

Distribution of Archaeological Sites on the Fluvial Landscape of Musi River

Sondang Martini Siregar

The Center of Archaeological Research of South Sumatera Province

Email: siregarsondang@yahoo.com

ABSTRACT

In the downstream part of the Musi River Basin, especially Palembang region, archaeological sites are found containing temple buildings. The problems that arise are a) how is the topography (height) of archaeological sites in Palembang, b) how are archaeological sites located in Palembang? c) What is the material for artifacts from archaeological sites in Palembang? The objectives to be achieved are a) knowing the topography of archaeological sites in Palembang region, b) described archaeology sites in Palembang region c) knowing the source of the temple building materials from the Palembang region. The method used is a description of the location of the archaeological sites by placing it on a map and a petrographic analysis of the temple material samples from the Palembang region. The results showed that the archaeological sites were spread over the floodplain, but the location of the temple was slightly higher than the surroundings so that it was avoided stagnant water and the location of the temple was at an altitude of 5 m to 30 m asl. These sites are Siguntang Hill, Karanganyar, Gedingsuro, Telaga Batu, Sultan Mansur and Talang Kerangga. The distribution of archaeological sites dates from the Holocene era and is in the Air Benakat formation. The results of petrographic analysis of the material samples of the temples of Gedingsuro, Bukit Siguntang, Sultan Mansur, and Talang Kerangga show that the content of claystone, tuff, sandstone, and biotic is thought to come from around the Palembang region.

Keywords: sites, archaeology, material, temple.

1. INTRODUCTION

Archaeological sites in Palembang are located in the fluvial landscape of the Musi River dating from the 8/9th centuries AD (Siregar 2003). The archaeological sites include the Siguntang Hill, Talangtuo, Karanganyar, Kedukan Bukit, major Ruslan, Sarangwati, Boombaru, Gedingsuro and Telagabatu River downstream sites. Musi (Palembang). Meanwhile, in the upper reaches of the Musi River, archaeological sites such as Bumiayu, Telukkijing, Binginjungut, Lesungbatu, and Tingkip sites were found (Siregar 2019). Since ancient times, sites in the downstream and upstream areas have had contacts. Palembang is the capital of Srivijaya which has a territory of power upstream to the upper reaches of the Musi River. So sites in the upper reaches of the Musi River serve as a support for the product that is brought and marketed to the city of Palembang (Sholeh 2019). The distribution of archaeological sites in the downstream and upstream areas is thought to be due to trade contacts between local and foreign traders (Indradjaja 2014). The Musi River functions as a means of transportation between inland and coastal areas (Harkantiningih and Wibisono 2012) Trade activities have an impact on the emergence

and development of Hindu-Buddhist civilization in the Musi watershed. (Wiyanti 2018) This is evidenced by the spread of archaeological sites on the Musi River both in the area downstream and upstream (Siregar 2016)

Based on the data, it is known that the highest concentration of findings is in Palembang, compared to inland areas (Kitchener and Kustiarsih 2019). All archaeological remains in Palembang are scattered north of the Musi River, along with its tributaries, the Komerling River, the Suakada River, the Sawah River, the Bendung River, the Sekanak River, the Kedukan River, the Fruit River, the Bengkuan River, and several small children that flow from the south to the river. (Sadzali 2019)

The settlements during the Srivijaya era were on the banks of the Musi River (Sadzali 2019). The remains of settlements can be identified by the spread of archaeological sites in Palembang which is a former Sriwijaya region (Taim 2013). At that time the population had wisdom in choosing the location of a place to live to carry out daily and religious activities (Utomo 2016). Likewise, residents use the right

materials for the construction of temples and the manufacture of statues of gods on swampy landscapes. The problems that arise are a) how is the topography (height) of archaeological sites in Palembang, b) how are archaeological sites located in Palembang? c) What is the material for artifacts from archaeological sites in Palembang?

2. METHOD

The method used is orthography. This method is a description of the morphology of an area. Inside Widyamanti is divided into <50 meters which are lowlands, 50 meters - 200 meters are low hills, 200 meters - 500 meters are hills, 500 meters-1000 meters are high hills and more than 1000 meters are mountains. (Widyamanti et al., 2016). Based on the determination of the coordinates, it is hoped that the location and distribution of archaeological sites in Palembang can be known. Furthermore, researchers will conduct a description of the archaeological remains at these sites, especially the types of artifacts and materials through megascopic analysis. A megascopic analysis is an eye observation of archaeological remains. Researchers refer to samples of constituent rocks from archaeological sites with geological maps of the Lahat Sheet. Based on the map, it is known the stratigraphy of rock formations, especially the source of building materials and statues.

3. RESULT AND ANALYSIS

3.1. Topography

Based on the topography it is known that the Talangtuo site is located at 15 masl, the Siguntang Hill site is at 37 masl, the Kedukan Bukit site is located at 2.3 masl, the Karanganyar site is at -1 masl, the Lemabang site is 5.2 masl, the Sarangwati site is 7 masl, the Lemabang site is 7 masl. the Gedingsuro site is 4 masl, the Telagabatu site is 4.6 masl and the Boombaru site is 4 masl. Based on the elevation, it is known that the site with the highest elevation is the Siguntang Hill site and the lowest elevation is the Karanganyar site. These sites are located in the lowlands, especially in swampy areas which are often flooded both seasonally and annually due to the tides of the Musi River and rainfall. Even so, the people used to place archaeological sites in an area that was slightly higher than the surrounding area. So archaeological sites are protected from puddles (floods).

Table 1. The Elevation of Archeological Sites in Palembang Region

No	Sites	Elevation
1	Talangtuo	15
2	Bukit Siguntang	37
3	Karanganyar	-1
4	Kedukan Bukit	2,3
5	Mayor Ruslan	5,2

6	Sarangwati	7
7	Boombaru	4
8	Gedingsuro	4
9	Telagabatu	4,6

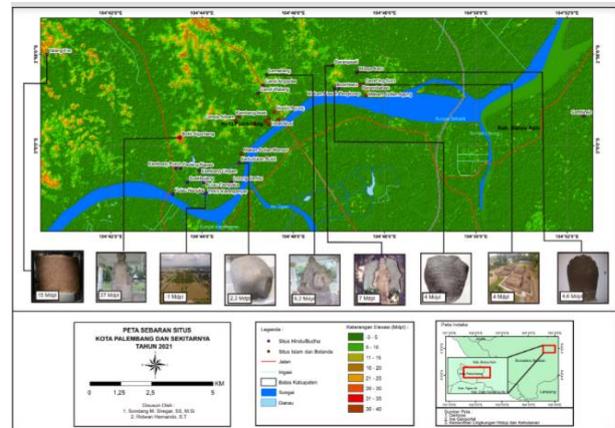


Figure 1 The distribution of Archaeological Sites In Palembang Region.

3.2. Placement of Archaeological Sites in Palembang

The city of Palembang is divided by the Musi River, which is the area across the ulu and the ilir. The Musi River flows into the Bangka Strait. The city is located above the surface of a swamp which is often inundated by water both seasonally and annually due to rainfall and due to the tides of the Musi River. Since ancient times, the Musi River has played an important role in the spread of the Hindu-Buddhist religion. This is evidenced by the discovery of archaeological sites scattered in Palembang. These sites date back to the Srivijaya era around the 7/8 century AD. Archaeological sites describe the remains of residential and religious activities such as temples, statues, inscriptions of pottery, and ceramic containers.

The Talangtuo site is located in Talang Tuwo Village, Talang Kelapa District. In the site found an inscription in Old Malay language, with Pallawa letters, dated March 23, 684 AD. It is about the construction of the Sriksetra garden on the orders of Dapunta Hyang. The purpose of garden development is for the welfare of all creatures in the world, especially for the provision of clean water. The clean water flows from the Sekanak River to the city of Sriwijaya, namely Palembang. The inscription material is made of sandstone.

The Siguntang Hill site is located on the highest hill in western Palembang. At this site found remains of Buddha statues made of granite, metal statues such as statues of Bodhisattva, Lokeswara, Kuwera, besides that, ancient bricks are also found scattered at the foot of the hill and the findings of the Bukit Siguntang Inscription made of sandstone.

The Karanganyar site is located in the Karanganyar sub-district and 35 Ilir sub-district, Ilir Barat II sub-

district. Based on the geographical location, it is about 5 kilometers west of the city of Palembang. This site was first discovered in 1984 through aerial photography. The results show that there are features in the form of water structures consisting of ponds and moats as well as two square and rectangular islands. Based on these remains, it is known that the location was used as a residential area for a long time. In the past, residents dug canals or ditches (Suak Bujang) which functioned as flood protection and as transportation routes connecting the Musi River with the surrounding areas. At the Karanganyar site, ceramic shards from the Tang, Song, Ming, and Qing Dynasties were found (8-18 AD), coins, and ancient brick fragments.

At the Karanganyar site, there are Cempaka Island and Nangka Island. Cempaka Island measures 40 x 40 meters while Nangka Island measures 465 x 325 meters. Cempaka Island is surrounded by a large pond measuring 145 x 300 meters while Nangka Island is surrounded by a 15 x 1190-meter moat. To the west of the two islands, there is a small pool measuring 40 x 40 meters. To the east of this small pool is a pool measuring 60 meters x 60 meters and, in the middle, there is an island measuring 40 x 40 meters. The pools are connected by 7 ditches.

Sarangwati (Lemabang) site is located at Jl Jenderal Bambang Utuyo no 1 A, Kelurahan 2 Ilir, Ilir Timur District 2 This site is located 2 kilometers northwest of Gedingsuro. At the location found the remains of the foundation of a brick building, a clay stupika in which there is a clay tablet inscribed with Buddhist mantras. In addition, a stone statue of Awalokiteswara was found in the style of Central Javanese art

Boombaru site is located on the banks of the Musi River. This location has become a port of loading and unloading of goods in the city of Palembang. The Boombaru inscription contains a curse for anyone who opposes the Srivijaya rulers. Pallawa lettered inscription in Old Malay language.

The Gedingsuro site is located in Palembang (east), which is land with an average height of approximately 4 meters above sea level. The location of the site is surrounded by a moat and to the south of the Musi River. Archaeological remains are bronze metal statues, and the remains of brick building foundations. Gedingsuro was influenced by the Majapahit art style in the 14th century AD.

Telagabatu site is located on Jl. Sabokikingking, Sungai Buah Village, Ilir Timur District 2. The site of Telaga Batu is now known as the Sabokikingking burial complex. Telaga Batu was once a location that was considered important during the Srivijaya Kingdom. At the site found the Telaga Batu inscription. The Telaga Batu inscription was discovered in 1918. It measures 149 cm long, 124 cm wide and 29 cm thick. It consists of 28 lines written in Pallawa script and Old Malay language, although it is not numbered in years, but from

its shape, it is estimated that it is contemporaneous with Srivijaya inscriptions, namely from the 8th century AD.

3.3. Regional Geology

The tectonic order in the South Sumatra Basin is closely related to tectonic events that occur on the island of Sumatra. Sumatra Island is included in the East Malaya-Indochina Block originating from Gondwana in the Devonian period and at that time there was subduction in the western part of Sundaland (Hall, 2012). Sumatra Island is part of Sundaland which is formed from a combination of several blocks through a process of subduction and collision (Barber, 2005). Sumatra Island comes from three continental blocks, namely the Sibumasu Block which is the western part of the Early Permian age of Sumatra Island, the eastern part of Sumatra comes from Gondwana during the Devonian period and the central part of Sumatra comes from the Carboniferous-Permian Cathaysialand fragment. The island of Sumatra was formed during the Paleozoic era during the Early Permian.

The island of Sumatra is generally formed as a result of tectonic activities that are closely related to the subduction of the Indo-Australian oceanic plate which moves north to northeast against the relatively stationary Eurasian Plate. This causes the Indo-Australian Plate to sink under the Eurasian Plate. According to Hamilton (1979) in Barber & Crow (2003), in general, the major tectonic elements of Sumatra are divided into three, namely the Forearc region, Barisan Mountains, and Back arc region. The back arc region is located at the back of Bukit Barisan. This section consists of sedimentary basins of tertiary age and sedimentary material of Neogene-Resen age. This basin is the result of rifting, sagging, and compression processes. One example is the South Sumatra Basin.

The stratigraphy of the South Sumatra Basin is divided into four mega sequences, namely pre-rift, syn-rift, post-rift, and syn-inversion. Pre-rift forms pre-tertiary (basement) rocks, syn-rift deposits the Lemat Formation, Lahat Formation, and Talangakar Formation, post-rift deposits the Baturaja Formation, Gumai Formation, Air Benakat Formation, and Muara Enim Formation and syn-inversion precipitate the Kasai Formation and alluvium (Ginger and Fielding, 2015).

The study area is dominated by the Airbenakat formation which is composed of medium and fine clastic sediments such as intercalated sandstone, shale, siltstone, coal insertion, carbonated claystone, and the presence of very large glauconite. The environment is in a shallow marine transition of the Miocene age.

Palembang is located on alluvial soil and sandy loam. On the south side is clay sand that is permeable to water, on the north, it is claystone which is impermeable to water, while on the west it is in the form of gravel claystone, clay sand which is permeable to water. In the city of Palembang flows 4 major rivers, namely the

Musi River, Komering River, Ogan River, and Keramasan River. In addition, there are small rivers that lie across the ilir which function as urban drainage (about 68 tributaries). In the river flow, a retention pond is built. The water surface of the river is influenced by tides so that the city of Palembang is affected by a dendritic flow pattern, namely tree branches formed by the main river flow, namely the Musi River which is a tree trunk and its tributaries as tree branches. This reflects that the watershed is a topography that has a horizontal position with the same rock hardness so that the flow pattern of the river is spread to the catchment area of the river.

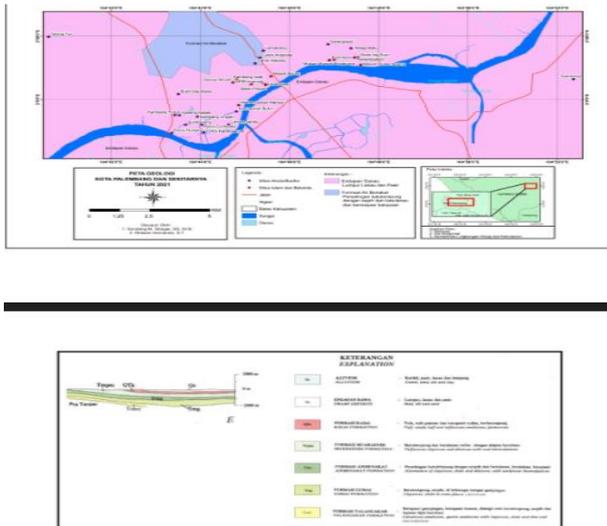


Figure 2 The Stratigraphy of Formation Stone of Archeological Sites in Palembang Region

4. CONCLUSION

Archaeological sites in Palembang are located in the lowlands with an altitude of -1 to 36 meters above sea level, especially sites located in swampy landscapes which are often flooded due to rainfall and tidal river water. Based on the distribution of the sites, it can be estimated that the highest location is Siguntang Hill and is the center of the Buddhist religion, the Karanganyar site is on the south side, close to the Musi River as a residential location. Meanwhile, Talang Tuo, which is on the north side, became a city park during the Srivijaya era.

The location of the site is in an area that is higher than its surroundings so it is not inundated by water from the surroundings. The site found the distribution of temple bricks/stones indicating the construction of the temple building on a stable/hard, dry soil surface and not sedimentary or soft soil. The temple building materials are made of claystone, tuff stone, sandstone, and the statue material is made of sandstone and tuff stone, and the inscription material is made of sandstone and tuff stone. Claystone material, sandstone is the rock

content of the Benakat water formation while the tuff stone is most likely taken from outside the city.

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