecting and conserving the natural environment. WWF is supporting the governments of Brunei Darussalam, Indonesia and Malaysia, at national and local levels, with the support of WWF, has initiated a joint effort for the protection, conservation and sustainable use of the forests and water-catchments of the HoB area. This initiative has opened up the eyes of each country involved on the importance of protecting and conserving the forest of Borneo and its biodiversity as it is one of the most important existing equatorial rainforest in the world.

The HoB initiative began in April 2005, when Brunei Darussalam became the host to a ground-breaking workshop which brings all 3 Borneo governments; Indonesia, Malaysia and Brunei Darussalam, together for the first time to discuss the Heart of Borneo. The workshop brought forward the benefits of large-scale conservation, reviews issues facing the uplands of Borneo, and promotes the need for effective transboundary activities. Further discussions were set on the issues and a consensus is reached on a vision and action plan to promote the declaration of the HoB.

On December 2005, during the 11th ASEAN Summit in Kuala Lumpur, Malaysia, the Chairman stated on the importance of providing sanctuaries in the HoB to conserve the island's biodiversity. The HoB is included as flagship program in the 5-year work plan of an ASEAN forum, the BIMP-EAGA (Brunei Darussalam, Indonesia, Malaysia, Philippines-East ASEAN Growth Area), which is endorsed by the heads of government. The statement and the inclusion of the HoB in the BIMP-EAGA work plan shows how initiatives is moving up on the political agenda in Southeast Asia.

On March 2006, the HoB is officially launched at the Convention on Biological Diversity conference by the three Bornean governments. The three countries are now committed in supporting the initiative. This commitment is a landmark for the Heart of Borneo. What is needed now is a formal Declaration from the three governments to pave the way for increased international collaboration to improve the management of the region. With this announcement, it also spells the end of plans to create the world's largest palm oil plantation in Kalimantan, along Indonesia's mountainous border with Malaysia. The scheme was expected to cover an area of 1.8 million hectares and would have had long-lasting, damaging consequences on the Heart of Borneo. Hence, even at the initial stages of the HoB, it seems that it already has its effect in helping to conserve the forest in Borneo.

On 12th February 2007, the long awaited official signing of the formal Declaration was held in Bali, Indonesia and it was officially signed by the 3 representatives from the three governments of Brunei Darussalam, Malaysia and Indonesia. The three country declaration will conserve and sustainable management one of the most important centers of biodiversity in the world, covering approximately 220,000 km² of equatorial rainforest (almost a third of the island) (See Figure 3). After three years of intense negotiations, research and planning, the Declaration became a reality to ensure that the conservation of the HoB will be on the top of the environmental agendas of the three Bornean Governments.²⁶ The Declaration was important for the simple fact that it brought together the three governments under a common commitment.

5. The role of HoB initiative in protecting tropical rainforest in Southeast Asia

In order to play its role the HoB initiative has five main programs set as the top priorities in the effort to conserve the HoB area. The five programs are²⁷:

- a. Transboundary management;
- b. Protected areas management;
- c. Sustainable natural resources management;
- d. Ecotourism development;
- e. Capacity building



Figure 3. Map of the heart of Borneo areas [Source: <http://www.panda.org>]

Transboundary management refers to the management of the collaboration of three governments in conserving the HoB area. Since the HoB covers the forest in the three countries, proper planning, integration and cooperation between the governments of the three countries need to be setup to ensure the HoB area can be properly monitored and managed in reality and not just discussed on paper in workshops, seminars and conferences.

Each country also needs to properly manage the protected areas in their jurisdiction so as to enforce the declaration and ensure that the areas are indeed being protected and conserve. The protected areas are usually already being declared as National Parks or Forest Reserves which can be seen from the Figure 4.

Another important program in the HoB is the sustainable natural resources management, which will help to ensure that there are sustainable uses of natural resources in the HoB areas. For example, if there are still trees being felled in the HoB areas, it needs to be replanted to ensure that the trees are being replaced. In addition, if mining is still done in the HoB areas, it needs to be properly managed so that it does not disrupt the HoB areas biodiversity too much. However, if it does disrupt the environment in the protected areas, proper actions need to be enforced to discourage people from causing further disruptions.

Ecotourism is another part of the program in the HoB. According to Li and Han²⁰⁰⁸, ecotourism represents one of the most environmentally friendly alternatives for the economic development of protected areas. It can help benefit the protected areas by providing income to the local people and also contributing to the national development of the country. It is becoming a booming business around the world and part of the activities of ecotourism can be hiking, bird watching, and wildlife viewing in the forests.

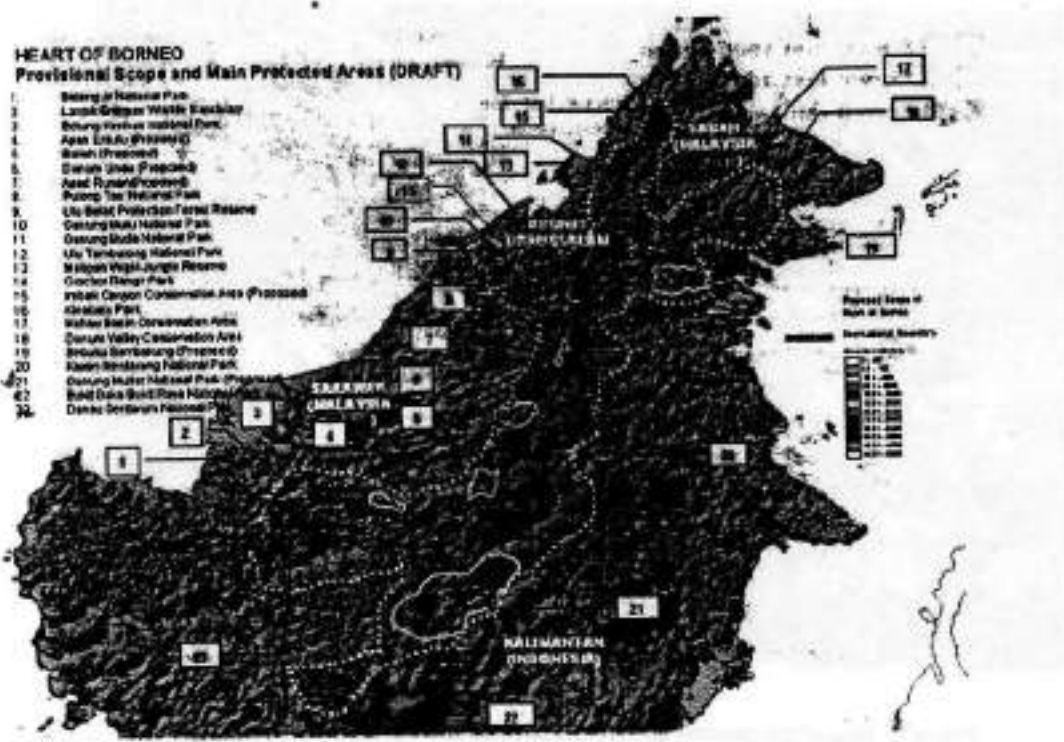


Figure 4. Map of the protected areas [Source: <http://www.panda.org>]

Brunei Darussalam is already trying to further develop its ecotourism by improving the current facilities in National Parks and Forest reserve and also providing new facilities in order to support the demand for the increase in ecotourism. This is also apparent from the allocation of budget of BND 65 million in the National Development Plan 2007-2017, which includes the implementation of four new programs; Forestry Resource Protection, Extension of forest Infrastructure Facilities and Support, Extension of Forestry Industry (Ecotourism) and Forest Product, and Development of Social and Environmental Forestry (Brunei Long-Term Development (Plan 2007). All of these programs will indefinitely help to boost the country's ecotourism industry.¹⁶

The final program in the HoB is capacity building, in which the United Nations Development Program (UNDP) has defined it as "the creation of enabling environment with appropriate policy and legal frameworks, institutional development, including community participation (of women in particular), human resources development and strengthening of managerial systems." It further describes it as "a long-term, continuing process, in which all stakeholders participate (ministries, local authorities, non-governmental organizations and water user groups, professional associations, academics and others)." Therefore, in relations to the HoB, capacity building is needed in order for the conservation efforts to be successfully implemented by the joint efforts of the three governments in providing the necessary policy and legal frameworks and also appropriate human resources to support the conservation activities programs. Furthermore, support from other non-governmental organizations (NGOs) is also needed in order for the conservation efforts to be success. One NGO that is already supporting and helping the HoB is the WWF.

6. The progress of HoB initiative

The latest progress of HOB was on the Fourth Trilateral Meeting to discussed finalized the Institutional Arrangement and Modalities for the implementation of the HoB Initiative followed by a workshop on "The Next Frontier: Forests to Reefs – Challenges and Opportunities", which was held from April 22 to 23, 2010. The meeting also aimed to provide an update of each country's progress in implementing their national HoB initiatives and discuss other matters which are relevant for the successful and effective implementation of the Heart of Borneo Initiatives.

The objectives of the workshop, among others are to promote awareness regarding the importance of forests and reefs, to explore opportunities that the forests and reefs could offer in the region wide context as well as to discuss the way forward to overcome the challenges being faced in implementing initiatives and endeavors. It highlighted the interrelationship of the forest ecosystem with the coastal ecosystem in order to formulate an integrated approach in natural resources management. The participants were representatives from government institutions, private sector, local community, non-government organizations, and other concerned stakeholders from the HoB (Brunei, Indonesia and Malaysia) member countries. A total 60 delegates from Brunei, Malaysia and Indonesia attended this workshop.

The Third Heart of Borneo (Hob) Trilateral Meeting in Kota Kinabalu, Sabah, Malaysia on 5th October 2009 attended by delegations from the countries involved. During this meeting Malaysia presented that at the national-level, Malaysia had formed a National Expert Working Group on the HoB, chaired by Secretary-General of his Ministry and comprising experts from the relevant stakeholders from Sabah and Sarawak as well as Peninsular Malaysia.

On the other hand, at the State-level, Sabah and Sarawak have also formed the State Steering Committee on HoB chaired by their respective State Secretary. The National Expert Working Group Meeting had met in May 2009 last year to discuss the implementation of the HoB projects in Sabah and Sarawak.

Under the Ninth Malaysia Plan, which covers a period of five years, the Federal government has allocated a sum of RM10.8 million to Sabah and Sarawak to implement various projects and activities under the HoB initiatives.²⁸

The 2nd HoB Trilateral Meeting was held on 4th and 5th April 2008 in Pontianak, West Kalimantan, Indonesia. During the meeting, each country presented their progress report on the HoB and also their plans or strategies in order to make the HoB success.

For Brunei Darussalam, the representative presented the National Project Document entitled "Project Implementation Framework (PIF)." The PIF sets out five objectives for Brunei's HoB namely: conservation of representative forest and freshwater habitats as well as the full range of biological diversity therein; economic diversification through the development of non timber use of forests and to sustainable timber harvesting; integrated framework for the conservation and sustainable use of forests and related natural resources; re-establishment of forest connectivity and the greening of degraded areas; and promoting public support and awareness towards Brunei HoB.

Indonesia is still in the process of formulating the National Project Document. Malaysia had formed a National Expert Working Group on the HoB initiative, which has been given the task to formulate the national Project Document, while Indonesia had not implemented the formulation of the Strategic and National Action Plan of Indonesia. However, the country has yet to present the national Project Document which is required for the country to formulate under the HoB initiative.

If we look at the progress of Heart of Borneo from Transboundary management perspective that the foundations of the Heart of Borneo's transboundary collaboration were laid at a workshop in

April 2005 that was hosted by the Brunei Darussalam government and facilitated by WWF. The event was attended by over 150 representatives from the government and non-government agencies of Brunei Darussalam, Indonesia and Malaysia, presented the benefits of large-scale conservation thinking, reviewed issues facing the uplands of Borneo, and promoted the need for effective transboundary partnership.

At the end of 2005, Indonesia's Ministry of Forestry held a National Workshop on the Heart of Borneo, drawing more than 100 participants from 8 government departments and 10 districts in Kalimantan. The workshop resulted in a draft Heart of Borneo Declaration, an agreement on the extent of the boundary within Indonesia and an action plan for the Declaration and future implementation. In a commendable show of partnership, these key outputs were communicated to the other 2 Borneo countries, Brunei Darussalam and Malaysia.

WWF-Malaysia has held briefings about the Heart of Borneo for government agencies and decision-makers at both Federal and State levels (Sabah and Sarawak) and the response has been positive. In March 2006, the government concluded that it would support the Heart of Borneo programme. Malaysia's Ministry of Natural Resources and Environment took the lead in preparing for the tri-national Heart of Borneo meeting, hosted in July 2006 by the Indonesian Government.

At the same time the progress has been achieved in Brunei-Darussalam. In partnership with WWF, the government held its National Heart of Borneo Planning Workshop in May 2006 and demonstrated eager support for the programme. As an outcome of this workshop, the proposed area for inclusion under the Heart of Borneo increased from 11% to more than 59% of the country, including both totally protected areas and production forest. The Heart of Borneo area in Brunei now extends from the interior upland borders, down through peat swamps to beach forests along the coast.

Other progress of the HoB is the creation and expansions of the protected areas management are shown in Figure 4. These areas mostly have been identified as National Parks or Forest Reserves and some are newly declared parks or reserves. The tropical rainforest of Borneo are one of the most biologically diverse habitats on earth. The District Government of Barito Utara (Indonesia) and the Gunung Lumut- Muller Foundation, a locally based NGO, have announced the nomination of Gunung Lumut protection forest in East Kalimantan to be a National Park. The area is internationally recognized as important for biodiversity conservation and function for the Kaharingan people, who believe their spirits reside in the mountain after death²⁰.

As for enforcement of any kind, there have yet to be any form of enforcement done by the joint efforts of the three governments against those who violate or are destroying the three or biodiversity in the protected areas. So far, any form of enforcement has been done by individual country according to the existing laws in each country.

Moreover, in term of sustainable natural resources management, there are three possibilities of achieving sustainable financing for HoB projects: internal projects of each member, transboundary projects (collaboration among Brunei, Indonesia and Malaysia) and making use of the HoB initiative. Brunei has launched a project, spearheaded at Sungai Ingai. Brunei will be able to access the level of biodiversity in Sungai Ingai, which represent biodiversity in the part of HoB. Malaysian authorities will nominate the Maliau Basin in the Heart of Borneo as a World Heritage Site. The basin covers almost 400 square miles (600 sq km) and ranges from 1,650ft (500m) to about 6,500 (2,000m) deep, which environmentalists call the Lost World, is deep within the remote interior of North Borneo, was only discovered in the 1970s and remains largely unexplored.²⁰ Mining and timber conglomerates have long eyed the rich coal deposits and potential concessions in the basin. In late March 2010, WWF-Indonesia and the Muller-Schwaneer Project (MS) held discussions in four sub-districts of Katingan to introduce the community to the National Park Management Plan and the Collaborative Management concept. Katingan area contains about 60% of the 181,000 ha, includes Bukit Baka, Bukit Raya National Park in the Schwaneer mountain range, straddling Central and West Kalimantan in the HoB. The

further suggested activities mainly for sustainable resources management such as the development of agro-forestry (rattan plantations, rubber, and agro-wood) and livestock/animal husbandry (goats, cows, chickens, fish, etc).^{xxii}

In term of ecotourism development, Indonesia (Kalimantan) expressed interest in taking part in the joint ecotourism package that Brunei, Sabah and Sarawak have been actively promoting. The idea for the joint ecotourism package was revisited during a bilateral meeting between the Minister of Tourism Malaysia (Dr. Ng Yen Yen) and the Minister of Industry and Primary Resources Brunei (Pehin Orang Kaya Seri Utama Dato Seri Setia Hj Yahya Begawan Mudim Dato Paduka Hj Bakar) during the Asean Tourism Forum in January 2010, Brunei Darussalam. The possibility for Brunei to market its Sungai Ingei Protection Forest in Belait District as another ecotourism product with could be jointly promoted with the nearby Gunung Mulu National Park in Sarawak, which is a UNESCO World Heritage Site. WWF Indonesia, in collaboration with the provincial Department of Tourism, plans to explore the tourism potential of Central Kalimantan, including Sebangau National Park, with the aim of publishing a guide to tourist destinations in the area. WWF-Indonesia is pleased to support government efforts to boost the economic situation of local communities. In this case, ecotourism should become a source of livelihood for local residents while conserving natural resources. There is a future for Brunei, Indonesia and Malaysia to work more closely and capitalize on the existing sustainable ecotourism so it will benefit not just the travel agents and tour operators, but more importantly for me the people living in the rural areas^{xxv}.

For capacity building, WWF in collaboration with *Forum Masyarakat Adat (FORMADAT)*, Serawak Malaysia develop and market as green and fair product (GFP). One of the products, Adan rice, is planted by communities in Krayan, Ba Kelalan, Bario and Long Pasia. This is an original, local variety from the Highlands in the Heart of Borneo. The Adan rice comes in white, black, and red varieties. The community also seeks recognition of collective Intellectual Property Rights for the rice as a product of the Indigenous Peoples of the Highlands of Borneo. Other products to use the GFP branding are mountain salt and wild cinnamon. Sustainable use and sale of forest products and other natural resources with market potential can become a conservation measure and help protect significant biodiversity while fulfilling essential economic needs and affording good livelihoods to the communities living in and around conservation areas. Brunei has already launched project One Village, One Product in 2009, which the concept is the nation aspires to achieve in the coming years, where local quality products can be recognize in a larger market scale, both locally and internationally, which could ultimately enhance the people's standard of living^{xxvi}. The Dayak communities in Datarban and Diak Lay both showed a deep knowledge of forest ecology and regenerative processes based on centuries of experience with long rotation agriculture. Traditional wisdom combined with more recent scientific experimentation indicates rapid re-growth can be achieved if cutting and burning are controlled. The productivity of valuable timber and non-timber forest products can be greatly increased through enrichment planting and other manipulations of the natural environment. The Dayaks as well as the Kutai and migrant groups, are concerned about the future of their communities and the natural resources upon which they depend. The local government, NGO, planners, academics, and community development specialists to empower forest people with the legal custodial authority to heal disturbed forest ecosystems and make them once again ecologically rich and economically productive^{xxvii}.

Finally, according to Adam Tamasek from the World Wildlife Fund (WWF), a clear regional policy framework is critical for the Heart of Borneo project to succeed^{xxviii}. There is a whole interconnectivity and addressing that needs cooperation. It requires people, governments, stakeholders, understanding that they are all as much of the problem as they are of the solution.

7. Conclusion

After looking into the formation and background of the HoB, it can be seen that the joint efforts of the three Bornean governments have gained support from the global community and other

- international organizations. However, since the HoB is still considered as being in its initial stages, there are still a lot of improvement and work to be done by the three countries involved.

There is a need for more public awareness of the HoB, which means that the three governments need to do more exhibitions and campaigns to inform the public on the importance of the HoB initiative in protecting and conserving the forest and biodiversity.

Since the HoB initiative involves the three governments, there is a need for proper budget allocation in order to support the programs planned for the project. Moreover, there must be equal commitments from all the three countries involved to ensure that the HoB will be a success.

There seems to be very slow progress on implementation of the programs planned. So far, the HoB initiative members and representatives from the three countries have only held meetings and group discussions, but no actions have been enforced on the violators of the HoB areas. Therefore, there is a need for more actions rather than just meetings and discussions, so that it will show public that the HoB is already in action and hopefully will discourage people from further destroying the HoB areas.

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