



WHAT IF? WHAT NEXT?

SPECULATIONS ON HISTORY'S FUTURES

SESSION 2C

ROUTES TO THE PAST

Legacy: Presenting the Value of the Past Through Constructed and Cultural Landscapes

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ULIN AS A DISTINCTIVE CHARACTER OF KALIMANTAN'S CULTURAL LANDSCAPE: USING CULTURAL LANDSCAPE AS MEANS OF CULTURAL AND ECOLOGICAL PRESERVATION

Huda Nurjanti | Institut Teknologi Bandung & Universitas Bandung Raya
Widjaja Martokusumo | Institut Teknologi Bandung
Budi Faisal | Institut Teknologi Bandung
Feysa Poetry | Institut Teknologi Bandung
Nathania Nadia | Institut Teknologi Bandung

*Kalimantan is known for its tropical rain forests with a rich variety of woods, and land keeps decreasing over the years, as a consequence of the expansion of mining sites and plantations. Ulin (*Eusideroxylon zwageri*), one of the species grown in these forests, is an endemic Kalimantan wood that is famous for having Class-I quality that is water-resistant, making it suitable to use in wetlands. Ulin, which embodies strong local belief and economic value, has been a part of the Kalimantan people's daily life for ages. Tested through a long experience of local technology and culture, the community uses it for numerous purposes, such as household appliances, road and bridge structures, and various building elements to the point that it become a city-forming material. This robust usage contributes to distinctive characteristics of the city. Physically, the traits and limitations of ulin as a material shape the local architectural typology and the city's urban morphology. In a more intangible way, ulin also creates unique experiences, e.g. roads built out of ulin make crackling sounds when motorized vehicles pass by. These characteristics formed by ulin place the material as an important feature of Kalimantan's cultural landscape. However, despite its significance, ulin is now becoming extremely scarce— not only because it is hard to grow, but also due to deforestation.*

This research aims to study the role of ulin in the constellation of Kalimantan's community, social system, and physical landscape; how it affects local cultures of dwelling, building, and even more creating unique ambience of the city. It will also seek to discover if ulin, as unique feature of the cultural landscape, will be a tool for the community to connect themselves to the historic past of their tribe and ancient local wisdom in order to raise awareness of the importance of cultural and ecological preservation.

Introduction

Kalimantan, apart from being famous for its forests which produce a variety of wood, is also known as the island of a thousand rivers. This illustrates Kalimantan's relatively wet environmental conditions because it is crossed by large rivers, has large swamps and peatlands. This unique condition requires wood that is resistant to wet conditions and which can be used for various daily purposes. Several types of hardwood produced by Kalimantan forests include *ulin* (*Eusideroxylon zwageri* Teijsm & Binn), wood that has structural strength (strong class) and is ranked number one in resistance to water and weathering (durable class).¹

Ulin's specialty encourages wide use both within and outside Kalimantan. Massive exploitation occurs to meet the market demand for ulin, although various management regulations and logging bans have been implemented. While the supply of ulin in nature is decreasing, forest fires that occur every year are also damaging. Ulin (Kalimantan: *telihan* or *belian*) is very difficult to cultivate outside Kalimantan and its slow growth only worsens these natural conditions. IUCN includes ulin in the list of vulnerable species.² However, used ironwood is in demand and has a fairly high selling price in the market (various sources). Ulin has high economic and socio-cultural value.³

The people of Kalimantan have been using ulin for a long time for various needs, such as forts in past settlements, infrastructure, buildings (foundations, poles, walls and roofs, frames), bridges and pontoon in the interior, electricity and telephone poles, river bank sheet piles, garden fences and pepper plant piles (*turus*)⁴, musical instruments and accessories⁵, jewellery and ornaments, ancestral statues and *balai-balai* (pedestals for offering tools) and *tempelak* / *sandung* / *klerekng* (carved coffins)^{6,7}. Some of the use is still ongoing today, although it is increasingly difficult to obtain ulin and people have to use old wood that has been buried in the ground.

A Malay pantun in West Kalimantan conveyed that "Adat (tradition) lives with customs, knows how to protect the sea and straits, knows how to protect the dense jungle, knows how to protect traditional land, knows how to protect ants and caterpillars, knows how to protect the *togok* and splints".⁸ The quote contains advice to protect the environment (sea, river, forest, and communal land): if they want to build houses don't destroy the land, if they make a garden don't destroy the settlements and livelihoods, and don't destroy the mountains. Hetti Rahmawati (2015)⁹ found:

The belief that exists in the Benuaq community sees forests and rivers as "neighbors" where ancestral spirits live so that a harmonious relationship between humans and forests and rivers is important. There was a forest guardian god who gave them the forest, so it was bad if someone hurt the forest. On the other hand, forests will provide good if humans protect forests, especially certain species...

The above statement expresses the long and close relationship between humans as individuals and as social beings and the natural environment around them. A reflection of the relevance of local wisdom and the dynamics of the Benuaq Dayak community's ecological behavior in managing the forest environment.¹⁰ This shows that the social system of the community can carry out the duties for forest preservation. The interaction procedure between human activities and natural habitats which includes ecology, interaction, belief practices, concepts and unique traditions as cultural landscapes; which reflects the way of everyday life, the way people create places, and the order or rhythm of life over time.¹¹

This paper examines the use of ulin in everyday life of the people of Kalimantan. On the other hand, discovering how this culture can contribute to maintaining and protecting the existence of ulin in natural forests.

Research Methods and Materials

The research method is interpretive and qualitative. Qualitative research prioritizes the meaning expressed around people's perceptions of the culture of using and preserving ulin by the people of Kalimantan. Document study complements the use of online observations and interviews in

this qualitative research project. The research was conducted from December 2019 to August 2020. Interviewees came from various professions including academics and researchers, government officials, cultural actors, housewives, local communities in Kutai Kartanegara Regency.¹² Those involved consisted of the Benuaq, Kutai, and Malay ethnic Dayak. The location of the informants' residence was in Muara Muntai, Samarinda and Tenggarong. The data and information required include primary data and secondary data. Primary data has been obtained through the interviewing of sources. Secondary data takes the form of documents related to Ulin and the culture of the Kalimantan people who use ulin.

Findings and Discussion

Campolo (2016)¹³ states that cultural landscapes describe the evolution of people and settlements over time, under physical influences containing opportunities from their natural environment and social, economic and cultural forces that are both external and internal. The culture of local communities is formed by adaptation to the surrounding environment through the struggle to face disasters and the challenges of change that come from nature, as well as taking and receiving the benefits and conveniences that nature provides. Society, through understanding and collaboration with nature over a long period of time, forms a distinctive character that fosters local identity and wisdom.¹⁴

Local wisdom to indigenous people is often conveyed in the form of oral advice as stated in mantras, rhymes, poetry, folk songs or folk tales (saga, myth, etc.). The oral tradition is a metaphor to explain the environment and the universe, to understand the world, and to express the cultural patterns and structures in it.¹⁵ Another form of delivery is through prohibitions tradition and daily behavior in society.^{16, 17}

Fahrianoor et al (2013)¹⁸ found that the local wisdom of the Dayak Loksado, Dayak Upau, and Dayak Warukin tribes has the same pattern of interaction and is based on the same understanding in managing forests and humans. The universe is considered to be the manifestation of Datu Adam (Adam/male) and Datu Tihawa (Eve/female). The beliefs of the Dayak people reflect that local wisdom of the Dayak tribe is not only at the level of customs (folkways), but also ideas and values related to natural resource management. This is proof that the efforts to save and preserve the environment that have been carried out by the community for a long time are based on the values of local wisdom which are internalized for an ecological awareness.

a. Philosophy of Life

The characteristics of the tropical forests of Borneo in the past, have rich and dense vegetation which are crossed by rivers. The value of forests and rivers is based on their function in maintaining the quality of life of the community for survival, the availability of environmental resources, and their function as places of spiritual activity and social glue. Forests are an integral part of their life's cycle so they are not considered a commodity and valued as an economic benefit.¹⁹ The existence of the Dayak Benuaq culture is very close to the rhythm of forest and river life and is closely related to ulin wood.

Ulin is taken from the forest as needed on a limited scale.²⁰ Each type carries a different task.²¹ Respect for ulin is respect for ancestors. Sacred trees because the spirits of the ancestors live and cannot be traded outside the traditional village. If you are going to cut down a tree, a "Mekanyahu" ceremony will be performed asking for permission from forest guards, including ironwood tree dwellers. Ironwood trees are only felled by leaving the roots so that the trees will quickly repair themselves and grow back.²² The prevailing customary regulations do not allow cutting down certain trees because of their ecological value for humans over the ages. This illustrates the behavior of conservation and sustainability based on strong local thinking. The character of ulin, which remains durable in various conditions, encourages the people of Borneo – especially the Dayak tribe – to use the old ulin they find in the ground.²³

b. Agriculture

Sartini (2004)²⁴ found that in the Dayak Kenyah community, East Kalimantan has a “tana ulen” tradition in which forest areas are controlled and belong to indigenous peoples. Land management is regulated and protected by customary rules. The indigenous peoples of Undau Mau, West Kalimantan developed local wisdom in the pattern of residential spatial planning, by classifying forests and their uses. The field system is carried out in the form of rotation that determines the fallow period and recognizes taboos so that the use of agricultural technology is limited to that which is environmentally friendly.

The behavior of non-primary forest land use is carried out jointly / communally according to customary rules. *Simpukq* (plantation in forest) providing fruit trees, coconut, candlenut, coffee and rubber with a variety of medicinal trees, natural toxins and fruit trees are evidence of the organic life of local Benuaq communities.²⁵ Harvesting is carried out in moderation and leaving the rest of the harvest as a return to nature in the Long Tuyuq tribe.²⁶ Wild boar hunting and rattan gathering are activities that increase income for the family, but commercial harvesting from the forest to sell outside the community is not practiced because the economic principle in society is to fulfill domestic needs and not the market. This is an illustration of the application of a sustainable agroforestry system. The social behavior of the community that is energy efficient, respects every process that occurs, is effective and environmentally friendly. This is evident in *Lamin* houses and fields that are managed jointly by extended families and communities, and is a symbol of community collective behavior.

The Dayak tribe applies a shifting cultivation system in the area of planting fields, where various varieties of rice are planted without irrigation, which follow the plot of a cropping cycle according to their time. In this system, rice planting and harvesting is carried out jointly by all village communities. The fields are prepared by burning and cleaning things that will interfere with rice growth. The men are tasked with making holes using the tips of wooden sticks and the women follow the rhythm behind the men while inserting rice seeds and closing the holes using a sweep of the soles of their feet.²⁷ *Gogorancah* rice (a type of rice commonly grown in fields) is grown without using pesticides or chemical fertilizers but can produce good harvests. Some of the land is interspersed with cassava or consumption vegetables. And it appears that some plots of land were left unplanted after several years of being planted with rice. This is done so that the temporarily dormant land will be ready to be replanted again after the soil surface nutrients are maintained.

The use of *umaq* forest reserves is based on local knowledge that soil fertility is different, microclimate is different and the planting cycle is used to separate forest regeneration into five planting phases, namely: young layer (*Kurat Uraq*), old layer (*Kurat Tuha*), juvenile secondary forest (*Kurat Batang Muda*), advanced secondary forest (*Kurat Batang Tuha*) and primary forest (*Bengkar*). Until finally the fields are cycled back into the primary forest after 100-200 years.²⁸ The introduction of plant species of ecological value helps communities in their land use cycle.

c. Building

The Dayak tribe knows their place of residence as *Rumah Panjang* (long house/ *lamin*/ *betang*) which is entirely made of several species of ulin.^{29, 30} The settlement pattern of longhouses is closely related to food sources provided by the surrounding environment, such as land for farming, rivers with lots of fish, and forests that are inhabited by game animals.³¹

Rumah Panjang is the center of the dynamics of the resident's life. *Rumah Panjang* is an expression of the legacy of the ancestor's life, which completely and concretely describes the village officials, social organization and the community system. *Rumah Panjang* was formed based on the need for space to accommodate the activities carried out by the Dayak community.³² *Lamin* was built and inhabited together by all tribes for several generations (Gelollw, 2020) so that a larger community was formed. Communities are very difficult to separate, mainly because of blood factors, customs, beliefs, livelihoods, and other psychological factors. In the past,

togetherness was important because people faced wars against other tribes. The long house starts from a single house which then adds a new room beside the old room. Buildings are modules that are established attached.³³ If there are additional family members, if needed, a new module will be added at the end of the building. The wood used does not have to be new but can be taken from unused buildings or wood excavated from the ground.³⁴

Other buildings owned by the people of Kalimantan are huts (shelters) which are scattered along their route through the forest. These lodges are located at certain distances such as one day's journey. These huts can be used by anyone crossing the route. Along the Mahakam Ulu river, many huts were damaged by passerby who came from outside (not the people of Borneo).^{35, 36}

d. Cities and Infrastructure

In the past, ulin trunks were used as a kuta (fort) around the long house of the Dayak Ngaju tribe to prevent attacks from other tribes and plagues. Kuta is found in West Kalimantan, Central Kalimantan and South Kalimantan. The fort is partly intact and the wood is in good condition even though it is more than 1700 years old (Kuta Mapot) and buried in the ground for a long time.³⁷

In Kalimantan, many settlements and villages are located on the banks of rivers and swamps which are flooded every year. The village was built on ironwood pillars, on which built housing and public housing facilities. Some of these settlements developed into cities such as Samarinda, Muara Kaman, Kota Bangun, Muara Muntai and so on. Samarinda developed into the capital of East Kalimantan. Muara Kaman was the center of the Kutai Kartanegara Kingdom in the past and is now one of the transit port cities on the Mahakam River. Muara Kaman develops towards the plateau, so that some buildings use short poles on dry land. Kota Bangun sits on a swamp on the riverbank, and buildings and infrastructure are built on iron pillars (Fig. 1). Kota Bangun has served as a transit and resting city for visitors in this area from the past to the present.

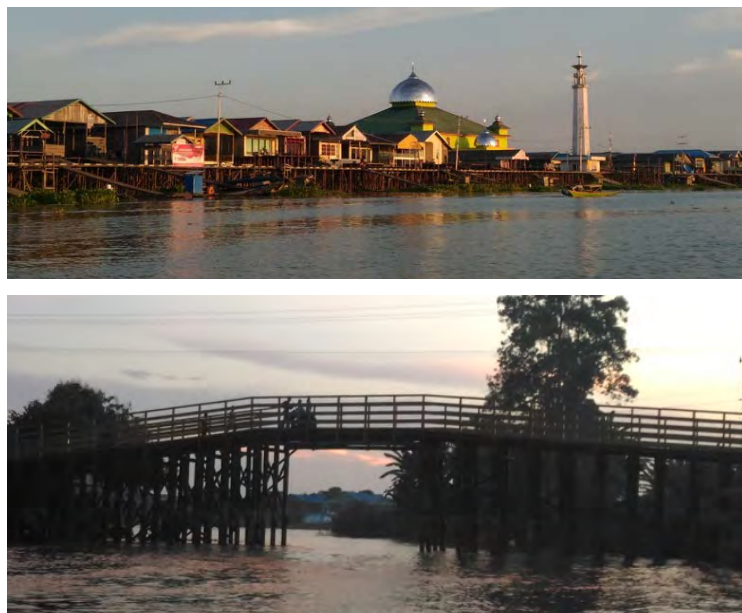


Figure 1. (Above) The village above Lake Melintang in East Kalimantan, a wooden town built on ulin pillars; (Below) The ulin bridge connects the two sides of the Makam river which is accessible to motorized vehicles (cars and small trucks). Source: KSPN Survey, 2016.

The distinctive panorama that can be seen in the riverside cities is the houses on stilts lined up along the river banks. At the front, right by the river, there are raft houses that function as shops, buying and selling transactions or refueling points.^{38,39} These buildings initially fully used ulin⁴⁰ but due to the limitations of ulin at present, the community segregates the use of materials

according to their needs, such as areas prone to wetness and flooding using ulin wood and dry areas using *Bangkirai* (*Shorea laevis*) or other species.^{41, 42}

Cities that were built entirely using ulin bring out their unique identity in the urban landscape and creates a distinctive nuance for these cities (Fig. 2 Left). The natural color of the wood dominates the area. Community activities are carried out on roads and courtyards made of ulin boards. When the motorized vehicle passes, it makes a distinctive crackling and crunching sound. Unfortunately, as the quality of the ulin material (the younger the trees are cut) decreases, this increases the maintenance and replacement time for ulin boards (Fig. 2 Right). This condition is exacerbated by the attitude of motorized vehicle users who pass without reducing speed. People who are tired of looking for solutions to cope with the crackling noise often end up coating ulin streets with concrete mortar.



Figure 2. The main road in Muara Muntai City. Left: road conditions in 2013. Right: Road conditions in 2018. Source: Arief R. Sandan, 2013; [https://commons.wikimedia.org/wiki/File:Jalan_di_Muara_Muntai_-_Ezagren_\(3\).JPG](https://commons.wikimedia.org/wiki/File:Jalan_di_Muara_Muntai_-_Ezagren_(3).JPG).

The solution that uses a concrete layering method on the ulin road leaves a problem with the strength of the ulin structure at the bottom. Motorists passing on the concrete road sometimes do not realize the strength of the ulin structure, causing fractures to some of the ironwood structures at the end of Kota Bangun road, so that the road is broken and tilted and impassable. The use of ulin as a material is mentioned in the saga of Putri Junjung Buih⁴³ where in order for the bridge to be strong and not to break, you have to use *telihan* (ulin). Until now, ulin is still the main material used to build bridges, snapping / wooden roads in settlements or cities, ports and jetty throughout Kalimantan. The main problem with the needs of building and structural materials is the availability of quality materials. Currently, the availability of material has shrunk and is difficult to obtain. Several areas in Kalimantan, especially those that have turned into plantations and mining, have to look for ulin in other areas that still have forests.

e. Traditions and Traditional Ceremonies

The Dayak tribe makes ulin an important part of traditional ceremonies and their daily life and social system. The conversion of forest functions and the narrowing of access to forest maintenance for them resulted in a reduced supply of ironwood needed for cultural rituals. This will result in the loss of symbols of the existence of religious rituals because ironwood handicrafts and equipment (statues, wooden clothes, weapons and shields) are used as part of religious ceremonies, customs and worship (Fig. 3). The preservation of Kalimantan culture is assisted through the Erau festival which is held every two years by the Kutai Kartanegara Sultanate. Erau has the meaning of being busy, going back and forth, having fun, having a festival.

The daily life of the Kalimantan people cannot be separated from ulin (Figs 4 and 5). Many appliances, both household and communal scales, are made of ulin, including *Kelupi*, a sugar cane press which is made of whole ulin and is operated by 5-7 adults. Non-machine looms are still used to weave cloth in the Benuaq Dayak tribe in Tanjung Isuy. *Gantang* is a measuring tool for rice (grain) measuring approximately the same as five kilograms. *Gantang* embodies a philosophy whereby the giving of bushels should not be given from hand to hand but must be

placed on the floor before being accepted by the recipient. As a measuring tool for exchanging goods, the manufacture of bushels must also have the permission of the kingdom. The stirring spoon made of ulin consists of several sizes including *sengkidau* which resembles a small paddle used to stir rice in a large cauldron, *kelaci* that are smaller than *sengkidau* and have a wooden holder at the end.⁴⁴



Figure 3. Carved coffins made of Ulin. (L to R): Lungun Dayak in Batoq Ten'fang, Mahulu. Sandung in Central Kalimantan. Clerk / paste of the Dayak Benuaq tribe in Muaralawa, East Kalimantan. Source: <https://eksposkaltim.com/berita-4427-lungun-yang-tersembunyi-di-balik-pesona-batu-dinding.html>; <https://bobo.grid.id/read/08673875/sandung-tempat-tulang-leluhur-suku-dayak?page=all>; https://id.m.wikipedia.org/wiki/Berkas:Sandung_101013-7585_mp.JPG; <https://www.netralnews.com/sisilain/read/111264/inilah-kuburan-batu-misterius-paling-angker-di-suku-dayak>



Figure 4. Dayak community equipment (L to R): *Kelupi*, a sugar cane press. Benuaq Dayak Weaving Equipment in Tanjung Isuy. *Gantang*, a rice pounder (1 *Gantang* = ± 5 kg) from Kotawaringin. *Sengkidau* stirring rice in a large skillet. Source: Pesona Indonesia, 2019; KSPN Survey, 2016; <https://ayokekotawaringinlama.blogspot.com/2019/07/gantang.html>; <https://www.bukalapak.com/u/aanqadrie>.



Figure 5. Ulin carving (L to R): ulin bracelet. Stone rings from ironwood fossils. Fence & plank profiles. Mandau's scabbard from ulin. Source: Lazada.co.id; m.inkuiri.com; Enchantment Profile of Borneo; [http://karyasastrasenisunda.blogspot.com/2016/03/golok bedog.html](http://karyasastrasenisunda.blogspot.com/2016/03/golok%20bedog.html).

Kalimantan culture also recognizes music culture which has more than fifteen types of percussion, string and wind instruments. Some of them are made of Ulin (Fig. 6) both as a whole and as accessories, including *Sapeq*, *Sobang Ketubokng*, ear guitar.⁴⁵ *Sapeq* is a traditional stringed instrument of the Kayaan Mendalam Sub-tribe in West Kalimantan⁴⁶ and several other tribes with various names and versions. *Sapeq* can be made from several types of plants and wood, including belian/Ulin (*Eusideroxylon zwageri*). This musical instrument is usually played as an accompaniment to regional songs, dances, to the chanting of oral literature in traditional Dayak ceremonies.⁴⁷



Figure 6. (L) *Sapeq*, a Dayak Kahaan musical instrument; (C, R) *Balikan/Kurating* of the Dayak Iban/Banuaq musical instruments. Source: Budaya-indonesia.org.

Discussion

Ulin is involved in every aspect of the life of the people of Borneo. This shows the socio-cultural attachment of the Kalimantan people to ironwood and makes ulin an important wood. Every aspect of culture requires ulin, starting from living quarters, daily life, processing agricultural products, weaving, trade and weapons to death equipment (statues and coffins). The need for and respect for ulin generates values and beliefs of local communities that drive their ecological behavior towards the meaning and value of forests and rivers for them in the present, past and future. Emotions and behavior reflect personal values and interest in the environment and encourages environmentally conscious attitudes and behaviors.

The form of community responsibility and concern for the environment is implemented in land use systems and cycles as well as farming methods, namely the differentiation of treatment on land and the five stages of *Urat* is a land use system model that cares about biodiversity, conservation and sustainability of forest resources and its surroundings. The community's active preservation of natural forests is manifested in the manner of using ulin, but it has not yet been in the form of active planting or reforestation.

The life of mutual assistance among the inhabitants of the mansion is far from individualistic and private property. Ownership is based on customary and extended family decisions, so that the exploitative competitive nature is taboo. Meanwhile, the sustainable value of forest management and the spirit of cooperation to help and care for others are its characteristics. *Rumah Panjang* (Long House) as the center of society can be seen in the education system that is conveyed through the culture of telling stories in the daily life of the community from one generation to the next. The messages (ecological, heroic, warrior attitude and life wisdom) that are conveyed aim to arouse awareness, form perceptions, attitudes and behaviors. Through storytelling art that touches concern, reveals attitudes, values and environmental ethics, the people of Kalimantan are trying to survive the various external factors (illegal logging, land concessions, capitalism through mining and plantations) that have eroded this tradition.

The pattern of agriculture or shifting cultivation followed by land burning (the fastest way to clear bush land and return the elements to the soil) by indigenous people is believed by outsiders to be damaging farming procedures. This procedure is seen as threatening the existence of forests, causing widespread forest fires and polluting the air. However, the basic principle applied by indigenous people is that people only clear as much land as needed to produce food for their community. Indigenous people never take excessively for reasons of profit. This is very different from the capitalist concept of clearing forests for mining and plantation purposes, where the amount of ecological losses is much higher.

Conclusion

The principle of natural balance between the power and grace of nature for humans is important for people in Kalimantan. Adaptation to the surrounding environment through the struggle to face disasters and the challenges of change that comes from nature as well as taking and receiving the benefits and facilities provided by nature forms the culture of the community. The principle of indigenous people in maintaining and restoring natural conditions is an important practice, as reflected in their daily behavior. Indigenous people have their own principles which are sometimes not in accordance with the principles adapted by traditions outside the people of Kalimantan.

Local wisdom is directly related to the dynamics of the ecological behavior of the Kalimantan people in managing the forest environment. Understanding and collaborating with nature over a long period of time have formed a cultural landscape that preserves forests, and which will ultimately help to preserve ulin in nature.

Endnotes

- ¹ A. Martawijaya et al., 1989. *Atlas Kayu Jilid II*. Departemen Kehutanan. BPPK, Bogor, Indonesia. Pg 145-149.
- ² IUCN, 2020. IUCN red list of threatened species. Version 2020.2.
- ³ Pradjadinata & Murniati, 2014. Pengelolaan dan Konservasi Jenis Ulin (Eusideroxylon Zwageri Teijsm. & Binn.) Di Indonesia. *Jurnal Penelitian Hutan dan Konservasi Alam*, Vol. 11 No. 3, Desember 2014: 205-223.
- ⁴ R. Effendi, 2009. Kayu Ulin Di Kalimantan: Potensi, Manfaat, Permasalahan Dan Kebijakan Yang Diperlukan Untuk Kelestariannya (Eusideroxylon Zwageri's Wood in Kalimantan: Potency, Utilization, Problems and Needed policy for its Sustainability). *Analisis Kebijakan Kehutanan*, E-journal, Vol. 6, No. 3, 2009.
- ⁵ F. Sari, R. Linda, E. Rusmiyanto, 2018. Pemanfaatan Tumbuhan yang Digunakan dalam Pembuatan Alat Musik Tradisional Khas Suku Dayak di Kota Pontianak dan Sekitarnya. *Protobiont* (2018) Vol. 7 (2): 55-65.
- ⁶ Ibid, 4.
- ⁷ Gelollw, 2020. Interview via telephone and social media. Resource persons for cultural actors.
- ⁸ U. F. Andi, 2015. Local Wisdom, Myth and Pragmatical Interests in Architecture, Case Study: Malay Sultanate Palaces in West Kalimantan, Indonesia. *International Joint-Conference Sencar-inta-Avan*, 2015.
- ⁹ H. Rahmawati, 2015. Kearifan Lokal Masyarakat Dayak Benuaq dalam Pemanfaatan Lahan dan Pemeliharaan Lingkungan. *Jurnal Penelitian Humaniora*, Vol. 20, No. 2, Oktober 2015: 106-113.
- ¹⁰ Ibid, 9.
- ¹¹ Taylor & Altenburg, 2006. Cultural Landscapes in Asia-Pacific: Potential for Filling World Heritage Gaps. *International Journal of Heritage Studies* Vol. 12, No. 3, May 2006, pp. 267-282.
- ¹² See interviewees list.
- ¹³ D. Campolo, et al., 2016. Cultural Landscape and Cultural Routes: infrastructure roles and indigenous knowledge for sustainable development of inland areas. *Procedia - Social and Behavioral Sciences*, Volume 223, 10 June 2016, Pages 576-582.
- ¹⁴ Rössler in Taylor, 2017. Landscape, Culture and Heritage. Changing Perspectives in an Asian Context. *Dissertation*, 16 April 2017.
- ¹⁵ Ibid, 8.
- ¹⁶ Ibid, 8.
- ¹⁷ Ibid, 9.
- ¹⁸ Fahrianoor et al., 2013. Praktik Kearifan Lokal Dayak Orang-orang di Konservasi Hutan di Kalimantan Selatan. *Jurnal Lahan Basah Pengelolaan Lingkungan*, 1(1), 33-41.
- ¹⁹ Rahmawati, NPN, 2015. 'Sape': Fungsi dan Perkembangan Alat Musik Tradisional Suku Dayak Kayaan di Kalimantan'. *Walasuji*, vol. 6, no. 2, hal. 451-462.
- ²⁰ Ibid, 19.
- ²¹ Arifin, FR, 2020. Interview via telephone. Research & academic resource persons.
- ²² Ibid, 19.
- ²³ Ibid, 7.

²⁴ Sartini, 2004. Menggali Kearifan Lokal Nusantara Sebuah Kajian Filsafat. *Jurnal Filsafat*. Agustus 2004, Vol. 37, No. 2: 111-120.

²⁵ Ibid, 9.

²⁶ Survey KSPN, 2016. Kawasan Strategis Pariwisata Nasional: Kota Bangun dan sekitarnya, Long bagun dan sekitarnya. (National Strategics Tourism Area: Kota Bangun and surrounding, Long Bagun and surrounding). Cultural and Tourism Ministry, Jakarta.

²⁷ Ibid, 26.

²⁸ Ibid, 9.

²⁹ Ibid, 21.

³⁰ Ibid, 7.

³¹ Affrilyno, 2020. Rumah Panjang: Nilai Edukasi dan Sosial dalam Sebuah Bangunan Vernakular Suku Dayak di Kalimantan Barat. *Jurnal Arsitektur Pendapa*, Vol 3 NO. 1, 2020, Universitas Widya Mataram.

³² Ibid.

³³ H. Nurjanti, 2017. Kota Terapung Muara Muntai Studi Kasus: Pengembangan Kota Muara Muntai sebagai Kota Heritage. *Seminar Nasional Arsitektur dan Tata Ruang (SAMARTA)*, Bali-2017, ISBN 978-602-294-240-5.

³⁴ Ibid, 7.

³⁵ Ibid, 7.

³⁶ Ibid, 26.

³⁷ Sunarningsih, nFn, 2020. The Fortified Dwelling (Kuta) of Mapot: Study of Form, Symbol, and Chronology. *Kindai Etam: Jurnal Penelitian Arkeologi*, 5(1), 13-26.

³⁸ B. Wicaksono, A. Siswanto, S. Kusdiwanggo, W. F. F. Anwar, 2001. The identification of the existence of stilt houses at Musi riverside settlement in Palembang. *IOP Conf. Series: Materials Science and Engineering* 620 (2019) 012001

³⁹ M. Fitri, 2018. The Settlement Morphology along Musi River: The Influence of River Characteristics. *Dimensi*, 2018.

⁴⁰ Saleh, 2020. Interview via telephone. Government officials.

⁴¹ Ibid, 40.

⁴² I. Rahman, 2020. Interview via zoom.us. Tourist resource person, Chairman of the Indonesian Tour Guides Association DPC Kutai Kartanegar

⁴³ D. Adham, 1981. *Salasilah Kebudayaan Kutai*; Proyek Penerbitan Buku Sastra Indonesia dan Daerah, Jakarta.

⁴⁴ U. H. Asmara, et al., 1990. *Dapur Dan Alat -Alat Memasak Tradisional Daerah Kalimantan Barat*. Departemen Pendidikan Dan Kebudayaan Kanwil Depdikbud Propinsi Kalimantan Barat Proyek Inventarisasi Dan Pembinaan Nilai-Nilai Budaya Kalimantan Barat Tahun 1990/1991.

⁴⁵ Ibid, 5.

⁴⁶ Ibid, 19.

⁴⁷ Ibid, 44.