





Harvesting©Dora Jok

Foreword

“They believe that they are caretakers of the land and forest for their children, and children’s children”

Within the Heart of Borneo, a new name for areas that cross the political boundaries of three countries, Brunei Darussalam, Indonesia and Malaysia, live numerous ethnic groups. Many of them have in the distant and not so distant past, moved and lived across the divides of rivers, forests and mountains. These people have used resources sustainably based on their traditions and knowledge. They believe that they are caretakers of the land and forest for their children, and children’s children. Their identity, their art and handiwork, their sustenance and their belief systems come from the natural world which they are part of. They use their accumulated knowledge to farm and manage natural resources by clearing small patches, growing rice, vegetables and other crops and then returning to farm the same land after several years during which the fields are left fallow. The jungle quickly reclaims the areas, with light loving secondary plant species, and then years later are once again farmed.

The jungle is also cared for by the hands of the people. Some plants, for example wild sago (*Eugeissona utilis*) are harvested, but this harvesting is nurturing. The sago palm sprouts and years later the people return. The people understand the migrations of the wild boar and the flight of the birds. Yes, they hunt, they harvest the natural world, but they do not do this as outsiders, they do it with care as they believe that they are part of the same ecological community.

Realising that they are heirs to the knowledge and wisdom, the present generation has formed local initiatives such as The Forum of the Indigenous Peoples of the Highlands in the Heart of Borneo (FORMADAT) to ensure its continued existence.

This book is the product of many years of experience and research. It is the voices of the people of the Heart of Borneotelling stories of their own and sharing their knowledge, wisdom, love for their land with researches around the world. I believe it is through this book that those of us who do not live in the jungles, next to the rivers, or gaze up at the mountains, can feel, learn and become attached to the land called the Heart of Borneo.

Jayl Langub
Heart of Borneo Elder & WWF-Malaysia Trustee



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Fisherman on river in Danau Sentarum, casting the net
(c) WWF-Indonesia / Sugeng Hendratno



Today, an estimated 17 million people live on the island, with the majority based in the coastal lowlands and cities

Borneo - the World's Third Largest Island

Borneo (745,000 km²) supports the largest remaining block of tropical forest in South East Asia. It is divided between three countries, Brunei Darussalam, Indonesia and Malaysia. Indonesia accounts for 70 per cent of the island, with four provinces - East, West, South and Central Kalimantan. Malaysia's states of Sabah and Sarawak are located to the north and west of the island, while the Sultanate of Brunei Darussalam is located on the northwest coast.

Today, an estimated 17 million people live on the island, with the majority based in the coastal lowlands and cities. The forests of the Heart of Borneo area are of high value for people's livelihoods and the environment. There is a strong interdependence between Indigenous Peoples and the resources as well as the services the forest provides. The forest of Borneo provide clean water, biodiversity and non-timber forest products, soil fertility and carbon sequestration. These resources are enjoyed by the peoples on the island of Borneo and beyond.

Borneo is one of the most important centres of biodiversity in the world. Home to 13 primate species, over 350 bird species, 150 reptiles and amphibians and 15,000 known species of plants, Borneo, along with Sumatra, is the only place on earth where endangered orang-utans, elephants and rhinos co-exist. Other threatened wildlife that live on the island include clouded leopards, sun bears, and endemic Bornean gibbons.

Since the mid 1990s Borneo has lost on average 850,000 ha of forest every year.¹ Borneo timber was extracted to meet international demand. Mining, although so far having a smaller impact than other sectors, still threatens the primary rainforests. Such massive conversion of land is unsustainable and the detrimental effects on the island's soil, hydrology and biodiversity have been profound, as have the effects on long-term prospects for Borneo's social and economic development.

Anthropologists, ethnologists and other researchers² have documented changes in Borneo society starting with the advent of large-scale commercial logging and other intensive agricultural schemes in the 1970s in previously remote locations and areas previously protected through local, indigenous community sanctions and practices.

¹ WWF, 2005. Borneo: Treasure Island at Risk

² e.g. Potter, L. 1988. Indigenes and colonizers: Dutch forest policy in South and East Borneo (Kalimantan) 1900 to 1950.

Dove, Michael R. 2011. The Banana Tree at the Gate. A History of Marginal Peoples and Global Markets in Borneo. Yale University Press (The Agrarian Studies Series), 2011

This is a more comprehensive Human of Borneo publication that covers culture, language, livelihood and including leader's story. Previously we have a pre-publication version of Human of Borneo that was done in 2007.

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For further information please visit

The Heart of Borneo website, <http://www.panda.org/heartofborneo>
WWF Indonesia, <http://www.wwf.or.id>
WWF Malaysia, <http://www.wwf.org.my>



Lalut Birai survey station in Kayan Mentarang National Park, East Kalimantan
©WWF-Indonesia/Dinda Trisnadi

“Yes, timber is ‘gold,’ but this is not the kind of gold that is good for us. I want to protect the forest in my area, as the forest provides us, Dayak peoples, with everything we need”

Anye Apuy

Development in the interior

The development of Hulu Bahau and the well-being of my people has always been high on my mind. It is important, however, to understand what we need by development, and what is good for us in the long term, instead of taking any offer that is economically tempting. The people of the interior together built the current airstrip used by Mission Aviation Fellowship (MAF) with a lot of hard, volunteer work. It took them five years and it was inaugurated in 1981 by the MAF pilots.

With the same kind of “right” development on my mind, I led a group of people from Long Alango on foot across the border to Sarawak to see if the people and companies there would be willing to help with building a road to the border. A road is important to break the isolation of the area and open access to market and other essential services.

If I continue to convey the aspirations of the people to the government and the Ministry of Forestry and fight for economic development, however I also know what kind of offer to reject because it is not going to be good for my people. For example, I was asked by a timber tycoon to work with him to start logging activities in Hulu Bahau, and was promised lots of money if I had agreed.

Yes, timber is ‘gold,’ but this is not the kind of gold that is good for us. I want to protect the forest in my area, as the forest provides us, Dayak peoples, with everything we need. As much as I can, I support the national park which occupies the western part of Hulu Bahau.

A customary chief and environmental hero

My efforts to maintain the *tana ulen* of my father and traditional regulations in support of sustainable forest management earned me a prestigious national award (*Kalpataru*) by the President of Indonesia in 2009, together with four other environmental heroes. It was also in the name of the importance to protect the environment, that the artist and singer Nugie has come to see Long Alango and the Lalut Birai research station, and even dedicated a song to my village.

Because of my age and life experience, I would like to advise the younger generations on many things. I will say this out loud, that we should support the plan of the Malinau District to become a Conservation District, and secure a sustainable future for all of us by protecting the forest and managing wisely the natural capital we have. I still remember when I visited a small village, Batu Puteh, in Sabah, several years ago. There was no forest left in the surrounding area except for a few pockets along the river. *“They took the forest from us”* the people there told me *“do not let them do that to you, if you still have forest in your village. Forest is life.”*

The Peoples of the Heart of Borneo

Straddling the central mountain range and parts of the adjacent foothills and lowlands, the Heart of Borneo covers the regions of East, Central and West Kalimantan, Brunei, Sarawak and Sabah in the centre of the island. The area is home to almost one million indigenous peoples, whose heritage and traditional knowledge have helped sustainably manage the forests of the Heart of Borneo.

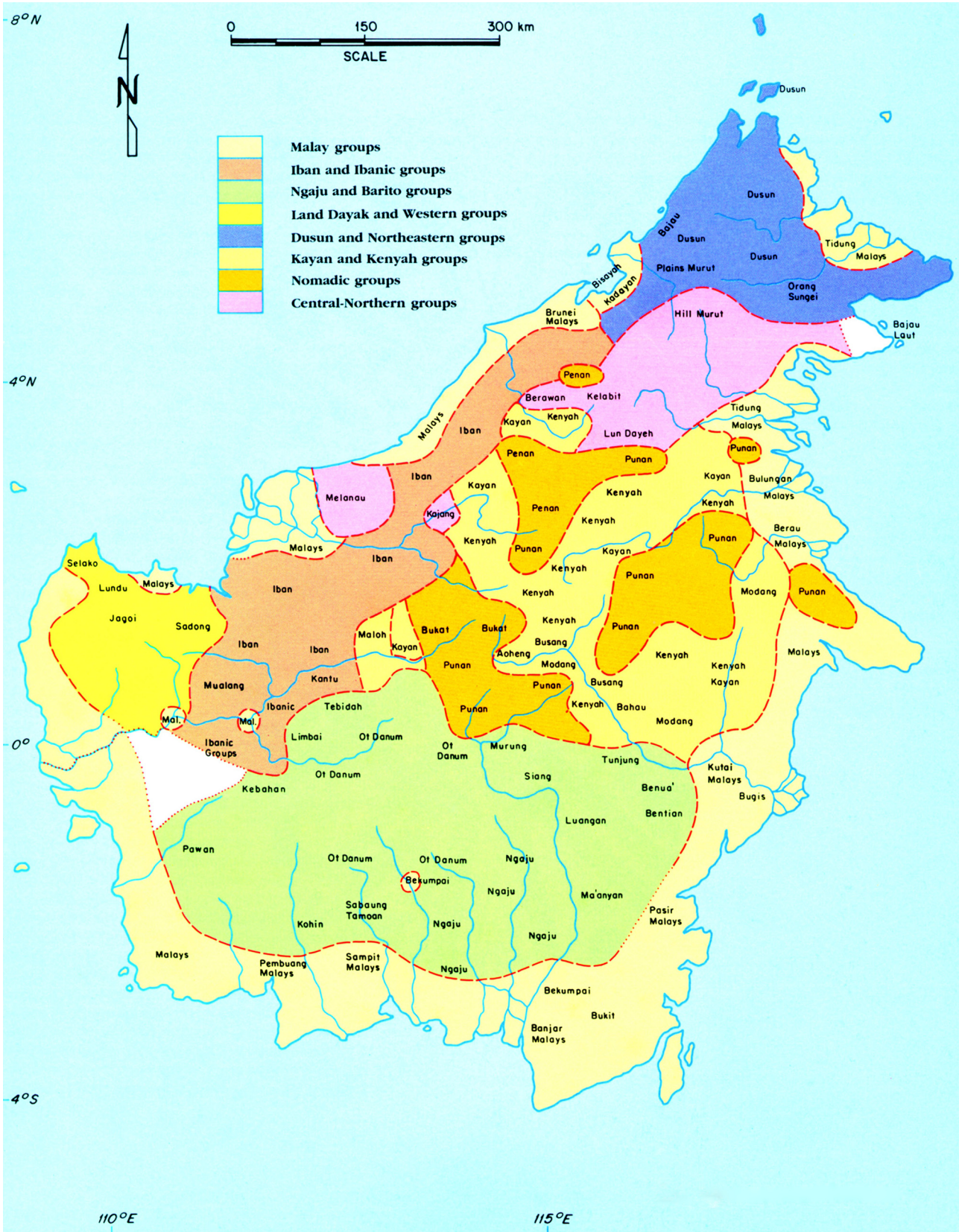
Researchers suggest that humans have lived in the area since Middle Paleolithic time based on the archeological findings at the Niah Cave Complex, in Miri district, Sarawak, Malaysia. The indigenous peoples of the Heart of Borneo are commonly known as Dayak. The term was originally coined by Europeans referring to the non-Malay inhabitants of Borneo. The Dayak peoples comprise over 50 ethnic groups speaking different languages. The high cultural and linguistic diversity in many ways parallels the high biodiversity and related traditional knowledge of the Heart of Borneo.



The Heart of Borneo reflected on Bahau River, Malinau, East Kalimantan
(c) WWF-Indonesia / Mubariq Ahmad



Distribution of ethnic groups in Borneo



source: Naga dan Burung Enggang. Hornbill and Dragon. Kalimantan, Sarawak, Sabah, Brunei. By Bernard Sellato. Jakarta: Elf Aquitaine, 1989

A community leader and family man with many responsibilities

In 1971, two years after the death of my father, I was appointed to replace him as Customary Chief of Hulu Bahau. I was still very young to be a customary chief, but this was the will of the people. I was lucky in the beginning to be advised by the elders who helped me rule on social disputes between villages and individuals in wise and appropriate ways. It was also an opportunity to meet with a lot of people from Indonesia and abroad, the government, WWF and other NGOs, researchers and tourists. I learned a lot and provided hospitality to all the guests as well as I could. If one thing I learned in my life is that the more you open up and meet people, the more you earn friends all around the world.

My first child, a daughter, was born in 1969, the first of eight children with my first wife, whose father was the head of the village in Apau Ping. My good life together with my wife and eight children was ended abruptly in 1984 by her sudden death. Back in Long Alango, I became a single father trying to raise my small children as well as I could. I had to learn how to cook well for them, take care of them when sick, and motivate my eldest daughters to continue school instead of coming back home to take care of their younger siblings. I remarried in 1986 with a lady much younger than me. We had four children together.

The Lalut Birai Research Station and WWF: Long Alango goes international

In 1991, a foreigner and his team¹³ came to Long Alango. They wanted to build a “camp” along the Nggeng River in what used to be my father’s *tana ulen*. They said that this would help the people in Long Alango take care of the good forest in the Nature Reserve and also improve the welfare of the people. After I agreed, the team built a research station with all the necessary equipment (solar power, radio, etc), a dormitory, a kitchen and dining room for people to stay.

Local people were concerned about the Nature Reserve in the nearby forest. The status of Nature Reserve did not allow for people to live in the forest nor use forest resources in the area. What would happen to the people who had been living there and managed the forest for a very long time?

The *tana ulen* tenure system and the presence of WWF contributed to the preservation of this beautiful forest along the Nggeng River. Many researchers from abroad started to come and study the flora and fauna of the area. I did not realise how well known the place had become internationally until one day someone gave me copy of the New York Times with my interview and photo. It must have been the outcome of the visit of an American journalist to Long Alango a few years ago, at a time when people here and around the world were concerned about plans for oil palm development along the border.

The Lalut Birai Research Station attracted several important guests. One day, we got information that the US Ambassador to Indonesia would be coming with his family to visit the forest and Lalut Birai. They arrived, however, a bit unexpectedly when many people were not in Long Alango. We made the best of it and additional police officers came from Long Pujungan to ensure his safety. The ambassador and his family had a great time and experienced everything “Dayak”: the forest, the river, the traditional hornbill dances, the arak and the friendly embrace of the community. After going back to Jakarta, the ambassador sent me letters and books.

Another very important guest to Lalut Birai was the Minister of Forestry, Bapak Jamaludin, who came in 1994. He spoke of the importance of conserving the forest of the national park and managing sustainably all forest resources. I gave him a traditional Kenyah name, the name of a fighter for the good of his people: *Bawe Sigau Lian Bulan*. He donated a hydroelectric power unit to our village.



Lalut Birai field station, Kayan Mentarang
©WWF Indonesia/Gemma Deavin

¹³ The team was from WWF Indonesia, Kayan Mentarang Nature Reserve Project

Transmigration plans looming

Back in Long Alango, I continued my responsibilities as village chief until 1971. I was also offered to become a member of the local parliament in Bulungan in consideration of my role during the “Confrontation” and the influence I had on my people, but I refused.

In 1967, the transmigration scheme had began in Indonesia. Migrants from Java were moving to Kalimantan and settled in the Tanjung Selor area. The communities of the interior were encouraged to move out to the lowlands to benefit from economic development and were promised logistical support. Several people did, others stayed behind. I was also personally called upon and asked if I wanted to move from the interior. In the eyes of the local government officials, this would have been a strong signal to the rest of the people to move downriver. But I did not move. Can you imagine how a freshwater fish could survive in the sea? No, it won’t survive. My life is in the interior, I am a farmer, I know the rice fields, forests and rivers of the interior, I feel out of place in the lowlands and coastal areas.

Logging starts along the rivers of the interior

In the late sixties, hundreds of people started to be involved in what was called ‘*banjir kap*’ (floating logging or cutting/transporting logs during the floody or rainy season). Mature trees growing along the two main rivers, Kayan and Bahau, were cut and floated downriver. There were three companies operating in the area that I remember. I was responsible to measure and mark the logs for one of the companies (CV Sinar Rimba).

It was easy in those days to make lots of money for those involved. But the quick and high money also caused theft and quarrels. My job was tough. I had to measure the logs cut by several groups before they were rolled down from the side of the mountain to the river. I used my own boat and engine to go up and down through the rapids. I ate and slept by the river for almost two years. My reward was equivalent to the value of one quarter of the timber cut, measured, and floated down, plus additional benefits. It was not bad. However, I did not receive a salary, my money was stored with the company in Tanjung Selor.

Sometimes, before falling asleep, I thought about the money I had already earned, and felt good about the future, my savings, and starting a family back home. But as sweet as a dream might be, reality sometimes hits hard. The company I was working with went bankrupt, all assets were seized, and the head of the company was put under house arrest. I never saw my money and could not do much about trying to get anything back, except take a long breath, bite my fingers, and remember those days of very hard work.



Anye Apui
©WWF-Indonesia / Dery Suhendi



Bukat child, Nanga Hovat, Kapuas Hulu
©WWF-Indonesia / Syahirsyah

Barito-Ngaju

While they belong to three language groups, Barito-Ngaju people share geographic and some cultural similarities. Mostly, they can be found in what is now Central Kalimantan.

They are famous for undertaking sophisticated death rituals, often involving secondary burials which are performed months or even years after the initial burial. Mausoleums were traditionally built using carved and painted Borneo ironwood, but today they are increasingly made of concrete.

Batang Garing, the Tree of Life concept is the basis of their philosophy of life which is also reflected in religious ceremonies and rituals.



111 years old longhouse, Betang Toyoi with sandong the bonierepository, in Gunung Mas, Central Kalimantan ©Markurius Sera



Iban girl
©WWF-Indonesia / Sugeng Hendratno

Iban

The Iban peoples represent the largest Dayak group in Sarawak, and trace their origin to West Kalimantan. Historically they were known for their great pioneerism and mobility in opening virgin land for farming. The Iban society is traditionally based on strong egalitarianism.

The traditional custom of *bejalai* describes the important institution of a journey undertaken by young Iban men for material profit and prestige.

The wider Iban community is now established well beyond Sarawak and West Kalimantan, in Brunei and Sabah.

Tana Ulen: conservation the Kenyah way

My father was an aristocrat of high lineage. In his capacity as respected and influential leader, he owned an area of virgin forest along the Nggeng River, near our new settlement of Long Alango (Hulu Bahau). The area was rich in forest products, game and fish. However, no one was allowed to go there on a daily basis, hence the name *tana ulen* or “restricted area.” Only in case of a special event held in the community, a celebration or a ceremony with many guests and attendees, people were granted permission by my father to go hunting and fishing along the Nggeng River, where they were ensured plentiful harvest.

The *tana ulen* tradition of forest management of my ancestors continues to this day. As Kenyah peoples, we are very proud of this unique tenure system that has contributed to sustainable management of forest resources in the Heart of Borneo. Nowadays, the community, rather than the aristocratic chief alone, is in charge of regulating the *tana ulen*. In Long Alango, *tana ulen* is the collective property of the village and there is a special committee to oversee it called *Badan Pengurus Tana Ulen* (BPTU).

Hero and leader at the border

In the interior of Borneo, it was a common tradition for Dayak young men, and some women, to go to Sarawak on an expedition (*peselai*) in search of good fortune. This was as much an economic venture as a rite of passage to become

an adult, a bearer of higher responsibilities in the community of origin. In my young days, I also left my village for Sarawak and walked five days and nights across the mountain range to the upper Baram area, on the other side of the border. I stayed with the Customary Chief, the famous Temenggong Laway Jau. After some time, I decided to go back to my village, and asked for permission to leave. Conditions might be more difficult and harder in Indonesia, but I loved my village and did not want to stay in Malaysia forever.

The people in the community asked me to become the head of the village in 1963. I was the youngest of all village chiefs in Hulu Bahau. That was also the time of confrontation between Indonesia and Malaysia, and young and strong men were recruited locally to help fight for our country. The knowledge of the forest and area along the border being crucial to the troop movements and our defense. I became a volunteer. The Army General in Kalimantan, asked me to put together a group of 100 men and lead them on the frontline near the international border with Malaysia. Life as a volunteer commander was tough as I was part of some very dangerous missions.

Right after the confrontation in 1965, a General invited my father and myself to Jakarta... Jakarta, the Indonesian capital, it was beyond my imagination that I would go to the capital. For one entire week, my father practiced how to walk with shoes. My father was a famous leader among Dayak people, but wherever he was going in the forest and rivers of the interior he used to walk bare foot.

In Jakarta we stayed at the Hotel Indonesia, top floor, and from there we were looking down on the traffic around the famous roundabout where cars looked like they were going around and around endlessly. We visited all landmarks (some still under construction) and other cities in Java. They took many pictures of us and we were on TV almost everyday. My father was the attraction, a real traditional Dayak Chief wearing a hat woven with pandanus leaves, long hair and elongated ears.

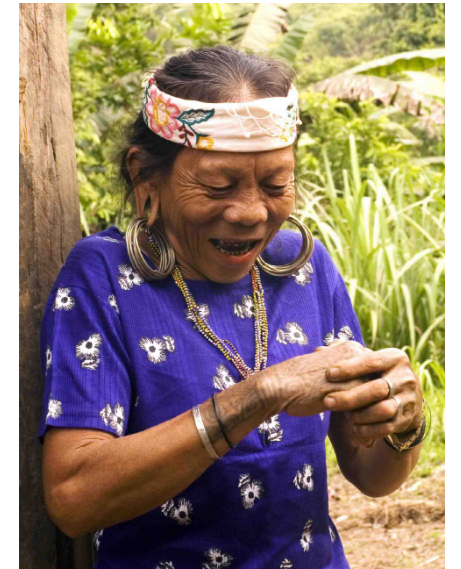
On August 8th we met with President Soekarno at the Presidential Palace. The atmosphere was friendly and relaxed, the president hugged my father and myself, he looked at the photos from Long Alango. My father mentioned that he had already been to Jakarta in 1901, but the name was Batavia then. Everybody asked where he was staying at that time, and my father replied, “HOB Gelodok” (which was the location of the prison), “That was my palace then,” he added. Everybody laughed. My father spoke to the president of his satisfaction and gratitude for having the chance to visit Jakarta -“I have been to paradise, now I can die in piece, with no regrets”- and asked the President to come to Borneo and meet the people of the interior. “Mr President,” he said, “There is no need for you to send special troops from Java to the border, send us weapons and we (my child and I) will defend our country.”



Penan/Punan

The Penan peoples, usually referred to as Punan in Kalimantan, are a diverse group of originally nomadic hunter-gatherers. They have not traditionally grown rice or other field crops but instead processed sago from a forest palm (*Eugeissona utilis*) as a main staple food. They relied almost entirely on the forest and its resources for their subsistence and trade.

Today, the great majority of Penan and Punan have settled in small villages and conduct small-scale farming. They also continue to trade non-timber forest products (NTFP) for their livelihoods. Only a few hundred people still follow the nomadic hunter-gatherer way of life, especially in the interior of Sarawak.



Punan lady
©WWF Indonesia / Sugeng Hendratno

Anyie Apuy: The life of a Kenyah Customary Chief in the Heart of Borneo

Aristocratic lineage

I was born in Long Kemuat (Hulu Bahau), the third of eight children, on 31 December 1943. My father, Apuy Enjau, was a highly respected traditional leader of the Kenyah Lepo Maut peoples, well known in Indonesia as well as in Malaysia (Sarawak). As customary when announcing the birth of a boy into an aristocratic family, guns were fired first, followed by the beating of gongs. Our longhouse, the longhouse of the Chief, was bigger and taller than other longhouses, with wooden planks 20 metres long. The big verandah could accommodate many people during important ceremonies like the naming of a child.

Getting an education in those days was a challenge, but I was able to attend “community school” in my village and then pursue higher education in other villages along the Bahau and Kayan rivers, and later in Tanjung Selor, the main town of the Bulungan district. I still remember the names of all my school mates and teachers. Some of them have become important political figures in Malinau and Bulungan.

(Adapted and translated by Cristina Eghenter from the Autobiography of Anye Apui, Kepala Adat Besar Hulu Bahau, District of Malinau, East Kalimantan, Indonesia)



At home in the deep forest of the Tubu River, East Kalimantan
©Dominic Wirz



Kadazan man custome - Penampang Sabah
©WWF-Malaysia / Yosuf Ghani

Kadazandusun

Like in other parts of Borneo, the population in Sabah is also ethnically diverse. It is home to more than 50 ethnic groups, 30 of which are regarded as indigenous.

The Kadazandusun are the largest ethnic group in Sabah, accounting for over 25 per cent of its population. The group comprises both of Kadazan and Dusun peoples, as well as their sub-groups. In 1991, the Kadazan and Dusun merged the names of the two groups to form Kadazandusun.

The Kadazandusun are speakers of languages of the Dusunic family. Traditionally, they occupied the fertile plains of the west coast of Sabah from Kudat to the border of Sarawak, and the interior areas of Ranau, Tambunan and Keningau.

According to Kadazandusun legends many Dusunic groups trace their origins to Nunuk Ragang, a fig tree located at the confluence of the Liwagu and Kogibangan rivers in the heart of Sabah.

The Kadazandusun are an egalitarian society with a bilateral descent system. In the past they lived in villages composed mainly of longhouses with several families living under one roof. The traditional Kadazandusun worldview holds that secular life is intimately connected to the spiritual world in a relationship which must be maintained to keep both in a state of balance and harmony.



Partnership is an important element in making Heart of Borneo Initiative a succesful one, including with community and indigenous people
©Hermanto / Photovoices HoB WWF

DECLARATION ON THE HEART OF BORNEO INITIATIVE Three Countries, One Conservation Vision

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

- With one conservation vision and with a view to promote people's welfare, we will cooperate in ensuring the effective management of forest resources and conservation of a network of protected areas, productive forests and other sustainable land-uses within an area which the three respective countries will designate as the "Heart of Borneo (HoB)", thereby maintaining Bornean natural heritage for the benefit of present and future generations, with full respect to each country's sovereignty and territorial boundaries, and also without prejudice to the ongoing negotiations on land boundary demarcation.
- The HoB Initiative is a voluntary trans-boundary cooperation of the three countries combining the stakeholders' interests, based on local wisdom, acknowledgement of and respect for laws, regulations and policies in the respective countries and taking into consideration relevant multilateral environmental agreements, as well as existing regional and bilateral agreements / arrangements.
- We are willing to cooperate based on sustainable development principles through research and development, sustainable use, protection, education and training, fundraising, as well as other activities that are relevant to trans-boundary management, conservation and development within the areas of the HoB.

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

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

For the Government of
His Majesty the Sultan
and Yang Di-Pertuan of
Brunei Darussalam

For the Government
of the Republic of
Indonesia

For the Government of
Malaysia


H.E. Pehin Dato Dr.
Awang Haji Ahmad bin
Haji Jumat
Minister of Industry and
Primary Resources,
Brunei Darussalam


H.E. Mr. M. S. Kaban
Minister of Forestry,
Republic of Indonesia


H.E. Dato' Seri Azmi bin
Khalid
Minister of Natural
Resources and Environment,
Malaysia

Murut

The term Murut (hill people) was used in the early 1900s to classify the peoples living in the hilly regions of Sabah and Sarawak. In Sabah, they for the most part reside in the southern part of the state.

In pre-colonial Murut society, headhunting was a central feature of life. Headhunting raids among the Murut were used as a way to settle feuds between longhouses. Such feuds could continue over several generations.

Although the Murut were once a longhouse dwelling society, they now live in single residences. Headhunting has long stopped but exchange and payment in goods as part of marriage traditions is still practiced.



Mangunatip, the famous Murut bamboo dance
©WWF-Malaysia/Engelbert Dausip



The Rungus Couple (Dusun Group) - Sarawak
©WWF Malaysia / Yosuf Ghani

Rungus

The Rungus are an indigenous group who have traditionally inhabited the northern part of Sabah, in Kudat, which is regarded as the Rungus homeland.

The Rungus are traditionally swidden rice farmers. In their rice fields, they also cultivate various food crops, fruit trees, and medicinal and other useful plants.



Huddo' dance, Kayan Mendalam, Ting River, Kapuas Hulu
©WWF-Indonesia / Sugeng Hendratno

For example, in November 2011, the Sabah government organized an international workshop entitled *Sabah Heart of Borneo (HoB) Green Economic Development*, involving representatives of business, government, civil society and multilateral development organizations all contributing their views on how a Green Economy could be implemented in Sabah.

In November 2012, the Sabah government is also organizing a large conference entitled *Heart of Borneo +5 and beyond* – shaping and nurturing Sabah's future together, which will, amongst other topics, review the development of the HoB Initiative since the Declaration in 2007. Brunei is also making its commitment known, outlining its vision as the Green Heart of Borneo with 'Brunei's Green Pursuits', a platform to mainstream green economy issues into Brunei's overall development plans.

Indonesia too, is stepping up to the challenge, in June 2012, the Indonesian President Susilo Bambang Yudhoyono, stated that his country is working to shift its economy from one in which forests are sacrificed in return for economic growth, to an environmentally sustainable one, where forests are prized for the wide range of ecological services that they provide to society. He declared that by 2025 "no exploitation of resources should exceed its biological regenerative capacity."

The HoB Initiative is also focusing on specific international events where it is hope that the three HoB governments will be invited to showcase their support for the development of a Green Economy in the HoB which points the way to integrating sustainable development into economic development plans. These events will offer the opportunity to show to the world the leading edge forest and green economy solutions which are being developed by the three countries in the Heart of Borneo.



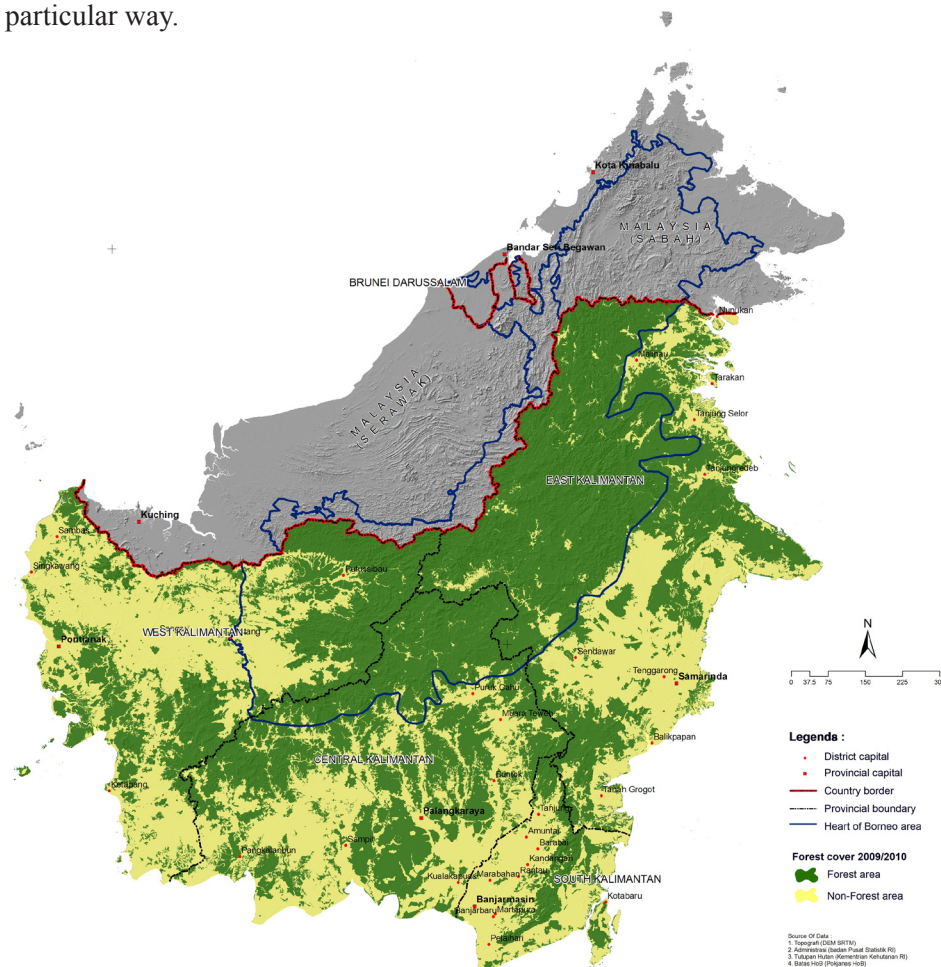
The Heart of Borneo (HoB) Initiative

In February 2007, the three governments of Brunei Darussalam, Indonesia and Malaysia signed a Declaration to conserve and sustainably develop an area of around 22 million hectares in the centre of Borneo called the Heart of Borneo. It is a historic commitment to one conservation and sustainable development vision, which ensures the effective management of forest resources and conservation within this unique part of Borneo. The Declaration and its signatories, seek to achieve this vision through the creation of a network of protected areas, productive forests and other sustainable land uses in Borneo.

A green economy for the Heart of Borneo

In 2010, during the tenth Conference of the Parties (COP) of the Convention of Biological Diversity, held in Nagoya, Japan, the three HoB governments hosted a side event and launched their joint publication: *Financing the Heart of Borneo - A Partnership Approach to Economic Sustainability*. This marked the evolutionary movement of The Heart of Borneo Initiative in an exciting new direction – towards a ‘Green Economy’ in the HoB, thereby setting in motion a series of innovative solutions to Borneo’s development challenges.

All elements of Bornean society including governments, international organisations, the private sector and indigenous community groups have joined hands to develop new approaches to doing business in the HoB. Each of the three Bornean countries has embraced the shift in development paradigm towards a Green Economy in the Heart of Borneo, in their own particular way.



Orang Sungai (River People)

The Orang Sungai is a collective term for inhabitants of the interior river valleys in the eastern part of Sabah, like Labuk, Sugut, Paitan and Bengkoka rivers. Among them, the Dusun Seham and Ida'an are concentrated in the Kinabatangan and Segama river valleys.

As their name suggests, these people have traditionally relied on rivers for their livelihoods and practiced swidden agriculture on the forested hills near their villages.



Bidayuh

The Bidayuh are believed to be the first people to settle in the original territory of Sarawak during the James Brooke era. They were formerly known as Land Dayak as opposed to the Iban who were known as the Sea Dayak. The Bidayuh have a more egalitarian society and were traditionally swidden rice farmers.



Kenyah Woman dancers in Long Berini
©WWF Indonesia / Mubariq Ahmad

Kayan and Kenyah

The Kayan and Kenyah subgroups account for the largest number of what they are known in Sarawak as Orang Ulu (indigenous peoples living upriver). They are also numerous in East Kalimantan and West Kalimantan (Kayan). They originate from deep in the Heart of Borneo in what is now the border area with East Kalimantan. Traditionally they all lived in longhouses and practiced hillside rice cultivation. They had stratified societies divided into three social groups: the aristocrats (including minor aristocrats), commoners and slaves (war prisoners).

The Kayan and Kenyah have a unique carving style and motifs which can be seen on boats, buildings, arts and crafts like beading and iron work. Their traditional dances and music, especially the *sape* instrument, a three-stringed musical instrument with a sitar-like sound, have become well-known and very popular all over the world. Celebrations mark the various passages in the life and agricultural cycles.

ORANG ULU of Sarawak Behind the success story

Borneo's diverse communities have produced large numbers of well-educated, economically successful people, many originating from some of the remotest, inland areas. Despite the majority of traditional highland communities being disadvantaged by poorly-equipped schools, minimal health care and limited or no road access, one can easily meet people from these areas (Orang Ulu) throughout Malaysia and overseas who speak fluent English and are skilled in business.

Why does this happen? The Orang Ulu's strong culture of inter-family relationship may explain it. Although they are known to travel far and beyond the boundaries of their homeland in search of greater opportunities, Orang Ulu nearly always return to their original village to share their wealth and knowledge. This process of 'giving back' to their community serves as the lifeblood to many isolated groups in central Sarawak and also allows this progression to be passed down to the next generation. While it is hard to clearly differentiate between the causes and symptoms of success, undoubtedly a key factor is the investment made by parents in educating their children, including their fluency in English and travel to more developed regions.

One such story of a successful Orang Ulu is that of Dato' Sri Idris Jala, who served as Managing Director of Malaysia Airlines and Shell Malaysia and is now a Minister in the Prime Minister's Department and chief executive officer of the Performance Management and Delivery Unit (*Pemandu*). He is a Senator in the Dewan Negara, upper house of parliament. Idris Jala was born in Bario, Sarawak, a remote region located 1,000 metres above sea level within the Heart of Borneo and has been appointed to head a government-linked company (GLC).

Until very recently, Bario was cut off from the rest of the world and accessible only by air or foot. However, strong ties between the Bario community and other Orang Ulu living in more populated coastal areas allowed for greater educational opportunities and aspirational development for the remote residents.



Formadat at the Rainforest World Music Festival Sarawak
©WWF Malaysia / Rejani



Putussibau©WWF Indonesia /Syahirsyah

KAPUAS HULU – A collaboration among communities, the national park management and WWF in the Heart of Borneo

Chief Council of Dayak Customs in Kapuas Hulu District, Andreas Yan Lanting, provides his perspective:

“Kapuas Hulu District is located in the easternmost part of West Kalimantan Province. This District is situated in the headwaters of the Kapuas River, which is the longest river in Indonesia, at 1,143 kilometres in length.

We continue to see numerous cases of unsustainable and exploitative activities in the form of logging, mining and large-scale fish harvesting. Such phenomena demonstrate limitations in knowledge and skills for innovative, sustainable extraction of natural resources and permanent agriculture.

Local people are very familiar with their own region, culture and social life. We have to think about how to provide sufficient employment and sufficient opportunities for local prosperity, while continuing to preserve the social, cultural and ecological integrity of the region.

The people of Kapuas Hulu District have been familiar with the existence of the Betung Kerihun National Park, particularly the indigenous (*adat*) communities who live close to or within its borders. The Park and other conservation areas in Kapuas Hulu cover about 932,000 hectares, 41 per cent of the entire District.

We can fairly state that the indigenous communities have a positive view of WWF and of the park authority. This acceptance by the communities did not happen instantly, but over time the communities came to understand that both WWF and the park authority have a genuine intention to develop programmes for natural resource conservation in the Kapuas Hulu District. These intentions are congruent with the communities’ ideals of maintaining a harmonious relationship with their natural environment. In fact, the conservation efforts of WWF and the park authority bring these communities much happiness, because it is proof that there are still people who care about natural resource conservation.

Furthermore, the leadership Council of Dayak Customs in Kapuas Hulu has supported the various conservation efforts of both of these organizations. This support came particularly after learning the conservation targets that the park authority and WWF wished to achieve.

I have not seen sufficient concern from the international community toward this territory that they coin as being on the ‘global agenda’. Conservation policy does nothing if not enforced.”

30 June 2004

Kelabit and Lun Bawang/Lundayeh

The Kelabit and Lun Bawang people occupy the highlands in the very Heart of Borneo straddling the border between Sarawak, Sabah, and East Kalimantan, and in Brunei. Their languages are of the *Apad Wat* linguistic group. They are mainly wet-rice farmers, a tradition that they have developed over a long period of time and mastered in very sustainable and integrated ways with buffalo raising.



Rice field in Ba' Kelalan ©Dora Jok

The Kelabit and Lun Bawang/Lundayeh peoples have developed salt-making techniques by exploiting the naturally occurring salt springs of the highlands, and they have traded salt to other areas of the interior for centuries.

Bamboo is a popular resource among these peoples, it grows abundantly in the agricultural landscape of the highlands. Commonly used for building fences and huts, irrigation, cooking rice, carving and musical instruments.



Traditional Kelabit Dress ©WWF Malaysia / M. Kavanagh

Kajang

The Kajang are known for their strong longboats designed to withstand rough journeys through treacherous rapids in Sarawak. Once a powerful and influential group in Borneo, they carved spectacular wooden structures known as *klirieng* in which they would hold the remains of their dead chiefs.

The Kajang observe a number of festivals which originally may have been associated with headhunting, but today serve as a rite of passage from puberty to adulthood, and thanksgiving at the end of the rice harvest.

Bisaya

The Bisaya of Sarawak occupy the areas along the Sarawak-Brunei border. They are farmers and their elaborate traditional healing ceremonies (*bebalian*) are still observed by some elders in the community.

The Bisaya mark the end of their annual harvest festival with a celebration called *bebulan*, which provides a powerful demonstration of their unique musical talents and what is arguably the best gong orchestra in Sarawak.



©WWF-Indonesia / Sugeng Hendratno

Kuala Balai - a link with the Indigenous Peoples of Brunei

by Hans Dols *

Although representing less than 2% of the Heart of Borneo, Brunei has always had a significant role to play in the development of the island. Prominent in this history is the village of Kuala Balai, which at one time was the largest community in the west of the country. This now sleepy settlement has a very colourful past - few would expect that here lays the birthplace of many "Puak Belait", one of Brunei's seven ethnic groups.

Alongside Kuala Balai's river highway the villagers grew crops, fished and became famous for their *ambulong* (sago). Strategically situated on the confluence of two rivers, Kuala Balai was once a flourishing trading post where Damar resin and other jungle products were traded for Chinese pottery and various condiments. Today, Kuala Balai is a sleepy settlement far from its prosperous past. Very few permanent residents remain, mostly older folk who resisted the urban drift, which started after oil was discovered in Seria in 1929 and the oil industry began to develop on the coast.

Some still remember the days when the population was large enough to support a school and a trip to the sea was six hours of hard rowing in a *perahu* (longboat). Larger cargo-carrying boats used to sail up the Belait River. The famous commodity, the sago palm was collected from the banks of the Belait River and its tributaries, particularly Damin River. Thick-stemmed palms can still be seen on the boat ride to Kuala Balai, but the dominant vegetation is Nipah palm (*pokok apong*), which forms a dense blanket along the riverbanks.

The dry palm leaves are collected for *atap* (thatch) roofing, while the sweet fruit of the palm is used as an essential ingredient in ice *kacang*, a local delicacy. The fruit grows in thick football-sized clusters and its flesh looks and tastes similar to coconut, though the kernel is no larger than a walnut.

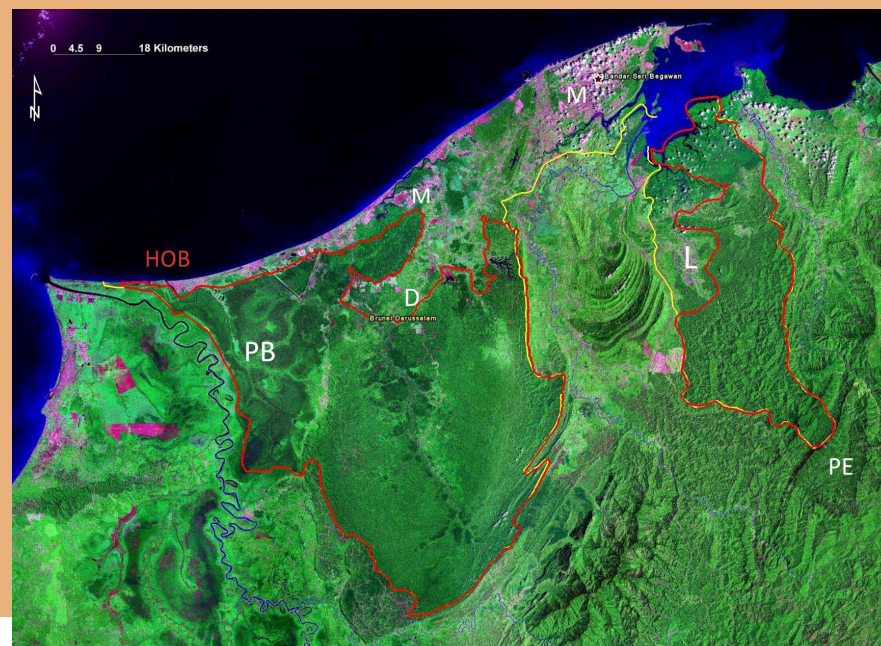
Even in the 1970s there were some 500 residents of Kuala Balai with about 30 families producing sago in the traditional way, stomping the scrapings on platforms over the river to extract the milk, and packing the glutinous white end-product into *tampins* (square sago leaf sacks). In more modern times, this traditional sago production changed to machines until early 2000s, when sago operations stopped.

Even now without its former large population the area still show signs of the strong culture and history that once was. About 10 minutes downstream from Kuala Balai there is a reminder of less peaceful times. In a small clearing on the south bank is a wooden box on stilts with a wire mesh front. Inside are some 20 human skulls said to be the victims of headhunters long ago. They are believed to be haunted and should not be touched in deference to superstition.

A few kilometers further downstream there is channel and log walk used to connect the Belait and Baram rivers. Although the channel is now silted up and overgrown, with some determination it should still be possible to walk the "Terusan Pegalayan" log walk to at least the Sarawak border.

About 10 minutes upstream from Kuala Balai, a sizeable Chinese cemetery also bears witness to the large community that once existed here.

* text is partially based on an old publication
Brunei Darussalam a Guide



Brunei Heart of Borneo boundary in Red
Brunei national boundary in Yellow
PB: Puak Belait, D: Dusun, M: Coastal Malay, L: Lun Bawang, PE: Penan
©NASA public data, compiled by Hans Dols

Excerpts from the speech made by Lewi Gala Paru, Customary Chief of Krayan Hulu, East Kalimantan, and Head of FORMADAT Indonesia

The speech was delivered at the closing ceremony of the Annual Meeting of FORMADAT in Bario, Sarawak on November 29, 2006.

"This is a good forum: it unites us in one fellowship, one thought, one journey to look after our homeland, our rights, and seek a better future for us, for our children, and the children of our children in the highlands of Borneo.

This place we call *patar dita* 'Borneo is the only homeland we the Lundayeh, Kelabit, Lun Bawang and sa'ben have. We have no other homeland, save the *patar dita* 'Borneo where we have lived for generations. We are of one root, one ancestor, one tradition. Through this forum we can together help one another, so that we are no longer fooled by others, cheated by others.

We are divided into two groups, a boundary drawn between us, we in the Krayan and you in Sarawak and Dabah. Even though a boundary is drawn between us, we are of one root, one ancestor, one culture, one belief.

Before, we went our separate ways: we in the Krayan kept to ourselves; you in Sarawak kept to yourself; those in Sabah kept to themselves. We did not have an association to bring us together in one thought, one strength, to defend our land, our environment, our culture, our economic interest.

It is good that we formed this forum, FORMADAT. This forum hopefully will strengthen our unity so that our land and our interest may be better looked after. Formadat is a forum to accommodate the aspirations of all of us who live in the border area of the highlands of Borneo.

I am touched by the determination of each of us who made it here to Bario. Even though it rained, the path was muddy, one group had to walk at night, these things did not stop us from coming to Bario to discuss common issues that affect the future of all of us who live in the Highlands of Borneo. This is a testimony of our determination to seek ways for a better future for us, our children's children."



©FORMADAT



Community leaders talk at Heart of Borneo Forum
©WWF-Indonesia / Suhendy Dery

Partnerships with local communities

A sustainable and green future for Borneo cannot happen without the support and meaningful engagement of local people as these communities have the highest stake in the secure future of the island. Local people are part of the solution. And this can happen if communities are not only engaged but share in decision making processes, in roles and responsibilities, receiving fair benefits from conservation and sharing in innovation and risk.

Grass root initiatives and organisations are evidence of overwhelming interest concern, and commitment by local and Indigenous peoples in the protection of their precious social and human capital. The peoples of Borneo seek to build the island's natural assets in sustainable ways for the common well being.

FORMADAT

The Alliance of the Indigenous Peoples of the Highlands of Borneo



©FORMADAT

On 19 September 2003, a workshop on Sustainable Agricultural Development in the Highlands, was held in Ba' Kelalan, Sarawak. The workshop, organised and sponsored by the Sarawak Development Institute, brought together representatives of the highlands communities of Hulu Padas, Long Semadu and Ba' Kelalan, Bario, and Krayan, experts and researchers on issues of sustainable farming from Malaysia, and government representatives from Sarawak and Indonesia. All participants shared their concern about trying to intensify the economic development of the area without risking the degradation of the quality of the social and natural environment.

At the same workshop, participants discussed the possibility of establishing a forum to forge stronger links across borders among the communities of the highlands on strategies of common interest for the well-being of the communities. The idea came from the late Dr [Judson] Sakai Tagal, an exceptional person and government official from the highlands. Foremost on his mind was what had happened in Kundasan, Sabah, where the environment was destroyed by overdevelopment. The landscape of the highlands is fragile, and development plans need to be properly designed to avoid damage.

In October 2004, the Lundayeh, Kelabit, Lun Bawang, and Sa'ban people of the highlands of Borneo established a trans-boundary organisation of indigenous people as a way to share information, and discuss common issues and strategies with regard to the future of the highlands in the Heart of Borneo. The Forum of the Indigenous People of the Highlands of Borneo (FORMADAT) aims to increase awareness and understanding about the highland communities, maintain cultural traditions, build local capacity, and encourage sustainable development in the Heart of Borneo.

The mission of FORMADAT centres around four main points:

1. Maintain and strengthen the cultural traditions, language, customs and family bonds shared by all the Lundayeh/ Lun Bawang, Kelabit and Sa'ban people in their common ancestral land of the Highlands of Borneo.
2. Encourage the development of sustainable economic alternatives such as organic agriculture and community-based ecotourism, and establish fair trading networks in the Highlands.
3. Encourage conservation and sustainable development for the Highlands, and ensure involvement and participation of the local Indigenous Peoples in all aspects.
4. Preserve water sources, river banks and community forests, protect cultural and historical sites and the collective intellectual property rights of the Indigenous Peoples of the Highlands.



Lun Bawang musicians in their traditional bark clothing. Temburong District, Brunei Darussalam
©Hans Dols



Performing the local dance where the dancer has to jump in tune with two hard wooden poles being hit together. The dancer is Puak Belait
©Hans Dols



Each player will play at the same end of the sticks and hit both woods together for the dancer to skip
©Hans Dols



The charismatic Badaruddin performs a traditional dance in Melilas Longhouse, Ulu Belait
©Hans Dols

Imagine one day in the future...

In 2030, Borneo's coastal and urban economies will be diverse, stable and vibrant. Oil palm plantations will have been developed in the vast expanses of degraded land, providing extensive and equitably managed income for local communities and revenue for local governments.

By the end of the 21st century, government regulations and market demand have stimulated a clear competitive edge to sustainably managed timber companies. Plantations (wood, rubber and others) will have expanded greatly throughout Borneo but in available and degraded land.

Valuable mineral deposits in High Conservation Value Forests (HCVF) will remain untouched and local crops such as rice, fruit, vegetables and ferns will be cultivated in more intensive ways. Technological investment and applied research will help not only secure food for the local people but also stimulate trade of forest products to coastal areas, neighbouring islands and other countries.

The forests of the interior and the traditional knowledge of local healers will provide valuable resources for science and local communities will work in fair partnerships with bioprospecting companies to support research and other uses of biological resources in Borneo.

Forests vital for water catchment protection and other environmental services like storing carbon and biological diversity will be protected and managed together with their original stewards, the local and indigenous communities.

In 2030, all-weather road systems will have been built throughout Kalimantan's lowlands, linking Pontianak in the south-west to Nunukan in the north-east; and Samarinda in the east to Sampit in the south. Remote populations now have improved access to community services, development and education.

The majority of Borneo's children, especially from indigenous communities, will have a university degree and employment in their homeland. Renewable energy will power peoples' homes and computers in every school of the interior. Farmers will exchange price and market information over the internet and millions of eco-tourists will book their trekking expeditions to the island directly online.



Women returning home from the fields
© WWF-Indonesia / Cristina Eghenter



©WWF-Indonesia / Gemma Deavin

Borneo: One Island One Sustainable Future

By Cristina Eghenter

A border that unites

Deep in the Heart of Borneo, looking west from the village of Long Nawang, Apo Kayan in East Kalimantan, Indonesia, one will see the outline of a mountain range that stretches 100 km to the north into the Iwan River valley. Prominent peaks give way to lower watersheds that can be easily crossed on foot and beyond this mountainous contour of the watershed lies Sarawak, Malaysia.

Historically, this topographical divide marked the boundary separating British-dominated Sarawak of the Brookes and the territory controlled by the Dutch in Borneo. Today, this same divide now indicates the international border between Malaysia and Indonesia. Similarly, in the Krayan highlands to the North, the mountains between Malaysia and Indonesia can be easily crossed at several points. From the village of Long Bawan, Krayan, Indonesia, one can ride a motorcycle along a large unpaved road through paddies and bamboo groves to reach the nearby village of Ba' Kelalan, Malaysia in less than two hours.

This provides us with a glimpse of just two areas along the long border which divides Malaysia and Indonesia within the Heart of Borneo. For centuries this border has done little to divide communities and families on its two sides. Instead, communities have enjoyed movement and journeys along natural passages between the eastern and western parts of Borneo in the Apo Kayan, the Krayan Highlands and other areas in West Kalimantan.

Transborder economic and social interactions have played an important role in the history of human relations on the island of Borneo, and will remain a key factor in the future growth of the island as well. De facto open border crossings have always

encouraged cooperation between Indonesia and Malaysia and encourage peaceful interactions between the communities on both sides. To this day, trade and exchange with their Malaysian neighbours is essential for the economy of the communities in the highlands of Krayan, otherwise mostly isolated and cut off from mainstream economic development. Similarly, along the lower hills in Kapaus Hulu, West Kalimantan, exchanges across the border between communities of the same ethnic group have kept the area vibrant economically and socially.

The continuation of more open arrangements and formal access points along the border between Malaysia and Indonesia will work to support, rather than deter, development and cooperation between the two countries. Furthermore, by encouraging efficient economic activities in the remote communities, it will help build a sustainable future for the people living in the Heart of Borneo.

Looking to the future...

Over the last few years, initiatives such as the Heart of Borneo as well as innovative government policies have proposed a new course for sustainability and green economic development in Borneo. The abundance of natural assets and resources on the island, as well as its rich social capital, make Borneo well placed to shift its economic prospects from overexploitation to sustainable development. By adjusting from a fossil fuel-based growth plan to a low-carbon economy and an advanced service and biodiversity-based society, the people and governments of Borneo have the potential to experience revolutionary growth possibilities.

These promising initiatives make it possible to imagine a greener future for Borneo. A future where investment in local resources, natural and social capital and knowledge will pave the way to sustainability and prosperity for the people of Borneo.



The traditional sword (*parang*) of the Iban still proudly displayed in Melilas longhouse, Ulu Belait
©Hans Dols



Hj. Badaruddin, Iban man from Melilas longhouse proudly showing his tattoo
©Novi E.Y. Dols



Awg Luat bin Yala, local guide in the Tasik Merimbun conservation area, Tutong District
©Hans Dols



Luyah, the Penan headman, now settled in a small Penan settlement near the Sukang longhouse, Ulu Belait
©Hans Dols

On the weekends when the children come back to the longhouse there is always music. Teraja Longhouse Ulu Labi, Belait District
©Hans Dols



Iban children in the Teraja longhouse Ulu Labi, Belait District
©Novi E.Y. Dols



Few still uphold the traditional basket weaving. Brunei Iban lady in Teraja Longhouse Ulu Belait weaving a basket.
©Novi E.Y. Dols



The future of Borneo people is where investment in local resources, natural and social capital and knowledge will pave the way to sustainability and prosperity for them.
©WWF-Indonesia / Cristina Eghenter



©WWF-Indonesia / Didiek Surjanto

Honey farming: engaging culture and profit

by Nancy Ariaini

Honey has a long history of human consumption, it is used in various foods and beverages, sometimes for medicinal purposes as well. Due to its wide use, honey has become one of the natural products that encourages increasing demand.

From time immemorial, honey collection has been an activity among traditional communities. Not only for household consumption but in addition it has also become a commercial activity. The local communities invented and inherited traditional skills to harvest honey. In West Kalimantan, specifically in Danau Sentarum National Park, though fishing is a major source of livelihood for communities, people also rely on farming *Apis dorsata*, the wild honeybee, for their alternative income.

The honey collectors in the flooded forests of Danau Sentarum have been practicing a traditional beekeeping technique called *Tikung* to cultivate and harvest honey. *Tikung* is an artificial bee nest structure made from hardwood and attached to tree branches. When the dry season ends, water levels are high and tree flowers are blooming abundantly, colonies of bees will come and nest in the *tikung*. The last blossom, that is during the wet season, is the signal that honey in *tikung* is ready for harvest.

Knowledge of honey farming using *tikung* exists in stories and lessons shared by local culture and the people in the area. Basriwadin, a villager from Semangit, explained, “The innovation of honey farming using *tikung* came from an experience in the past. It was flood one time, tree trunks scattered. Then when the water level came back to normal, a villager saw a trunk lodged on a tall tree, where lots of bees came around to the honeycomb hanging on it. He climbed and found plentiful honey in the hive.” And so the story goes, for people who are staying in this submerged area, *tikung* is well-suited to their unique landscape. During the wet season, when fishing yields lesser catch, honey is the preference.

The honey from Danau Sentarum is certified as an international organic product. This product has high market reputation, not only because it is organic and free of additives -as it comes from a remote location with the status a conservation area, but also because it is a product of community-based business and therefore maintaining a traditional yet sustainable harvesting practice. Organic honey farming can generate a high economic value as an alternative income for the fishing and farming communities around the Danau Sentarum conservation area.



Tikung the traditional technique for honeyfarming in Danau Sentarum
©Diki / Photovoice Intl - WWF / HoB



Sapundu or torah in Dayak Siang, the wood pillar is usually used to bind sacrificial animals when there is a festivity. Carvings like this are usually associated to tiwah, the secondary burial procession on Kaharingan adherents
©WWF-Indonesia / Didiek Surjanto



©WWF-Indonesia / Syahrishyah

The ancient Tree of Life philosophy in Central Kalimantan

by Ajarani Mangkujati Djandam

For countless generations, the Dayak people in Central Borneo, particularly the Dayak Ngaju ethnic group, have believed that the Tree of Life (or *Batang Garing*) was central to a harmonious life. This principle was built on the understanding that human life is created and sustained only when people have a harmonious relationship with the creator of the universe, *Ranying Hatala Langit*.

Garing, or the original term *Haring*, describes life as well as the idea of a never-ending, self-sustaining cycle. The philosophy of *Batang Garing* describes the integration of a Dayak peoples' life with their surrounding natural environment. In this Kaharingan belief, a truly perfect existence can only be achieved if a person leads his life according to the three main principles symbolically depicted as branches of the Tree of Life, specifically:

- (1) The wood of the *Gambalang Nyahu* which represents the deism believed by all religious Dayak people.
- (2) The wood of the *Pampang Saribu*, which represents the knowledge of human beings who are blessed with strong minds and intelligence.
- (3) The wood of *Erang Tingang*, which symbolises the customs and duties by which all human beings must abide.

Keeping the Tree of Life alive

A big challenge for the Dayak people living in Central Kalimantan is how to best strengthen the philosophy related to the Tree of Life to encourage a balance between community life and the natural and spiritual principles of Dayak culture. Local wisdom has always played an important role in Dayak culture, but needs to be carried forward in modern, relevant ways, to ensure that the younger generations adopt and keep it alive.

Through local customs...

“Customs can help to control greediness,” says Lewis KDR, a customary Dayak leader in Central Borneo who is a follower of Kaharingan and an advisor to the Hindu Kaharingan Main Assembly. Lewis believes that the rapid degradation of the natural environment that has taken place throughout Central Kalimantan, is a result of a social development away from traditional customs and the loss of indigenous knowledge.

Historically, these two factors played a critical part in guiding the use of land and resources for Dayak communities. For example, prior to the turn of the 20th century, Dayak people would carry out a ceremony seeking permission from nature prior to clearing any land for farming. This involved a series of necessary steps, requirements and calculations which by controlling the rate and size of areas cleared resulted in sustainable land use. Today, few people observe this custom and the indigenous land management knowledge is being lost along with the quality of the natural environment.

According to Lewis, the resurrection of traditional customs and knowledge can ensure a healthy balance between human and natural life. He believes that customary traditions and indigenous knowledge can play a crucial role in protecting the threatened land in the Heart of Borneo.

Gaharu and its exploitation¹²

Gaharu is the trade name for aloes wood, the fragrant resinous wood produced by a fungal infection in trees of the genus *Aquilaria*. In Kalimantan, there are three species: *A. malaccensis*, *A. microcarpa*, and *A. beccariana*. Gaharu is an export product which is used in the manufacture of incense, perfume, and medicinals. There is no local use for gaharu as such. In the past, aloes wood was traded in small quantities.

The first big rush of gaharu collecting started in the deep interior of Kalimantan (Apo Kayan) in early 1991. Villages saw the coming of an increasing number of outside collectors organised in teams and sponsored by traders based in Samarinda. This lasted until 2001, but people to this day continue organising expeditions to the forest in search of gaharu.

Like in the case of *gutta percha*, the high price fetched on the market triggered sustained large-scale exploitation with the involvement of outside collectors and traders. In 1991, the price was already Rp 800,000 for a kilo of first quality product. The market value of gaharu increased steadily. Prices rose dramatically right after the economic crisis hit the Southeast Asian countries in 1997-1998. A kilo of gaharu was then Rp 5,000,000 for a product of the purest quality.

The mode of exploitation of outside collectors differed from traditional practices. Being outsiders and belonging to different ethnic and religious groups, they tended to neglect local customary regulations, or *adat*, and often challenged the legitimacy of local exclusive rights over the resource. They tended to cut indiscriminately infected and non-infected trees. Whereas local collectors organised small parties and typically spent up to one to two weeks in the forest, outsiders organised larger groups and spent extended periods of time in the forest where they established semi-permanent camps. Provisions and supplies were flown in by plane to the nearest villages and then shipped by motorised canoe to the camps.

This mode of exploitation has increased the chances of overexploitation of the resource by allowing the collectors to survey larger and more distant areas. As a result, gaharu might not be exhausted in a biological sense, but it might have reached a level of ‘local economic exhaustion’. This implies that the exploitation of gaharu



Extracting Gaharu (or Aloewood).
© WWF-Canon / Alain Compost

is no longer economically viable for local collectors in terms of the costs, time and distance necessary to undertake a profitable expedition to the forest.

Marketing and sale of NTFPs can provide ways of boosting incomes for the remote communities in the Heart of Borneo, and can be a forest conservation measure as long as local people apply traditional practices and maintain control over their management and trade.



Cleaning Gaharu. Traded as raw materials used in the production of incense, perfume and medicine.
©WWF-Canon / Alain Compost

¹² Eghenter, Cristina 2005. Histories of Conservation or Exploitation? Case Studies from the Interior of Indonesian Borneo



A man climbing up a tall meranti tree
© WWF-Indonesia / Irfansyah Lubis

Through the next generation...

“*Batang Garing* is helping to balance the relation between God and human,” say Alfianus G.Rinting, a young Dayak man from Central Kalimantan who has lived and worked in several parts of Indonesia.

Modernisation is increasingly evident in Dayak beliefs and ways of life. Particularly for the younger generations who may see traditional customs as powerless or irrelevant in the present context. Alfianus believes that customary laws must be open, broad and flexible to ensure that balance between the spiritual and human worlds is maintained

Interpretations of the Tree of Life

The *Batang Garing* Tree of Life concept has been visually translated by many artists. The most common interpretations feature the illustration of three branches representing the three basic principles in Dayak spirituality. Although the image has been applied across a range of media, such as weavings, carvings, embroidered garments and *batik*, these basic symbols have always retained their close ties to the traditional elements in *Batang Garing*.

The Tree of Life illustration, symbolises *Ranying Hatala Langit*, the creator of the Dayak universe. The very top features two hornbill birds and the sun which are thought to be the source of all life and represent the way in which all life originates from above. A jar of holy water appears at the base of the tree, suggesting the underworld (*Jata*). This depicts the present and underworld as both unified, interconnected forces.

The tree also bears fruit in clusters of three, with those directed upwards and some directed downwards to represent the three main ethnic groups in this region. This serves as a reminder to humans that their perspectives should consider both this life and the afterlife and maintain a balanced appreciation for both.



Illustration of Tree of Life

According to *Kaharingan* teachings, the Tree of Life exists on *Nindan Tarung*, a rock island, the island where humans first lived, prior to populating the earth. This island is believed to be an ancient and highly spiritual homeland of Dayak ancestors and this world only a temporary shelter for humans. Because the true homeland of the Dayak people is in the above world or *Lewu Tatau*, the Tree of Life seeks to remind the Dayak peoples to refrain from worshipping worldly possessions.



Batang Garing on wedding aisle
©Sutar-Phaing family

Non-timber forest products – exploitation over the centuries

Non Timber Forest Products (NTFP) designate all forest products other than timber. They include fruits and nuts, vegetables, fish, medicinal plants, resins, essences, barks, rattans, and a host of other palms and grasses. Historically cycles and trends influence the exploitation of NTFP in the interior of Borneo. Changes in international demand for particular products continue to have a direct impact upon the patterns of extraction and trade of the products. This often resulted in economic cycles of boom and bust periods where communities would enjoy high demand for a product, followed by periods of oversupply or low demand.¹¹

Some products, such as natural latex have enjoyed a short but significant period of exploitation at the beginning of the 19th century, while others – including rattan – are subject to cyclical patterns of high and low demand depending on world markets and national economic policies.

Gutta percha, for example, locally known as *getah merah* or *getah parang*, is a natural latex produced by several species of the genera *Palaquium* and *Payena*, big canopy trees of the Sapotaceae family. In the Apo Kayan, latex is most often extracted from *Palaquium leiocarpum*, which is the species locally referred to as *ketipai*. People recognise two varieties of *ketipai*, each one with its own distinctive morphological and phenotypical characteristics.

Ketipai is traditionally valued and used as an adhesive to fix the blade of the knife to the wooden handle. In the past, it was also used to make masks worn during rituals. As an export product, *gutta percha* was in high demand as a substance for coating submarine cables. In the late 1920s, the trade of *gutta percha* experienced a drastic drop in exports. The large-scale exploitation of the product also stopped. The product was only harvested by the people in Apo Kayan for household needs and limited trade on local markets.

Rattan is a fast growing climbing plant growing in Kalimantan’s tropical forests. There are around 300 species. Rattan has many uses among local people but it is also exported, particularly for the furniture industry. Indonesia, for example, is the world’s largest rattan producer boasting 82 per cent of the world’s total output.



Harvesting rubber
©WWF-Canon / Simon Rawles

¹¹ Eghenter, Cristina 2001. Towards a causal history of a trade scenario in the interior of East Kalimantan, Indonesia, 1900-1999. Bijdragen Tot de Laal-. Land- en Volkenkunde (BKI) 157-4, KITLV, Leiden (December): 739-769

Meat from the forest

It is estimated that around 18,000 tonnes of wild meat were harvested annually in Sarawak alone (which takes up around 20 per cent of Borneo's land area), equivalent to 12 kg of meat per person¹⁰. The majority of this is made up of wild pigs and deer, with an estimated 1 million and 44,000 kg taken respectively. Wild meat has always been the primary source of protein and fat for the people living in the Heart of Borneo. When supplies of wild meat decline or when people cease regular hunting activities, public health will deteriorate, unless alternative protein sources become available.

The preferred prey in a hunt for the people living in the interior of Borneo is bearded pig. Wild pigs in Borneo still migrate in large herds following peak times of mass fruiting from the north to the south of the Heart of Borneo. River crossings for these herds can be easily predicted and many hunters use boats to seize this opportunity however there are strict customary rules as to which side of the river certain hunters are allowed to wait.



Bringing home the meat from the forest, Nanga Hovat, Mendalam River, Kapuas Hulu
©WWF-Indonesia / Sugeng Hendratno

Before the advent of shotguns, deer were also hunted with dogs and spears while monkeys and hornbill birds were hunted using blowpipes and poisoned darts. In the past, some communities imposed traditional prohibitions on hunting or eating specific species. For example, some would have a taboo on eating leaf monkeys, while others may protect the mouse-deer. Among the Ibans of Sarawak, such taboos often relate to individuals whereby one man may not eat barking deer, whereas the rest of his family may do so.

Waste is rare within traditional hunting methods and any excess meat is usually preserved by drying and smoking over fire or fermenting with rice and salt. The fat of pigs, used in the past for burning lamps, is reduced and stored for cooking.

Studies by the Wildlife Conservation Society in collaboration with the Sarawak Government during the 1990s revealed that the introduction of large-scale logging activity and new roads stimulated a major new trade in wild meat. While traditionally meat was never traded for money, in central Borneo these products are now being sold commercially in towns throughout Borneo.

¹⁰ Caldecott, J. 1988. Hunting and wildlife management in Sarawak. IUCN, Gland, Switzerland and Cambridge, England.



Carving in Kayan Mentarang field station
©WWF-Indonesia / Gemma Deavin

Languages, Cultural Traditions and Arts

The diverse languages

Many of Borneo's languages are endemic. It is estimated that around 170 languages and dialects are spoken on the island of Borneo and some by just a few hundred people, thus posing a serious risk to the future of those languages and related heritage.



Wood Carving
© WWF-Indonesia / Syahirsyah

Conservation through conversation Focus on the endangered languages of Borneo

As Borneo's forestry and palm oil sectors have expanded, new economic opportunities have stimulated unprecedented economic changes in Borneo. Economic growth has directly impacted on the indigenous languages spoken in Borneo and raised concern for the potential loss of culture, identity and the ancient heritage of this area. Many young Dayak, have moved to coastal and downriver communities in search of better economic conditions. Often, in doing so, they have abandoned their mother tongue.

The importance of conserving endangered languages is summarised by sociolinguist Barbara Grimes who states:

*"Many people are alarmed when a plant or animal species becomes extinct. A language dying hits even closer to us; it means that a unique creation of human beings is gone from the world. Each language has grown up with its society, and is an expression of the facets of that society's culture. Each is an intricate system of words, phrases, clauses, and discourse patterns showing contrasts and agreements that its speakers use to describe their world and the customs they use in relating to each other. They use the language to tell their stories, recount their past, express their plans for the future, recite their poetry, and pass on their way of life."*³

³ Grimes, Barbara F. 2001. Global Language Viability. Causes, Symptoms and Cures for Endangered Languages

Hunter gatherers

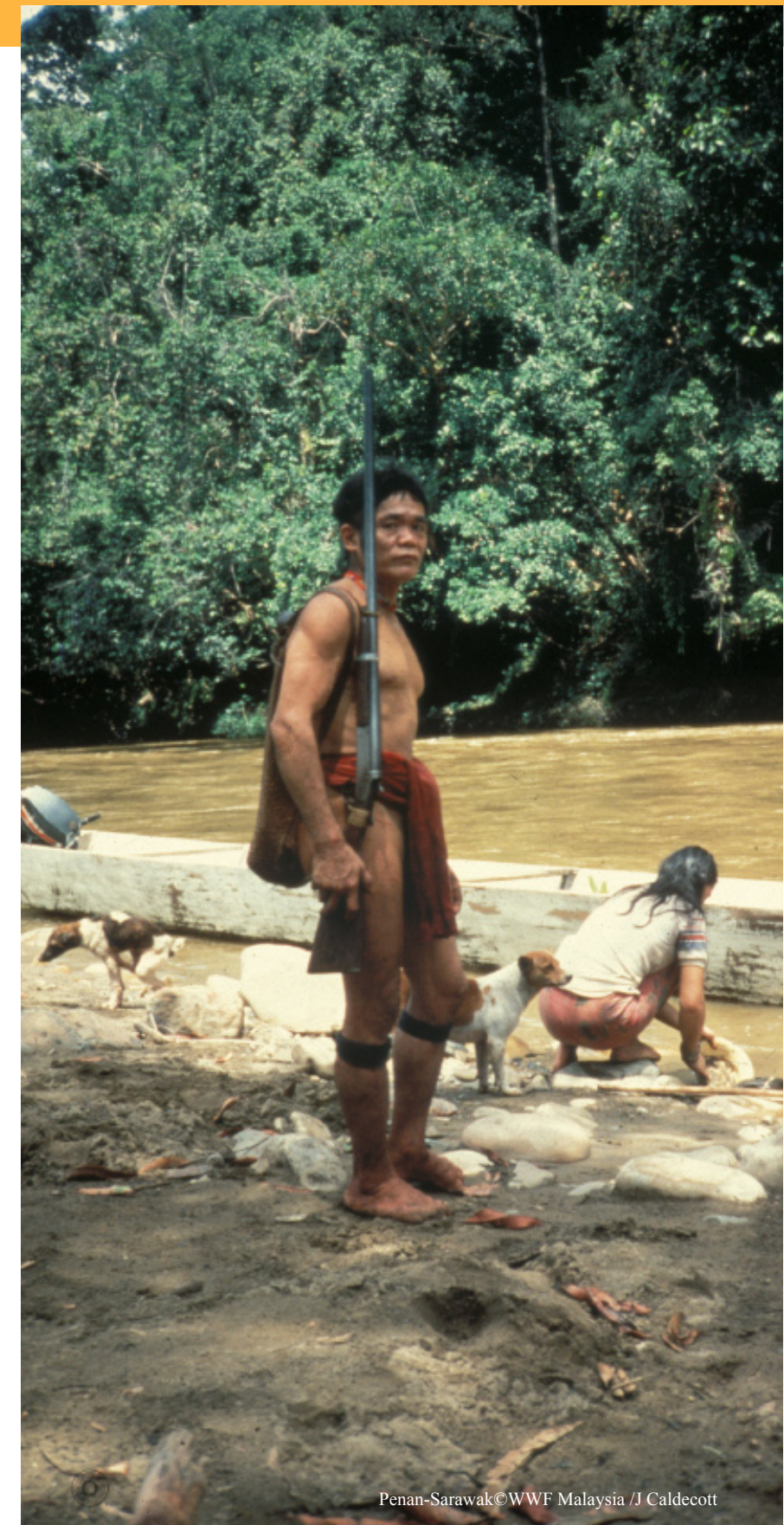
Penan and Punan people

The Penan or Punan play a unique role in the Heart of Borneo as they have traditionally been nomadic hunter-gatherers who did not grow rice or other field crops. They used to rely almost entirely on the forest and its resources for their livelihood.

Nowadays however, the great majority of Penan and Punan are settled in small villages most of their time. For example, in the Malinau district of East Kalimantan, none of the 5,000 or so Punan inhabitants are nomadic, with some having adopted a settled way of life and some still relying on the forest for most but not all of their food needs.⁸

The process of hunter-gatherers becoming farmers has been ongoing for centuries. The Bukat of Kapuas Hulu in West Kalimantan and the Aoheng of the Mueller Mountains of East Kalimantan, were formerly nomadic but became settled farmers between the 18th to 20th centuries.⁹

Some researchers suggest that the Borneo hunter-gatherers of recent and current times may be farmers who returned to the forest over the past few centuries in order to harvest valuable natural products for trade. Others believe that the Heart of Borneo hunter-gatherers, on the contrary, do represent the last remaining descendants of early immigrants to Borneo, retaining the skills needed to live in the rainforest. Today, it is believed that only a few hundred people still follow the nomadic hunter-gatherer lifestyle in Borneo.



Penan-Sarawak©WWF Malaysia /J Caldecott

⁸ Topp & Eghenter, 2006. Kayan Mentarang National Park in the Heart of Borneo.

⁹ Sellato, B. 2002. Innermost Borneo: Studies in Dayak Cultures. Singapore and Paris: Singapore University Press and Seven Orients.



Villager from Long Tuyu hunts for wild pig and other prey, accompanied by his hunting dog
©WWF-Canon / Simon Rawles

Keeping Borneo indigenous languages alive

by Anne Lasimbang and Nancy Ariaini

Indigenous languages represent more than just the words and sounds used by a community - they also reflect the identity of the local culture, the indigenous knowledge and stories of the community. The risk is that if the language is spoken by increasingly fewer people in a community, local knowledge will also be lost.

In all government schools throughout Sabah, Malay language is the main medium of instruction while English is also mandatory. This encourages the majority of the community to speak Malay, as an increasing number of parents opt to speaking Malay at home to support their children's studies. Unfortunately, this push towards Malay and English means that knowledge of indigenous languages is slowly dying out throughout Malaysia, particularly in Borneo.

To address this loss, since 1993, Partners for Community Organisations (PACOS) have been working with Kadazan and Dusun communities in the highlands of Sabah to strengthen their connections with local linguistic heritage and the use of indigenous language. Under their Community Education program, PACOS has assisted the integration of indigenous languages within the structured school curriculum throughout Sabah.

The Early Childhood Care and Education (ECCE) initiative is also aimed at assisting local communities in the development of educational plans, recruiting appropriate teachers and ensuring that they receive adequate training. Today PACOS is running 21 centres throughout Sabah, Malaysia. Recently communities have changed the name "ECCE centres" to "Community Learning Centres (CLC)" where they include learning for adults and youth besides teaching the children.

Especially for early age children, PACOS adapts to the preschool curriculum, incorporating traditional songs, stories and indigenous dialects within lesson plans. Children are taught about their heritage through stories which link to their immediate environment and the modern community in which they live. To support teachers, PACOS offers teaching aides, produced in collaboration with other institutions such as the Bernard van Leer Foundation and the Kadazandusun Language Foundation.

PACOS also invites local students to perform traditional dances and songs at their regional centres, all of which feature indigenous languages. The cultural activities, paired with the teaching of traditional languages, helps protect and revive the rich heritage of indigenous culture in Sabah. When a community's language is lost, so too is its culture, identity and the ancient heritage. It is crucial that indigenous languages be kept alive through ongoing lessons, conversations and involvement of the whole indigenous community.



Learning traditional song
© PACOSTRUST

Cultural tradition and arts

Borneo culture and art are reflected and expressed through custom, dance and music, food and drink, and even tattoo.



©WWF-Canon / Simon Rawles

Tattoo

Traditional tattooing has been customary among men and women in several groups of Dayak Peoples. They use motif designs of snakes, birds and plants, sometimes combined, to symbolise meanings such as bravery, patience and beauty. Designs also use or incorporate geometrical patterns. The motifs are symbolic of the social class, and of individuals of a certain social standing that are allowed to be tattooed with particular motifs.

The process of getting tattooed is long and painful. It is carried out gradually and sometimes can take years. A mixture of soot and tree leaf is used as ink and applied with a needle into the skin by banging a piece of bamboo on it.

Hunting

A contest of bravery and ingenuity between wildlife and people

Hunting for the people in the Heart of Borneo is as much a passion and adventure pursuit as it is a means to procure wild meat for consumption. Traditionally, wild meats were obtained through both trapping and active hunting techniques and both activities were tasks for men. Some individuals who were renowned in their communities for being successful hunters spent much of their time thus occupied. In addition to meeting the needs of their immediate family, hunters would share the meat with relatives and neighbours.

Shotgun have become the common weapon, along with the more traditional spears and dogs for hunting. Deer, barking deer and other wildlife are all popular sources of meat for the Dayak people but to this day, wild pig is the preferred wild meat of the people of the interior. Hunters tales of success, rich in details and passion, wild encounters and pursuits in the jungle are still recounted and continue to invoke excitement and awe in the local communities.

A good hunter will usually breed dogs for hunting and identify superior chasing traits in puppies. Hunting dogs are a precious possession as they play an important role in tracking and cornering the wild pigs. Popular breeds of hunting dogs are reddish-brown in colour, with friendly demeanors and many of these can be found throughout the communities of the interior and their howling heard at night. Their owners usually share the quality remains of their meals (especially rice) with the dogs.



Penan men with their spears
©WWF-Malaysia / Rejani Kunjappan

Healthy forests for healthy humankind: traditional medicines

If the forests of Borneo are destroyed or are replaced by plantations and industrial crops, a great deal of biodiversity, and knowledge of biodiversity, and their remedial value will disappear with them.

In Dusun and Orang Sungai communities in Sabah, local people and researchers are involved in the documentation of the traditional knowledge of the elders and produce long lists of plants and their medicinal uses. Among the Kenyah communities of the Apo Kayan in East Kalimantan, such use of plants includes a traditional cure for malaria, effectively treated with a remedy made from the bark of *langsats* fruit tree (*Lansium domesticum*). Scientific tests have proved that this bark does in fact contain a powerful and previously unknown antimalarial substance and this is inspiring greater research into the remedial properties of this plant.

Examples like this not only show the amount of knowledge of plants but also the complex and sophisticated native pharmacopeia, knowledge system of medicinal plants, which exists in the interior of Borneo, based on principles different from western medicine. There is also a strong conservation message to come from these discoveries, as they provide evidence of the interconnection between biodiversity and traditional knowledge and how the conservation biodiversity relies on the preservation of this knowledge.

Plants with potential to cure diseases are increasingly drawing the attention of pharmaceutical companies, with bioprospecting interests for the development of new drugs and cosmetics. However, the success of this commercial exploitation of local biodiversity will rely on the ways in which local communities and keepers of the traditional knowledge are involved in its use.

The agreement of the International Protocol on Access Benefit Sharing (ABS) at the 2010 Convention for Biological Diversity, incorporates a strong clause stating that the utilisation of genetic resources is possible as long as the communities give their free consent and receive fair benefits by companies and other parties interested in the study and application of biodiversity in the Heart of Borneo.



Traditional healing, at Semangkok Longhouse, Kapuas Hulu
 ©WWF-Indonesia / Syahirsyah



Langsat fruit, *Lansium domesticum*, bark is used to treat malaria
 ©WWF-Indonesia



Hornbill on a typical Dayak motif usually found in Dayak house
 ©WWF-Malaysia/Hana Harun

Dance

The traditional Dayak hornbill dance is named after the bird with a big casque, long down-curved bill and black and white feathers. The hornbill is both an important species and cultural symbol for Dayak peoples. In the west, the hornbill dance is the most well-known traditional Dayak dance.

The dance is performed in stylised movements of the arms to resemble a flying hornbill. The dancer will move her/his arms, legs and torso in a slow and fluid motion, and keep the head erect and motionless – also to keep heavy brass ornaments that dangle from elongated earlobes from swaying too much. The dancer’s feet will stomp on the ground according to the tempo of the music. Both men and women will wear a richly adorned headdress, women dancers will hold hornbill feathers tied to their hands which will open up when the hands move, while men dancers will hold a shield and a ritual knife. The dance can be performed in a group, referred to as *Datun Julud*, or as a solo dance performed both by man or woman. It is usually accompanied by *sape*’ music.

Originally, dances were performed as part of a post-warfare ritual, to greet returning warriors who fought the enemy or came back from successful head-hunting expeditions. Nowadays, dances are commonly featured during the rice harvest season, New Year and other celebrations, or to greet important visitors to the community.

It is believed that the *Datun Julud* dance was created by a Kenyah Tribal chief named *Nyik Selong*, in Apo Kayan, to express happiness and gratitude for the birth of his grandchildren. Later on, the dance was adopted by other groups.



Little Kenyah dancer with hornbill feather, Long Berini
©WWF-Indonesia/Arif Data Kusuma

Traditional knowledge, biodiversity and health

By Cristina Eghenter

Borneo’s rich biodiversity is complemented and enriched by the extraordinary ethnobotanical (local) knowledge developed by the indigenous people who have lived there for centuries. Dayak communities rely on the biodiversity of their land for day-to-day life. Just some of these uses include food, medicine, cosmetics, ceremonies and magic, construction, tools and handicrafts.

In the late 1990s, Hanne Christiansen studied two communities in Sarawak; Nanga Sumpa (Iban people) and Pa’ Dali (Kelabit people) in the Kelabit highlands. The study, as she puts it, was “a study conducted in the last hour”,⁷ at a time when this knowledge was starting to be eroded by modernity and other social dynamics.



Growing the medicinal plants, Long Kemuat, Malinau
©WWF-Indonesia / Cristina Eghenter

According to the study, local people were found to have knowledge of over 1,144 species, representing more than 172 botanical families. Around 20 per cent of the species known and used are cultivated, semi-managed or naturalised while the rest grow in the wild. Many of these botanic species are cultivated in fields and gardens as part of agroforestry regimes, but many are still found in young and old forests. Around 50 per cent of these species have multiple uses. The most important of these is for food.

The continuous availability and variety of food, particularly vegetables and fruit, is an important factor in local food security. Rice, the staple food, is cultivated in many local and other varieties (as seeds are brought back from journeys to other areas or traded between families).

In Krayan Selatan, a sub-district of the Krayan Highlands, East Kalimantan, the local cooperative recorded 24 varieties of wet rice planted by farmers in six communities in one given agricultural season. The number of species and uses of biodiversity represents more than just a concrete measure of the deep level of traditional knowledge. More importantly, these indicate the extent to which those living in the interior of Borneo depend on natural resources for their well-being, their food, their health and much more.

⁷ Christiansen, Hanne, 2002. Ethnobotany of the Iban and the Kelabit. A joint publication of Forest Department of Sarawak, NEPCo, and University of Aarhus, Denmark

Adan rice

By Dora Jok

Adan rice is the finest rice from the highlands in the Heart of Borneo. It comes in three different varieties: White, Red and Black. This rice is famous for its grain with fine and unique texture, pleasant taste and sweet fragrance (black variety).

Adan rice is a local variety from the Highlands of Borneo but its fame has already reached the world. This rice variety is cultivated by the indigenous peoples in the Heart of Borneo: Lun Bawang, Kelabit in Bario (north-east of Sarawak), Lun Dayeh in Long Pasia (Sabah), Lun Dayeh in and Sa'ban in Krayan (East Kalimantan, Indonesia).

It has the finest grain and taste due to the elevation and the clear, unpolluted waters that irrigate the rice fields. *Adan* rice is cultivated according to traditional and organic practices by the farmers of the highlands both in Sarawak and Krayan (Kalimantan). The high carbohydrate (white variety) and mineral content (black variety) of *Adan* rice explain excellent nutritional value.

This rice is the most popular and significant agricultural product from the highlands of the Heart of Borneo. Over the centuries, local people have transformed the bottom of the wide valleys among the mountains into wet-rice fields. Located at an altitude between 760 metres and 1,200 metres, temperature during the day remain cool. Each family cultivates one-to-five hectares of rice fields traditionally which means the cultivation is rather labour intensive. The fresh and clear water from the mountain streams is channeled by bamboo pipes or earth canals into the fields. Buffaloes are not used for ploughing but are let loose into the rice fields after harvest to trample the earth, eat the weeds and fertilise the soil in the process, so that the rice fields are ready for the next planting season. Nurseries with the rice seedlings are prepared in July and shortly after planted. Harvest season begins in late December through to February. *Adan* Rice takes about six months to mature and only one crop is planted per year.



Green and Fair Product, rice from the highlands
©WWF Indonesia / Saipul Siagian



Adan Rice ©Dora Jok



Bukat man playing sape', Nanga Hovat, Kapuas Hulu
©WWF Indonesia / Syahirsyah

Music

The *sape'*, (also known as *sampe* or *sapeh*), is a traditional lute played by many of the Dayak communities in the Heart of Borneo. Musically, the *sape'* is a simple instrument. One string carries the melody and the accompanying two strings are struck rhythmically to produce a drone. The *sape'* can be performed alone or accompanied by one or two other players. One player carries the melody, the second player alternates between accompaniment, counter melody and harmony to produce beautiful tunes.

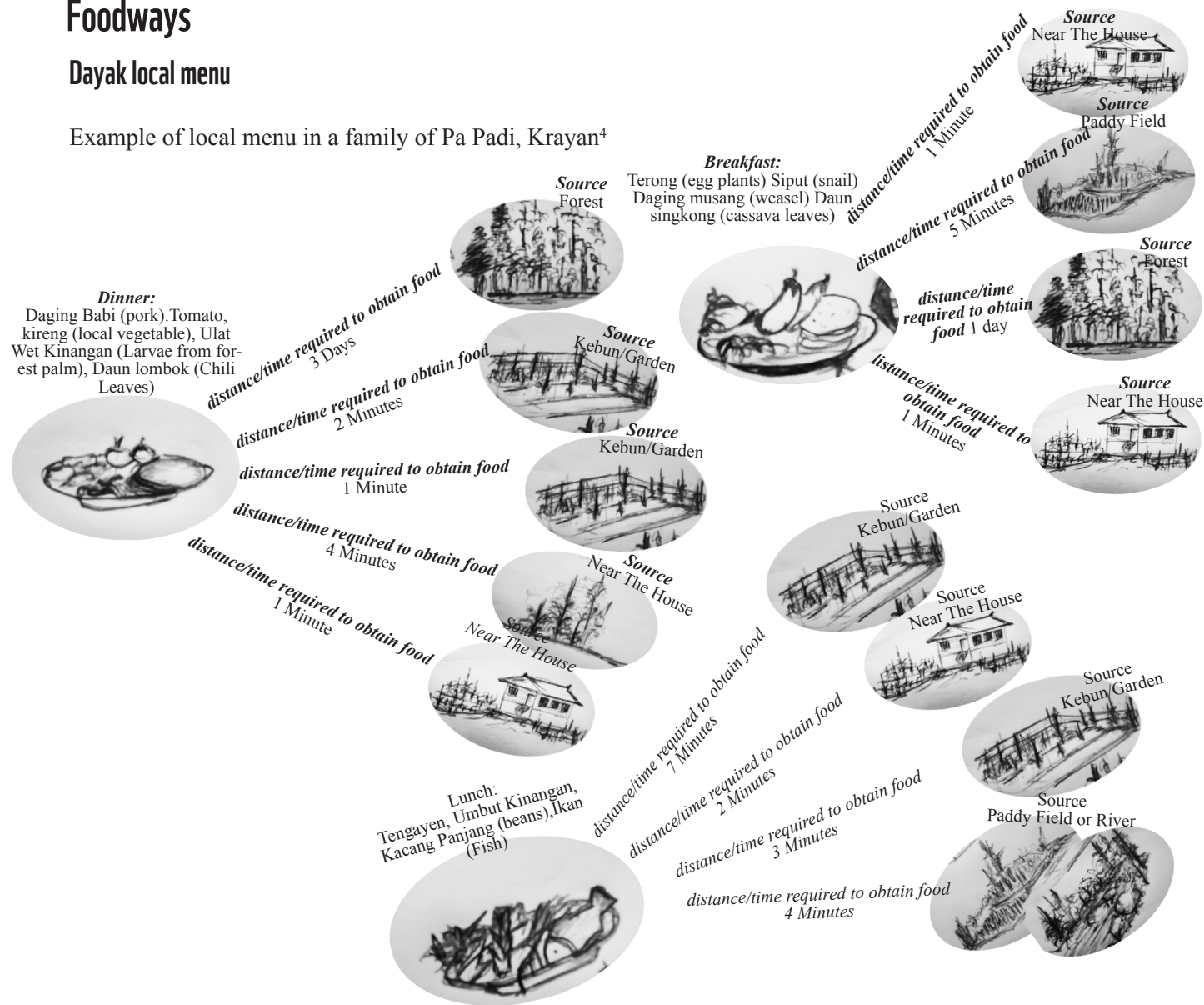
The *sape'* is usually played during celebrations, like harvest festivals (*gawai*) and rituals. The process of making *sape'* is quite complex. It has to be from selected wood, such as *Pelaik* wood (cork wood). It can also be made of hard wood as well (such as *nangka* and *belian*).

In Kayan, the instrument is called *sape'* or *sape* or *sapee'*, in Kenyah, *sampe'*. Besides the Kayan and Kenyah, *sape'* is played by the Modang in upper Belayan and Kelinjau (called it *jempei'*) and by the Aoheng in the upper Mahakam who call it *sape'* as the Kayan. Nowadays the *sape'* is also used as musical accompaniment by other groups, for example by the Iban in Sarawak and West Kalimantan, and by the Tunjung/Tonyooi in Kutai Barat, East Kalimantan.

Foodways

Dayak local menu

Example of local menu in a family of Pa Padi, Krayan⁴



Lati'ba': the process of wet-rice cultivation

By Jayl Langub

For centuries, the people of the highlands in the Heart of Borneo, now divided between Malaysia and Indonesia, have used a complex and highly productive system of wet-rice cultivation known as *lati'ba'* among the Lun Dayeh people. This efficient farming system requires the harmonious interaction of people, animal and a healthy environment for good yields. However, as this process is dependent on access to clear running water, users are challenged with maintaining the water sources and controlling the quantity as well as the quality of water available for domestic use.



Planting on the hilly paddy field.
© Jackson Sigi / Photovoices Intl - WWF / HoB

Irrigation

Rice fields are carved into the deep alluvial soils of the highland flood plains. By damming or channeling mountain streams, water is led into the rice fields through a system of small canals. Small water gates are constructed at strategic points to regulate the flow of water into the fields and a bamboo conduit is constructed to transfer water from one section of field to another. This continuous flow of water brings with it micronutrients that fertilize the fields and gradually improve the quality of even infertile soils, including tea coloured or black water soil which is acidic and poor in nutrients. Some large areas of the highlands covered in heath forest have this kind of soil.

Buffalo

Buffalo play an important role in highland wet-rice cultivation and the *lati'ba'* system is beneficial to both the rice fields and the buffalo alike. Immediately after harvesting, they are released into the fields to eat the remaining straw, soften the land and fertilise the soil with their waste. The poor quality of certain soils can be enhanced because of the buffalos. During this period, the alternative grazing ground is allowed to regenerate in time for the next seasonal rotation. The rice fields are then flooded with water to kill off the remaining weeds and grasses.

Bamboo

The bamboo plant has many benefits for wet-rice cultivation in highland Borneo and plays a key role in the success of the rice harvest. Planted around the rice fields, the bamboo plant boasts a network of roots which work to bind the soil of the rice bunds and hold the riverbanks in place. Bamboo stems are used for constructing fences which keep buffalo and other domestic animals out of the rice fields and are also excellent conduits for piping water from one section of the rice field to another.



©Virtual Malaysia / Zainal Abidin

⁴WWF-Indonesia & WWF-US. Heart of Borneo Measure Report. Data collected by Desfari Christiani / WWF-Indonesia

Rice farming

The 'ladang' system of rice cultivation

By Cristina Eghenter

Rice is more than just a staple food for the communities of the interior of Borneo, it is the basis of much of the cultural and social life.

Community activities are very much organised around the agricultural cycle and rice farming (both hill rice and irrigated paddies) is an integral part of the Dayak way of life.

Apart from hunter-gatherer groups and swamp sago growers in lowland areas, the crop of choice for most people is rice. Originally wild taro was an important part of the diet in the communities in the Heart of Borneo, but with the introduction of iron tools and successful cultivation experiments, wild rice became a popular alternative in forest areas and soon became the single most important food crop.

Throughout Borneo, land is cleared for growing rice along with other edible plant crops such as cassava and corn.



Women weeding together in the rice field
©WWF-Indonesia / Cristina Eghenter

Preparation of the field starts with extensive land clearing, which can take between one and two months. In August, during the earliest dry spell, farmers burn the field and the ash produced in the process becomes a natural fertiliser for the soil. After clearing the debris, farmers plant rice between the end of August and September and the rice is usually harvested between January and March. The following year, the field is left fallow, that is, is not planted and the forest is left to grow back.

An old rice field or swidden is cleared of the vegetation that has grown for the last 15-20 years, and planted anew with rice. This is the agricultural hill rice cycle adjusted to tropical forest conditions and ecology.

Rice fields are used in a 15-20 year cycle. Yields can exceed 300 kilograms per hectare. Each farming family will cultivate one or two areas, one smaller field located closer to the village and another larger area up to a full day's walk from the village. After the rice is harvested the other vegetables and food crops, such as cassava, peanuts and bananas are grown along the edges of the abandoned farming areas.

The labour for field clearing, seed planting and harvesting require the participation of all able men and women in the community. Tree-felling and fencing (to prevent deer and wild pigs from encroaching in the fields and feed on the rice) remain exclusively the role of men, while women are for the most part responsible for weeding. Monkeys, which are common throughout Borneo and ingenious pests in the rice fields, are distracted by a complex system of decoys such as scarecrows, blow pipes and loud, noise-makers.



Rice wine to welcome guests
©Elias / Photovoices Intl - WWF/HoB

Rice wine

Rice wine, or *lihing* in the Kadazan-Penampang language, and *tuak/arak* in Kalimantan, is an alcoholic beverage made from fermented glutinous rice or cassava.

The rice is soaked in water overnight or for at least 12 hours, then it is cooked. After that the rice is let to cool for a while, it is then mixed with yeast. The next stage is to store it into a jar sealed with banana leaves for another 36 hours. Nowadays, a plastic bucket with lid is more often used.

Rice wine is usually served as a drink during all major celebrations and events such as births, deaths, marriages and birthdays. Often, guests are welcomed with offers of rice wine.



Rice seeding
©Susiana / Photovoices Intl - WWF / HoB

Lemang recipe

Ingredients:

4 kg of glutinous rice, coconut milk (from 6 coconuts), crushed garlic (4 pcs) and salt.

Process:

- Soak glutinous rice in water for half an hour.
- Drain the rice and mix it with coconut milk, a pinch of salt, and sometimes garlic to taste.
- Cut the banana leaf and insert it into the bamboo stick in such a way that the whole leaf is rolled inside.
- Pour the rice and coconut milk mixture into the stems up to 5 cm below the top. Close the bamboo stick with banana leaf.
- Cook by placing the stems vertically leaning against a pole over medium fire.



Cooking *lemang* in Bamboo
©Elias / Photovoices Intl - WWF/HoB



Livelihoods



Semangkok Longhouse, Putussibau, Kapuas Hulu
©WWF-Indonesia / Syahirsyah

Longhouses

By Cristina Eghenter

Historically, most of the people living within the Heart of Borneo resided in longhouses and in many parts of Borneo people still do. Longhouses were long buildings (75 to 150 metres long on average) on stilts, constructed from the hardest timber available. An exceptionally long building was a Kayan longhouse in Sarawak which reached almost 700 metres. The height of the building meant access by means of a stairlog to the gallery which provided easier defence from enemy attacks. The height also secured the protected the apartments from flooding and mosquitoes.

Each longhouse features a gallery leading off to several family apartments. The gallery is an open, common living area used for meetings, rituals and dances and various group activities like weaving, milling rice and entertaining visitors. Every important moment in the residents' lifecycle such as birth, death and marriage were celebrated together by residents of the longhouse and when one member of the house had a successful hunt, the meat was still shared with all members. The close physical proximity and constant interaction in the gallery allowed small groups of residents, relatives and non-relatives, to join together for a wide range of activities. The longhouses fostered a spirit of solidarity.

Longhouses were named according to the most important family residing there (such as the community chief) or by their location in the village (upriver, across the river). A longhouse formed a social unit under the leadership of the head of the longhouse, traditionally a member of the aristocratic class.

Over time, the use of traditional longhouses in Borneo has been replaced with smaller, individual family houses. However, in parts of Sarawak and Kalimantan, modern and renovated longhouses can be found and remain a prominent feature and social symbol within the communities there.



Semangkok Longhouse, Putussibau, Kapuas Hulu
©WWF-Indonesia / Syahirsyah





View from the corridor between Betung Kerihun National Park and Danau Sentarum National Park, West Kalimantan, Indonesia
©WWF-Indonesia / Syahirsyah

Conservation – The Local Ways

Over the last two decades, conservation has been torn between a western-scientific idea of conservation and a more indigenous, community-based concept.

While western approaches tend to see nature as separate from culture and culture as potentially destructive of the environment, in many traditional communities conservation embraces the possibility that human actions might actually maintain and preserve natural resources, and help guarantee environmental sustainability.

In these instances, cultural practices and values can play a key role in conserving the environment and strengthen its resilience.



A village meeting in Long Tuyu, to discuss the boundaries of the traditional conservation area and possible strategies to resolve conflict
©WWF-Canon / Simon Rawles



Hamid Jasmin, a self-taught electrician and his hydro power generator
©WWF-Indonesia / Nancy Ariani

Renewable energy: a new reason for conserving the forest

by Jean Ivy and Freya Paterson

Today the people in Kampung Libang Laut, in the district of Tambunan, located within the Crocker Ranges, in the east of Kota Kinabalu, Sabah are enjoying the benefit of two micro-hydro power generators self-invented by two of their community members, the Jasmin brothers.

A strong will to provide electricity for villagers that were for years without access to state-run electricity, has motivated one community member named Hamid Jasmin, backed up by his brother Dr. Yussuf Jasmin, to invent and also self-finance the home-built generator entirely with locally acquired materials. Consisting of recycled materials such as scrap metal, discarded gear box and dynamo (outline materials), the generator and the design was refined through a twelve month process of trial and error.

The first power generator in 2003 was able to support domestic use of 12 households, enough for lighting and appliances such as television and refrigerators. Schoolchildren are now able to study at night, people can gather in the community centre, and more time is available for alternative income-generating activities. In 2004, another new micro-hydro power was installed. These two generators have provided 24 hours operational time, far better than fuel-based generators.

“There were friends who said the plan will fail,” Jasmin told about people’s responses when he was starting his project. Though he’s only skilled in welding and mechanics (which he learned by himself from a booklet on hydroelectrical concept), and has limited funds, Jasmin has shown that local people should not be hampered by their situation. Lack of knowledge, lack of funds and even no government supports at the very initial stage should not stop the endeavor. Wisdom, courage, strong will and aptitude have encouraged local people in a remote village on the Tambunan valley to provide themselves with electricity from the nearby Nunukatan River. A fine example of community-based technology, clean and cost-effective energy, which only are able to supply electricity from 6pm to 11pm daily.

The Tambunan valley is primarily populated by the Dusun peoples and most of the local people have been living in that area all their life, as it is their ancestral land. Paddy is the main agricultural crop in Tambunan as well as in that particular project area. In this area, the community mostly produces hill rice (*Padi Bukit*).

“NAWAI TONG TANA”

By Jayl Langub

The Penan people have a word *tawai* that expresses their strong sense of attachment to the natural landscape. A sentimental expression, the word *tawai* brings with it a sense of fondness and longing (be it from positive or negative memories, important or inconsequential) for the landscape and binds the Penan people to their ancient natural origins. Be it from group activities or life in general, times with food aplenty or hunger, successful hunts, *Tawai* binds the group and individuals to the landscape.

This Penan ‘feeling’ for the landscape is told and retold in *tosok* (oral narratives) to succeeding generations and this fondness and connection is passed down the generations through songs *ngejajan* (Eastern Penan) or *sinui* (Western Penan) that they sing for entertainment.

An example of this can be found in the story of Ayat Lirong who was more than 80 years old when he climbed *Sawa’ Anau*, a peak not far from the village where he lived in search of food, rattan and fruit. On his journey, he took a great fall and was found two days later, miraculously alive. When asked why he went on this treacherous solo mission despite his advanced age, his reply was “*tawai*” nostalgia and yearning for the place, “I have fond memories of that hill, and part of me is left there,” he said.



Processing sago
©WWF-Malaysia /Henry Chan

This is his story:

“Many years ago, when I was about six years old, the band of nomadic Penan that my family lived with camped at this hill. We often camped there. One day, I followed a group of older boys to explore the surrounding area and use our blowpipes for hunting. I don’t remember the details of my misadventure, but I lost a toenail and I cried profusely!

When we returned to the camp, my parents and elders were very angry with me. That inconsequential but personally traumatic event is now used by the present generation of Penan to link our attachment to the hill and surrounding area.”

The Penan insists that this concept of *tawai* makes them unique and differentiates their relationship with the land from those of other Dayak groups. For instance, a timber company operating in the forest and its workers do not have *tawai* for the land. They extract what they need from the land and then leave without any real connection to the place.



Customary regulations: Laying down the ground rules for sustainability of natural resources⁵

For centuries, the Dayak indigenous people in the Heart of Borneo have managed the forests in sustainable ways. Their practices, supported by customary regulations and traditional knowledge, have contributed to the maintenance and preservation of the rich and extraordinary biodiversity of the Heart of Borneo.

Communities living in the interior of Borneo are still largely regulated by customary law or *adat* which govern their daily affairs and management of natural resources within their customary territory. The basic criteria for traditional natural resource management reveals the strong conservation values embedded within Dayak knowledge and practices.

Communities in the Heart of Borneo have long used zoning as a land management tool, whereby the forest territory of each village or settlement is divided in a number of areas for non-timber forest product (NTFP) collection, hunting, agriculture (rice paddies and swiddens), gardens, old settlements and sacred sites.

Local regulations specify the rates and means of collection of forest resources that stress sustainability and minimise stress to the environment. For example, there is emphasis on not wasting animals or forest products by collecting more than needed or harvesting them in ways that would hamper their future reproduction or growth. One regulation for the collection of resin among Kenyah communities in East Kalimantan states: “Collection of hardwood resin is permitted in the entire village territory as long as trees are not cut down.”

In other instances, regulations set temporal limits by determining how frequently a certain product may be harvested and for how long. In the case of rattan in Kenyah communities, for example, collection may occur only every two to three years. The period of collection is also limited to a two to three week period.

In general, in all Dayak communities the use of chemicals and sophisticated technology for catching fish is banned and only traditional tools like nets, rods and fish traps may be used. All customary regulations state that trees at the headwaters of rivers may not be cut and recommend that salt springs in the forest and common hunting grounds not be damaged.

Customary regulations can play a critical role in preventing the extinction of many endangered species within the Heart of Borneo. In Malinau and Nunukan, in East Kalimantan, the councils have banned hunting and trapping of the rhino, a species that is virtually extinct in East Kalimantan since the 1950s, the clouded leopard, wild cattle (*Bos javanicus*) and the straw-headed bulbul (*Pycnonotus zeylanicus*).

A customary chief is responsible for administering the law with the help of a council of community leaders. Together they regulate the control, access and exploitation of resources in the customary land. Annual meetings, which usually coincide with the harvest festival, allow councils to review regulations, deliberate on social matters and discuss approaches to natural resource management.

⁵ Egghenter, Cristina. 2002. “Planning for community-based management of conservation areas: Indigenous forest management and conservation of biodiversity in the Kayan Mentarang National Park, East Kalimantan, Indonesia,” in D. Chatty and M. Colchester, eds., Conservation and Mobile Indigenous Peoples: Displacement, Forced Settlement, and Sustainable Development. Refugee Studies Programme. London: Berghahn Publishers

“*Molong* of the Penan people”

By Jayl Langub

Molong is the name given to the Penan practice of staking a claim to forest resources; it also has the meaning of fostering natural resources such as harvesting strategies based on sustained yields. For example, the Penan people take the *molong* approach to their wild sago harvesting process, whereby they extract the mature trunk but conserve the bud for ongoing growth. This *molong* allows them to alternate their sago harvest between two clumps to allow for continuous yields. Below, a nomadic Penan from the Ubong River in the Heart of Borneo, illustrates this harvesting strategy:

“When we harvest sago in the Batu Punai River and extract the mature trunk, we leave (*molong*) the plant bud. We then move on to the next river and again, we will extract only the trunk and *molong* only the bud. Then when there is no sago left in that river, we will move on to the next river and repeat the same process again. After two or three years the *molong* we have left behind has grown into mature sago and we can return. *Molong* is a very important concept to us Penan who are still nomadic. We don’t cut the young plants. We *molong* the offspring, so we can get them later. If we don’t *molong*, we finish all the sago off and we won’t have anything to eat.”

Although suited to the nomadic lifestyle, the settled groups of Penan society also practice *molong* through their rotational approach to alternating their staple foods between rice, sago and cassava. The nomadic Penan of the Ubong River explain this harvesting strategy thus:

“We go to get rattan at the Nyakit River. If it is finished there we go elsewhere. A long time after, we can get it at Nyakit River again, perhaps two years, three years, four years, it is large again. Then we go back to Nyakit River and collect the rattan. It is like sago because we wait for it to live. That is why when we get the rattan, we don’t cut the young plants, the offspring of the rattan, its children. We can’t cut the offspring. We *molong* the offspring, so we can get them later. After a while it will be long. We will get the rattan to weave into mats and baskets, for us to get money.”

When an individual *molong* finds a resource, he places a mark or sign on it known as *oroo olong* (‘claim sign’ or ‘ownership’). This individual is then responsible for its upkeep and sustainable management and holds exclusive rights to its use. These rights are heritable and pass down from one generation to the next of household members however members of the community may harvest the resource with permission of the owner. *Molong* can be done individually or communally and this Penan form of resource tenure is similar to the Iban tree tenure system.

“*Tana Ulen* among Kenyah people”⁶

By Cristina Eghenter

Tana ulen is the name given to *tana* or land which is forbidden or restricted (*ulen*). It is usually an expanse of primary forest rich in natural resources all of which have high value for the local communities.

Available narratives on the history of *tana ulen* show that these areas functioned as ‘forest reserves’ controlled and managed by the aristocratic families of the community. Exploitation was usually limited to procuring food for specific occasions such as celebrations and ritual events of the lifecycle. These could be either celebrations at village-level or more private affairs. In all cases, extraction of products could take place only upon prior permission by the aristocrats in charge and prohibitions were strictly enforced.

Over the last few decades, with social and economic changes taking place, the management of *tana ulen* areas have changed into communal forest reserves. In Kalimantan, land rights and responsibilities have been transferred to the customary council or *lembaga adat* now managing *tana ulen* areas in the interest of the community-at-large.

⁶ Eghenter, Cristina. 2000. What Is Tana Ulen Good for? Considerations on Indigenous Forest Management, Conservation, and Research in the Interior of Indonesian Borneo. *Human Ecology: An Interdisciplinary Journal*, 28 (3), September: 331-357



A view from the inside of Tahapun Cave, Tanjung Lokang, Kapuas Hulu
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