Muntok as a cultural landscape

K R Kurniawan¹, D Soedjalmo² and E Nuraeny¹

¹Department of Architecture, Faculty of Engineering, Universitas Indonesia, Kampus Baru UI, Depok 16424, Indonesia
²KALBU, Cultural Landscape Community, Jl. Achmad Sobana, Tegal Gundil, Bogor, Indonesia

Corresponding author’s email : kemas.ridwan@gmail.com

Abstract. The abundance of natural resources has influenced the cultural landscape of Muntok. It is blessed with hills, forests, rivers, and beaches that attracted people of various cultural backgrounds to settle. Besides its unique landscape, Muntok was famous for its commodities such as tin and pepper in the 18th and 19th centuries. The Malay, Chinese, European, and Arab clusters are the legacy of the commodities trade in Muntok. However, nowadays, the landscape is polluted by illegal tin mining. If this practice continues, it will further destroy the environment and Muntok’s cultural heritage. This paper investigates Muntok’s tangible and intangible values as a cultural landscape after the golden era of tin mining using a qualitative research methodology. This paper maps Muntok’s natural landscape from the hills to the shore, especially focusing on water-related aspects of the landscape. A series of in-depth interviews with locals forms the basis for a discussion of lost intangible values due to the destruction of the natural landscape. As a preliminary study, this paper proposes policy recommendations on conservation and development planning in Muntok. The paper also highlights Muntok’s potential to be recognized as a UNESCO World Heritage site in the future.

1. Introduction
The meaning of cultural landscape has been debated amongst scholars since Carl Ortwin Sauer first defined it in 1920. Sauer argued that cultural landscapes are material things that are real and knowable through visual senses. Fred Kniffen, however, viewed the cultural landscape beyond its visual value: “all landscapes contain traces of ‘cultural strains’ that occupied them” [1]. A similar notion was delivered by Lewis, who noted that “the human landscape is our unwitting autobiography (...) reflecting our tastes, our values, our aspirations, and even our fears” [1]. Kniffen and Lewis agreed that natural landscapes are tangible but also contain intangible values that are represented within culture and tradition; it is the relationship between humans and their natural environment.

In terms of the attributes of cultural landscapes, scholars have defined categories, ranging from asset-related intangible aspects such as character, style and uses to people as well as processes. The use and context were considered relevant as far as they protected or were reflected in the tangible heritage. This also led to the inclusion of practices and traditions as attributes of the value [2]. The definition of social value relates directly to questions of cultural traditions in the past, cultural identity in the present and cultural aspiration in the future [3]. People view landscapes through their shared system of beliefs and ideologies. As such, a landscape is a cultural construct, a mirror of our memories and myths, encoded with meanings that can be read and interpreted [4]. Cultural landscapes play a
crucial role in people’s quality of life and sense of belonging. These features contribute to the overall perception and character of the landscape [5].

The Indonesian government has described cultural landscapes in the Heritage Law 11/2010. The law affirms that geographical spaces can be designated as cultural heritage zones under certain conditions: the sites must a) contain two or more cultural heritage sites that are located close together; (b) be formed by humans at least fifty years ago; (c) show its past function of at least fifty years ago; (d) show the human historic influence on the widescale use of space; and (e) show evidence of the formation of a cultural landscape [6]. The Cultural Landscape Community in Indonesia (KALBU) [7] further clarifies the meaning of cultural landscape: it stands for the benefit of society and community identity as the fundamental way of living at the local level. Moreover, the authenticity of the cultural heritage landscape requires an understanding of land use planning and design, visual significance of the zonation, tangible and intangible assets, the equilibrium of ecosystems, cultural diversity, local philosophical and ideological resources, traditional art, and cultural workmanship [3]. The cultural landscape, therefore, stands for a set of tangible aspects (the visually observable natural and built environment) and intangible aspects (spiritual and cultural values that connect people to their natural environment). The relationship between humans and nature is dynamic, flexible, and never static. This makes the cultural landscape continuously changing and versatile. Furthermore, values in cultural landscapes differ depending on the unique characteristics of specific landscapes and communities.

Muntok — a small town in the western parts of Bangka Island, Indonesia — fits the description of a cultural landscape. Muntok meets two out of ten criteria of Outstanding Universal Value (OUV) as determined by UNESCO [8]. The first is criterion 4 as an outstanding example of a type of building, architectural or technological ensemble. This is signified by the Malay, mixed, local, Chinese, and European residential clusters and the undulating landscape and its circulation patterns. Muntok also meets criterion 5, as an outstanding example of a traditional human settlement, land-use, or sea-use. The significant amount of natural resources in Muntok — with tin and pepper as its famed commodities — made the city the busiest trading harbor in the 19th century, turning it into an important international hub [9]. Historically, the native inhabitants of Bangka have lived harmoniously and in connection with their natural environment. The openness of Bangka’s natives towards foreigners has shaped Muntok into today’s rare example of cultural hybridity in Indonesia.

Recent observations and literature have pointed out the natural and cultural degradation in Muntok. The most visible impact can be seen from river degradation in Bangka Belitung due to pollution from illegal tin mining [10]. The Historic Urban Landscape (HUL) Workshop in 2018 emphasized the importance of promoting educational awareness for preserving Muntok as a cultural heritage landscape. Several issues in Muntok were expressed, such as “flooding in the rainy season, water shortage in the dry season, lack of organized waste collection and proper water treatment system as well the deterioration of many heritage buildings” [11]. All these issues are connected to the natural degradation caused by neglect from local communities. Water resources were needed by town dwellers for homes, farming, and tourism. In the late 1980s, clean rivers in Muntok were precious as a public gathering place. Today, polluted by illegal tin mining, the rivers are backyards, forgotten. By mapping and analyzing the intangible value of natural and cultural heritage, this paper offers a new perspective on safeguarding Muntok from destruction as one of a few remaining unique cultural landscapes.

2. Methods
The research used a qualitative methodology with a narrative approach. The two main data collection methods were a set of in-depth interviews with 21 respondents and field observations. The respondents were selected based on three criteria. They must (1) have lived in Muntok for more than ten years; (2) have a good memory of the historic conditions of the river; and (3) currently utilize the river to support their daily lives. The respondents had varied backgrounds including housewives, pensioners of tin mining companies, vendors, farmers, and fishermen. In addition, respondents from the local Environmental and Public Work Office were interviewed.
The study first addressed the existing natural and cultural issues and challenges related to water, spatial patterns, and local traditions in Muntok. Further observations focused on the current conditions from the Menumbing Nature Reserve to Muntok Port at the shore. After the data collection and evaluation, this paper assesses the cultural landscape of Muntok from the intangible values that are evident along the river. Each step requires empirical evidence, including character-defining features, visual and spatial relationships, and human-nature relationships. By classifying these features and relationships, the landscape of Muntok can be understood as an asset that contains evidence of evolving natural systems and human interventions over time. Literature, maps, official publications, and images are investigated to support arguments. Based on the approach of the Historic Urban Landscape, intangible values are associated with the planning and management process. Tools that can be developed and used are identified and assessed based on their impact on the intangible heritage values [12]. This paper offers a new perspective on the impact of tin mining in Muntok based on the relationship between humans and their natural environment. This novel perspective in Muntok seeks the preservation of the rich heritage in its cultural landscape.

3. Discussion

3.1. The landscape of Muntok

The first step in describing the landscape of Muntok is understanding nature. Nature is a debatable subject and no agreement has been reached regarding the concept of ecosystem services. The central discussion on nature focuses on how ecosystem functions can contribute to human well-being. These functions are not limited to the provision of basic human needs — air, food, and water — but also relate to their influences on people’s satisfaction, psychology, and quality of life in general [13]. Based on Origins by Eric Partridge, the English word of nature is derived from the Latin nātūra, meaning “birth, hence an inborn characteristic, character, disposition, etc.” [14] Nature, therefore, asserts its vital role in fulfilling both physical and psychological needs for mankind. Nature applies in any land mosaic of Muntok—from the hills to the seashore, town to suburban areas, agricultural areas to forests, and open fields to tin mines.

The Indonesia archipelago is the largest tin producer in the world, with a 30% market share of the global tin production. Around 90% of Indonesia’s tin comes from Bangka Island [15]. The tin mining sector has contributed greatly to the economic development of Muntok. A variety of landscapes reflect the long and intimate relationship between humans and their natural environment. This is evident from specific types of land use to sustain biological diversity and embody the spiritual relationship of people and nature. The communities express this relationship through powerful belief systems and artistic traditional customs or by destroying and polluting the environment.

The landscape is like a cell of a plant or the human body that exhibits three broad characteristics: structure, function, and change. Landscape structure is the spatial pattern or arrangement of landscape elements. Function refers to the movement and flow of animals, plants, water, wind, materials, and energy through the structure. Meanwhile, change is the dynamic or alteration in spatial patterns and functioning over time [16]. Landscape, therefore, is a treasured legacy for sustainable development in the future. However, “Mankind is a destructive force,” stated Ian L. McHarg, exploiting natural resources, “but forgetting that they are not the only living thing on this planet” [13]. However, the relationship between mankind and its natural habitat is not always positive.

In Muntok, the paradox between the good and negative effects of human interference on their natural habitat can be seen from the way people treat the land including its water in dealing with tin mining. The soil in Bangka Island is mostly sandy with a soil pH of 5 and rich in minerals especially cassiterite (tin seeds). However, the soil in Bangka has low fertility, although not critically low. As such, agricultural efforts require extra modifications to improve the nutrient level of the soil. The discovery of tin, as reported by Horsfield in 1813, was a byproduct after burning the land for farming [17].

Muntok is typical of the bioregion of Bangka Island, which is famed by another name: Tin (timah) Island. Bangka Island received its name due to its location at the southern end of the Southeast Asian
tin belt, which stretches from Central Burma (now Myanmar) to the Tenasserim mainland, through western and southern Thailand, Peninsular Malaysia, then continuing to the Karimun-Kundur archipelago, Singkep, Bangka, Belitung, Karimata Island, up to West Kalimantan [18]. The Southeast Asian tin belt, therefore, shares similar geology. In the Pleistocene era, the Islands of Bangka, Sumatra, Kalimantan, the Malay Peninsula, and the Riau archipelago were connected with the Asian mainland, creating a large landmass called the Sunda Shelf. A large river once crossed Sumatra and Kalimantan, flowing to the coast at the Bangka Strait, at the present coastline of the island of Anambas, Natuna [18].

Farming was the main occupation before the tin mining craze. The locals treated mining like farming and gathering goods they found in the woods, such as honey, wax, etc., and mined tin during their free time [17]. According to Van de Bogaart’s expedition notes in the woods of Bangka Island, Orang Darat or Orang Gunung who lived in the forest were known for their strong physique. The Chinese and Dutch who controlled the tin mining industries in the 19th century saw Orang Gunung as capable mining laborers [17]. This started the shift from farming to mining in Bangka. Tin mining began to shape Muntok physically and culturally. After this initial introduction, tin mining became the main occupation and business in Muntok. There is a large group of artisanal tin miners in Muntok. Theses unconventional or illegal miners work without environmental safeguards or safety regulations in abandoned conventional mining sites [19]. The mining practices are environmentally degrading, considering that the tailings are dumped into rivers and the sea, causing irreversible damage to coral reefs, affecting fisheries and groundwater quality. Illegal mines have proliferated at an uncontrolled rate because of the fast money that tin mining offers.

Located between Menumbing Hill and Bangka Strait, Muntok is surrounded by a vast body of water. Rivers flow from the spring at Menumbing Hill, underground water is accessible by wells, and national water supply has existed since the colonial era in the 1800s [18]. Running water serves basic human needs and is also vital in the tin mining industry in separating tin seeds from soil. In 1781, water pumps and mechanical wheels were already found in tin mines for distributing water [17]. Water, therefore, has been a crucial aspect of life in Muntok even until today.

3.2. Muntok as a cultural landscape.
What defines Muntok as a cultural landscape is the tangible and intangible connection of its inhabitants with their natural and cultural environment. How people dwell is a historic identity that is evident from the survival of physical characteristics from the historic or prehistoric period. As a tin smelter town, around 700 of Muntok’s inhabitants work in the tin industry [20] while others, based on a census in 2015, are government employees (2.7%) and fishermen (1.1%) [21]. These people rely on Muntok’s natural environment to survive. Therefore, when evaluating Muntok as a cultural landscape, changes in nature must be considered because landscapes are flexible and never static [1]. Based on interviews and on-site observations, layers of cultural landscape values are evident in Muntok. This is seen from the spatial pattern of villages in the suburban areas and in the old town, from springs, rivers and creeks related to historic traditions, as well as from yards, gardens and parks.

The spatial pattern of West Bangka Regency. The establishment of plantations in West Bangka Regency has mainly involved the clearing of conventional woodland to be replaced with oil palm and other monoculture plantations, specifically adjacent to the natural forest at Menumbing [22]. This is a recent practice. Muntok District faces an array of environmental issues associated with monoculture plantations and mining practices, degrading the natural water system and the land quality in Muntok [23]. Research and observations have shown that the spring outlet for the water reservoir is at Menumbing Hill.

The spatial pattern of villages. Two on-sites investigations were conducted in Kampung Ulu and Desa Air Putih to study the Malay spatial pattern. Located in the Old Town, Kampung Ulu reveals remnants of an organic layout pattern, natural wells, spacious yards with native plants growing in the open space of the traditional stage houses, large mature fruit trees, shrubs, and wild ground cover. Another character-defining feature is the linear spatial pattern found in Desa Air Putih where a visual
natural forest serves as their backyard. The space between each house is left open with ornamental shrubs, a few trees in the front yard, and organically-scattered ditches along the main road. In this village, a woman was taking care of her toddler while sorting peppers that were harvested from a nearby farm a few blocks down the main road. A different spatial pattern is found in Kampung Ulu although the two villages share a similar heritage. The spatial pattern in Desa Air Putih is aligned to the main road, while Kampung Ulu shows a circular pattern with all houses built close to each other. Both Malay villages share similar features with open spaces and houses in close proximity to each other.

Another unique formation is discovered near Tanjung Ular Beach. This area is inhabited mostly by Chinese descents. Each house in this small village has an open plan without visible boundaries, similar to observations in Kampung Ulu. However, the houses are much farther apart in Tanjung Ular Beach.

The spatial pattern of Muntok Old Town. Muntok was initially developed in the 18th century as a Malay settlement. It became a charming old town when British and Dutch came to the area, establishing a European military compound. The significance of the European complex is that it is complemented by parks and urban forests. Several outstanding self-contained objects from the colonial era exist in Muntok, such as the office building of Bangka Tin Mining Company (Banka Tinwinning Bedrijf/ BTW) (number 4 in Figure 3), the Resident house (number 5 in Figure 3), and the Menumbing Resort. The town planning and landscape design of Muntok is typical of post-mining towns and it resonates with the town’s character, style, and atmosphere. The residential complexes uptown are separated from the market, and businesses, and retail stores downtown. Figure 4 shows the spatial pattern of three dominant cultures in Muntok: the European residences in the north part, Malay settlements in the center, and the Chinese settlement near the Bangka Strait. The Europeans inhabited the northern part of Muntok whereas the distinguished Europeans lived in villa-style homes with large gardens [9]. Although the Europeans have long left Muntok, their urban pattern has remained as seen in Figure 3 from the many open spaces for gardens and parks. The Malay settlements are found near the city center where they lived in stage-houses that serve a range of activities from gardening to socializing [24].
Figure 3. The spatial pattern in Muntok Old Town modified from Nuraeny, 2019.

Parks, gardens, and yards. The park system shows us a unique ecological mosaic, from the macro landscape of the Menumbing Nature Reserve, Wilhelmina and Elizabeth Park in the town center of Muntok with an urban forest as an ecological patch. Moreover, a woodland corridor along the main street, open gardens, public spaces, huge private gardens, pavilions, and colonnades provide clean air for the town. Based on a conversation with Pak Sopyan and Bu Sopi in Kampung Ulu, the micro landscape of patios in single dwellings serves as beautification and as a source of food for everyday meals. In some villages, people grow fern as a raw material for the traditional Moslem hat called Songkok Resam. The availability of parks on the town or micro scale in individual settlements indicates that nature continues to provide people in Muntok with basic necessities and people nurture it for the future.

The relation of springs, the river, and creeks to the local cultural life. The historic spatial pattern of Malay settlements in Muntok and its connection to natural water resources is evident from the religious sites that still exist today. There are three mosques in the old town district, near the river due to their specific requirement to have access to good quality of water for wudhu—the ritual washing before prayer. Jami’ Mentok Mosque (number 2 in Figure 3) is the largest mosque of the city. It was built in the 1800s and is a landmark of Muntok. The grand mosque is visible from the sea with Menumbing Hill on the background with the river running right behind it. Another small mosque is Al Mujahidin Mosque (number 3 in Figure 3). Locals know it as a surau and it is located next to the river in Kampung Ulu. Based on a conversation with Bu Yana and Pak Saudi, local residents of Kampung Ulu, Al Mujahidin was built roughly the same year as Jami’ because leftover materials from the construction of Jami’ Mosque were given to construct Al Mujahidin Mosque.

Surau Tanjung (number 1 in Figure 3) is another significant mosque located in the southern part of Muntok Old Town in the Arab-Malay settlement of Tanjung Village. It is located far from the river and is built around the same year as Al Mujahidin and Jami’; if not earlier. Surau Tanjung has its own well which was dug in the 19th century, to provide fresh water for wudhu. Possibly, the well is connected to the water system of the ancient 18th-century fortress in Kota Seribu. Amongst the three mosques, only Surau Tanjung still uses its original water resource for daily activity. The other two mosques can no longer use the river because of the pollution.

Bu Yana and Pak Saudi remember swimming in the river around the 1980s and 1990s; Bu Yana adds that she swam while pregnant for 9-months, while Pak Saudi remembers women came to the river to wash their clothes and gossip. “You will hear the latest gossip at the river!” he adds, enthusiastically. A similar memory was shared by Koh Suwito, a Chinese descent who lives in Kampung Jati. Koh Suwito remembers playing with friends in the river nearby. Today, the river is
nearly gone in Muntok Town and Kampung Jati. It no longer flows in Kampung Jati and is heavily polluted with waste from tin mines. Only a small spring remains from the river in Kampung Jati which is used by Koh Dakdok and Koh Amaw to water their vegetable farm. The river in Muntok met a similar fate as freshwater no longer flows but the river carries sand and sludge from tin mines. Today, the river in Muntok inflicts floods on everyone who lives there. Bu Yana and Pak Saudi’s stage-house is one of its victim, causing their house to be slightly tilted.

**Figure 4.** People bathing in Muntok River, 1910 (KITLV Archive, Leiden, 106127, accessed on 23 July 2019).

**Figure 5.** The current condition of Muntok River, July 2019. People no longer swim or socialize at the river. Retrieved from Findanavy, 2019.

**Figure 6.** Illustration and narrative on Muntok’s natural landscape, following the river from Mount Menumbing down to the town and the sea. Modified from Findanavy and Nuraeny, 2019

The interpretation of spatial patterns in Muntok is formed based on natural landscapes, tangible objects, and intangible legacies, which are key elements in understanding the town’s past and its associated environment. Muntok’s identity is determined not only by its physical elements but also its memories and traditions. If the destruction of Muntok’s landscape continues, it will cause an environmental crisis which, if ignored, will trigger a humanitarian crisis as well [24].

4. **Conclusion**

To guarantee the sustainability of the landscape, an intricate balance between the environmental, social, and economic aspects must be maintained. This will provide directions for all stakeholders who control and monitor the management of environmentally friendly monoculture plantations to formulate plans and review legal aspects. An understanding of their role will motivate stakeholders to rejuvenate rivers and stop illegal tin mining through the issuance of government regulations. Conservation is important to safeguard the *genius loci* or spirit of place through controlling the aesthetic visual, quality, and functions. A system of punishment and reward might be the solution for the government.
to ensure the cooperation of all stakeholders, emphasizing the importance of the river and manmade structures. All waterbodies (wells and waterways) are vital for the daily needs of the people of Muntok. Therefore awareness building of the need to preserve the cultural landscape can start from there.

The unique natural corridor of the river and the cultural value in Muntok must be enhanced through revitalizing the riverbanks by extending agricultural riparian zones and arranging patches of wood with native species for the ecological benefits. Developing the cultural value of traditional stage-houses and historic religious sites as a vernacular landscape is also crucial, especially through a series of sketches, garden design, etc. by local actors. The unique and healthy local cuisines can be stimulated by developing thematic medicinal and herb gardens. This should be encouraged to preserve the cultural value in Muntok. Moreover, for conservation purposes, an inventory of historic vegetations and other natural resources in Muntok is needed. Cooperation between related stakeholders as well as among cross-discipline professionals should be developed to gain an understanding of technical conservation issues and as a way to collect historical evidence to ensure a sustainable future for Muntok.

Acknowledgments
The authors wish to acknowledge the respondents who shared their memories of Muntok: Mr. Sopyan, Mrs. Sopi, Mr. Saudi, and Mrs. Yana from Kampung Ulu; Koh Suwito, Mr. Suseno, Mr. Fakhrizal, Mr. Robert, Mrs. Tina, Mr. Ridwan, Mr. Suharli, Bang Awi, Mr. Syarifudin, fishermen at Tanjung Ular Beach; Mr. Amaw and Mr. Dakduk from Kebun Jati; a pepper farmer from Desa Air Putih; and street vendors in the town center. The authors also wish to thank DRPM UI (contract NKB-0063/UN2.R3.1/HKP.05.00/2019) for funding this research and Intan Findanavy for her help during the research process.

References
[1] Boyle S C, Buggey S and Caratzas M 2008 Cultural landscapes: Balancing nature and heritage in preservation practice ed. Longstreeth R (Minneapolis: University of Minnesota Press)
[2] Veldpaus L, Roders A R P and Colenbrander B J F 2013 Urban heritage: putting the past into the future The Historic Env: Policy & Prac 4 3-18 https://doi.org/10.1179/1756750513Z.00000000022
[3] Johanne F 2004 Heritage Program Capital planning and real assets management branch (Canada: National Capital Commission)
[4] Taylor K 2008 Landscape and memory: cultural landscapes, intangible values and some thoughts Asia 16th ICOMOS General Assembly and International Symposium: 'Finding the spirit of place – between the tangible and the intangible’, 29 sept – 4 oct 2008 Quebec Available at http://www.international.icomos.org/quebec2008/cd/toindex/77_pdf/77-wrVW-272.pdf accessed 17-12-2019
[5] Milan S B 2017 Cultural landscapes: the future in the process J. of Heritage Management 2 19-31 https://doi.org/10.1177/2455929617726925
[6] Peraturan Pemerintah no. 11/2010 tentang Cagar Budaya
[7] KALBU 2019 Indonesia cultural landscape manifesto (Depok: Universitas Indonesia)
[8] UNESCO 2012 Operational guidelines for the implementation of the world heritage convention Available at https://whc.unesco.org/archive/opguide02.pdf accessed 17-12-2019
[9] Kurniawan K R 2011 Postcolonial history of architecture and urbanism: Power and space of Indonesian tin mining in Bangka Islands (Saarbrücken: VDM Verlag Dr. Müller GmbH & Co.)
[10] Al Ansori R 2017 Banjir besar di Babel 2017 Dampak dari penambangan Available at https://www.kompasiana.com/rustian/599bf0657312156e094f02d4/fordas-banjir-besar-di-bangka-belitung-2017-dampak-dari-penambangan accessed 17-12-2019

[11] Dipowijoyo H T, Kurniawan K R, Rosbergen J, Timmer P and Wijayanto P 2018 New horizon for an old mining town (West Bangka : Cultural Heritage Agency of the Netherlands, Heritage Hands On, Universitas Indonesia, Universitas Trisakti) Available at https://www.cultureelerfgoed.nl/binaries/cultureelerfgoed/documenten/publicaties/2019/01/01/new-horizons-for-an-old-tin-mining-town/New_Horizons_for_an_Old_Tin_Mining_Town.pdf accessed 17-12-2019

[12] Bandarin F and Oers Ron v O (ed) 2015 Reconnecting the city: The historic urban landscape approach and the future of urban heritage (USA: John Wiley & Sons, Ltd.) DOI:10.1002/978118383940

[13] McHarg I L 1995 Design with nature (New York: Perfection Learning Corporation)

[14] Eric P 1958 Origins: A short etymological dictionary of modern english (London & New York: Routledge)

[15] Sujitno S 2015 Timah Indonesia sepanjang sejarah (Bangka: PT. Timah (Persero) Tbk.)

[16] Forman R T T and Collige S K 1996 The ‘spatial solution’ to conserving biodiversity in landscapes and regions Conservation of Faunal Diversity Forested Landscapes 6 537-68 https://doi.org/10.1007/978-94-009-1521-3_15

[17] Heidhues M F S (trans. Asep S & Suma M) 2008 Timah Bangka dan Lada Mentok: Peran masyarakat Tionghoa dalam pembangunan Pulau Bangka Abad XVIII-XX (Jakarta: Yayasan Nabil)

[18] Ishak S 2018 Bangka: Penelusuran kampung hingga kota tua (unpublished manuscript)

[19] Hintz K I S 2017 Developing strategy for flood risk management through community-based planning in Muntok, Indonesia, Graduate thesis (Faculty of Economic and Management Science Institute of Infrastructure and Resources Management)

[20] PT Timah Indonesia. 2019

[21] Badan Pusat Statistik Kabupaten Bangka Barat 2017 Kecamatan muntok dalam angka Available at https://bangkabaratakab.bps.go.id/publication/2017/09/26/7ebb86c91e08b166dec89431/kecamatan-muntok-dalam-angka-2017.html accessed 17-12-2019

[22] Bupati Bangka Barat (n.d.) Peta Rencana Pola Ruang Kab. Bangka Barat Tahun 2011-2031

[23] Radar Bangka 2012 Warga protes pembuangan limbah sawit PT GSBL ke Sungai available at https://www.radarbangka.co.id/berita/detail/muntok/4804/warga-protes-pembuangan-limbah-sawit-pt-gsbl-ke-sungai.html accessed 17-12-2019

[24] Kurniawan K R and Nuraeny E 2018 Understanding genius loci to sustain Ume Bangka’s traditional architecture based on intangible material culture IOP Conf. Ser: Earth Environ. Sci. 213 1-8 doi:10.1088/1755-1315/213/1/012024