

## GEOARCHAEOSITES FOR HERITAGE TOURISM PRODUCT OF KUALA MUDA DISTRICT, KEDAH, MALAYSIA

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**Abstract:** Archaeological research in the Kuala Muda district until 2022 has recorded three archaeological complexes that are still in-situ and can be visited by tourists. The archaeological evidence at Sungai Batu, Bukit Batu Pahat and Pengkalan Bujang Archaeological Complex which proves the existence of the Kedah Tua kingdom as the main trading location in the world. In order to obtain primary data, field research such as surveys, mapping and archaeological excavations are carried out to obtain in-situ data. The results of the study revealed that the Sungai Batu Archaeological Complex has been used as an iron smelting industrial area since 788 BC while the Bukit Batu Pahat and Pengkalan Bujang Archaeological Complexes have been used as a port and a Hindu-Buddhist complex since the 7th Century AD to the 13th Century AD. Based on the uniqueness of the archaeological data in the complex, as many as five tourism packages have been created to preserve this archaeological heritage tourism with the Sungai Batu Archaeological Complex (SBAC) has been made as a one stop center for the management of the tourism package.

**Key words:** Sungai Batu Archaeological Complex, Bukit Batu Pahat Archaeological Complex, Pengkalan Bujang Archaeological Complex, tourism packages

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### INTRODUCTION

Scientific research in this area since the 1840s has revealed very unique and special archaeological evidence. Packages like this are not available in other districts of the country. Accordingly, this study will generally map the potential of the Kuala Muda district to be developed as a tourism product based on these values as is the case in other parts of the world. This is because the tourism industry is an agent capable of enhancing the name of a country's heritage, both as an economic resource and finally as a very positive energy to maintain it under the concept of World Heritage. The history of the tourism industry shows that it is a phenomenon that has gone through a process of metamorphosis that is experiencing significant changes. Starting with the industrial revolution in the 19<sup>th</sup> Century AD which was seen as more destructive to the past until the 20<sup>th</sup> Century AD which was seen to be more prominent on a very large and profitable scale (Walsh, 1992). For this reason an effort has been undertaken to identify each feature of the geoarchaeological tourism site in the district in order to develop it on a par with similar tourist locations in the world.

This is because at the Southeast Asia level itself it clearly shows the development of tourist demand to travel to archaeological sites. The archaeological site at Borobudur Temple as an example shown the result of the large number of tourist arrivals to this site (Pradana et al., 2020). In fact, the same statistics were recorded at the tourist location of Angkor Wat which is consistently rated as the top Global Landmark by travelers in TripAdvisor (Baniya et al., 2020). This shows that archaeological heritage tourism locations can be developed into successful tourism products if the basic tourism facilities are at the best level (Chheang, 2011) and its tourism marketing is carried out consistently (Gallaga et al., 2022).

### Site Study

This study was conducted at Sungai Batu Archaeological Complex, Bujang Valley, Kedah which is located at latitude 05°41.6' North, longitude 100° 27.1' East, Pengkalan Bujang Archaeological Complex (5°44'15" N, 100°24'50 E) and

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Bukit Batu Pahat Archaeological Complex (5°41'00" N, 100°25'27" E) (Figure 1). The Pengkalan Bujang Archaeological Complex is an entrepot area while the Bukit Batu Pahat Archaeological Complex was found specifically as a place of worship where there is Site 8 which is a Hindu temple. In addition, this complex has also been used as a reconstruction area for Site 16 (from Pendi Village), Site 21 (from Pengkalan Bujang Village) and Site 50 (from Bendang Dalam Village) by the Department of Museums and Antiquities in the early 1970s. In fact, the Bujang Valley Archaeological Museum was also established on this hill in 1980 to specifically display every piece of evidence discovered by the Kedah Tua kingdom. This shows the availability of the three archaeological complexes to be developed sustainably as a successful tourism product in Kuala Muda district.

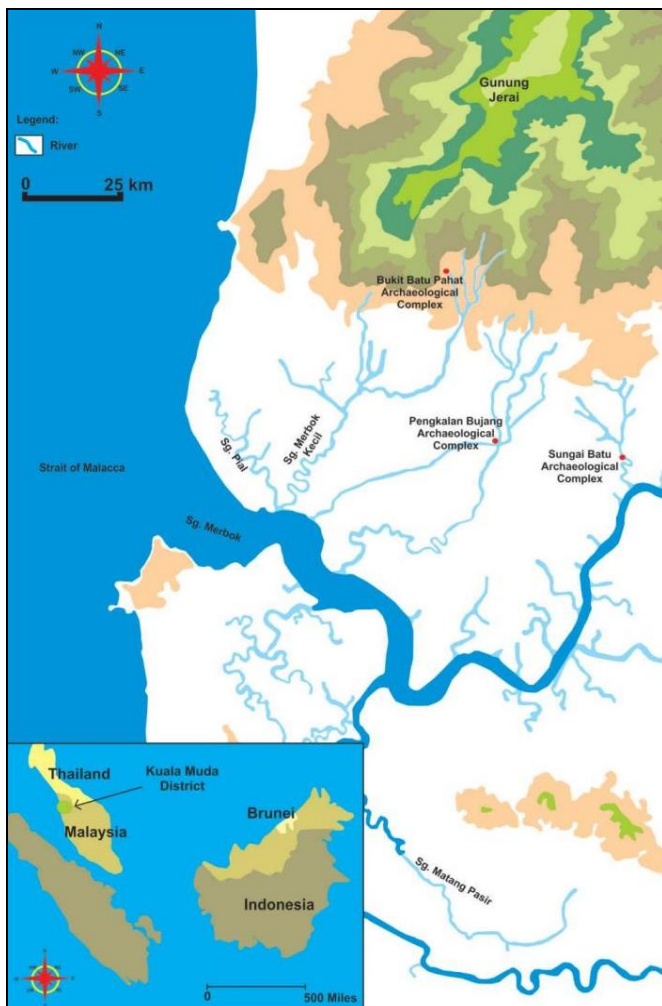


Figure 1. Location of the site study at the Sungai Batu, Pengkalan Bujang and Bukit Batu Pahat Archaeological Complex (Source: Halim et al., 2021 and illustrated by Author, 2023)

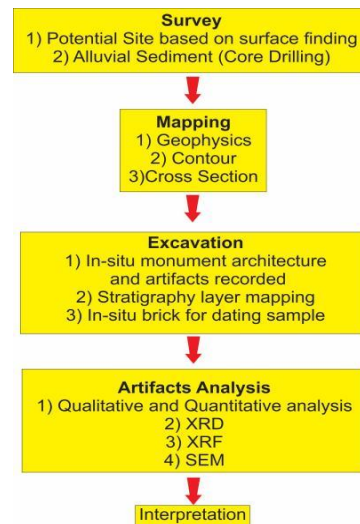


Figure 2. The methodology applied to obtain primary data to complete this study (Source: Halim et al., 2021 and illustrated by author, 2023)



Figure 3. Location of Site 19, 22 and 23 at Pengkalan Bujang Archaeological Complex (Source: Adam, 2019 and illustrated by author, 2023)

## METHODOLOGY

This study involves field research (survey, mapping, excavation and analysis) to complete the primary data. After that, an analysis of architectural remains, building materials and production technology was carried out to strengthen the interpretation presented (Figure 2). This is because survey activities are able to examine the site's potential based on surface findings (Prabhakar and Korisetar, 2017) and mapping is carried out to map basic data such as contour, location, floor map plan and geophysical mapping (Auni, 2020). After that, the excavation process was carried out to obtain primary data to complete the study (Edgeworth, 2011). The results of the study will then be analyzed which allows the outstanding universal value (OUV) of each site to be identified which allows it to be used as an archaeological heritage tourism product in the Kuala Muda district.

### Archaeological Evidence as a Tourism Site

The geological evolution of the Kuala Muda district was also found to have provided a very suitable landscape for humans to inhabit. Archaeological studies since the beginning of 1,800 AD have found evidence that this area has been inhabited since 788 BC as evidence of the earliest civilization in the country and also in the region (Saidin, 2022). Evidence was found in the form of monuments and artifacts at more than 100 sites covering an area of over 1,000 km<sup>2</sup>. Saidin (2022) recorded three archaeological complexes that housed several well-preserved sites.

The sites are Sungai Batu Archaeological Complex, Pengkalan Bujang Archaeological Complex and Bukit Batu Pahat Archaeological Complex. The area was named as a complex because of its diverse archaeological finds that

include industry and commerce (Sungai Batu Archaeological Complex) and Hindu-Buddhist religious monuments (Pengkalan Bujang Archaeological Complex and Bukit Batu Pahat Archaeological Complex).

**Pengkalan Bujang Archaeological Complex**

Archaeological research at the Pengkalan Bujang Archaeological Complex (Figure 3 and Table 1) has discovered an entreport complex that has Hindu and Buddhist temples. Archaeological studies carried out on the riverbanks of Sungai Bujang also recorded the discovery of trade artifacts such as Chinese ceramics, pottery, Indio-Pacific beads and glass that suggested it was a port area. Archaeological excavations in this area have recorded six sites namely 18, 19, 20, 21, 22 and 23 (Table 2). However, nowadays only sites 19, 22 and 23 are still there and can be visited in this complex. Sites 18 and 20 were completely destroyed due to paddy farming activities in this area while site 21 was rebuilt in the Bujang Valley Archaeological Museum area for conservation purposes (Adam, 2020).

Table 1. The architecture of Hindu and Buddhist temples that are still in situ at Pengkalan Bujang Archaeological Complex (Source Adam, 2020 and illustrated by author., 2023)

No.	Sites	Function	Floor Map Plan
<b>Pengkalan Bujang Archaeological Complex</b>			
1	19	Hindu Temple	<p>Legend: A Vimana B Mandapa</p>
2	21	Buddhist Temple	<p>Legend: A Empty space in the middle of the structure B Foundation from brick around the structure C Rectangular structure from brick D The base structure from brick</p>
3	22	Buddhist Temple	<p>Legend: A Foundation from brick around the structure B Two rectangular main structure from brick</p>
4	23	Hindu Temple	<p>Legend: Vimana Mandapa Apit Temple Wall Pedestals Door Corridor Sculpture Area</p>

Table 2. The architecture of Hindu and Buddhist temples that are still in situ at Bukit Batu Pahat Archaeological Complex (Source Adam, 2020 and illustrated by author., 2023)

No.	Sites	Function	Floor Map Plan
<b>Bukit Batu Pahat Archaeological Complex</b>			
1	8		<p>Legend: A Vimana structure from granite block B Mandapa structure from pabel block C Pillar base from granite block D Stair structure from granite block E Basemen structure from granite block</p>
2	16 (Origin at Pendi Village)	Hindu Temple	<p>Legend: A Vimana structure from laterite block B Vimana structure from laterite block C Wall structure from laterite block D Basemen structure from laterite block E Layers from laterite block</p>
3	21 (Origin at Pengkalan Bujang Village)	Buddhist Temple	<p>Legend: A Empty space in the middle of the structure B Foundation from brick around the structure C Rectangular structure from brick D The base structure from brick</p>
4	50 (Origin at Bendang Dalam Village)	Hindu Temple	<p>Legend: A: E. D. Apit Temple from laterite block B: Vimana structure from laterite block C: Mandapa structure from laterite block F: Mandapa Basement from gravel mixed with clay</p>

Site 19: Archaeological research at Site 19 has recorded a Vimana-Mandapa structure interpreted as a Hindu Siva religious monument measuring 2.5x4.8 square meters with a wall height of 1.5 meters. This interpretation is strengthened by the discovery of Ganesha sculptures, lingas and reliquaries made of stone clearly confirming that they were used as tools of worship and mediation for Hinduism (Adam, 2020).

Site 22: Reveals the appearance of the Vimana-Mandapa architectural which has an entrance direction from the northeast. Archaeological studies at this site allow this monument to be classified into sections A and B (Adam, 2020). The building structure of part A is characterized by a square shape measuring 1.82 meters in length and width and 0.46 meters in height. Part B also reveals the appearance of a square architectural shape characterized by its size measuring 2.13 meters wide, 2.13 meters long and 0.84 meters high. The significant difference between the two forms is that structure B has a hole in the middle of the monument compared to structure A which is more solid without a hole. Excavations at the site also found sculptural images such as Buddha images, standing Buddhas, Bodhisattvas, elephant images, ceramics, stoneware and beads which show their dating around 9<sup>th</sup> to 10<sup>th</sup> Century AD (Adam, 2020).

Site 23: Excavation of site 23 has revealed the architectural of the monument which consists of a floor, walls, corridors and a small square monument structure (Candi Apit). The main monument structure of site 23 was built in a northeast-southwest direction with entrances on each side of the building indicating its function as a Hindu temple in use since the 12<sup>th</sup> Century AD. Although no sculptures have been recorded at this site, the presence of rooms especially where sculptures are placed and adjacent temples have strengthened the interpretation (Adam, 2020).

Bukit Batu Pahat Archaeological Site: Archaeological research at Bukit Batu Pahat Archaeological Complex (Figure 4) has found an insitu site which is Site 8. In addition, several sites were also rebuilt in this complex such as Sites 16, 21 and 50 so that the conservation process can be carried out more effectively. For the purpose of providing tourism facilities in this area, an archaeological museum was built in 1980 known as the Bujang Valley Archaeological Museum with several facilities available such as parking lot, toilets and gazebo areas.

Site 8: Archaeological studies at site 8 allowed Vimana-Mandapa structures made of granite and pebbles to be recorded. In general, the Mandapa structure has the same orientation as site 4 and site 5, but the entrance direction of Site 8 is not from the east but is on the southeast side. The archaeological research carried out also found six reliquaries filled with precious stones, phalluses, images of women, gold dust, images of bulls, animal symbols made of silver, images of tortoises and lotuses made of copper. Excavation of this site also recorded the discovery of a stupa, snana droni and pillar base which strengthens the interpretation of the site as functioning as a Hindu temple which is relatively suggested to be around the seventh to 8<sup>th</sup> Century AD (Adam, 2020).

Site 16: The remains of this structure were excavated and then rebuilt at the Bujang Valley Archaeological Museum same as Site 21 and 50. When this site was discovered, the structural condition of this site was in a collapse, making it difficult for researchers to determine the function based on the remains of the structure. The structure of this site 16 has been built entirely of laterite block and there have a Vimana and Mandapa separated from each other with an empty space that has a width of about 35.7 meters. The orientation of the site is east-west with the Vimana facing to east. Among the artefacts found at site 16 such as a bronze reliquary containing a small artefact, a golden bowl, an image of a cow made of silver, an image of a horse made of copper and the elephant image that shows the function of the site is a Hindu Temple that was used around the 11<sup>th</sup> Century AD (Adam, 2020).

Site 21: Archaeological research at this site and successfully revealed the appearance of the main architectural form of site 21 which is cross-shaped and built entirely of bricks measuring 6.5 X 3.0 m. It works for Buddhism (Rahman and Yatim, 1992). The results of research at this site have found Buddha statues made of terracotta and bronze, Kala and Ganesha sculpture and brick with inscriptions. Based on the findings of the sculpture in addition to Chinese ceramics suggests a relative dating of this site is around the 9<sup>th</sup> to the 10<sup>th</sup> Century AD (Rahman and Yatim, 1992).

Site 50: Archaeological studies at Site 50 have revealed the square architecture monument which interpreted as a Vimana-Mandapa. It is oriented east-west with the entrance from the west just like site 31. The structure is built using laterite blocks with the Vimana size 6.25 x 6.25 m<sup>2</sup> while the Mandapa is 6.75 x 6.20 m<sup>2</sup> (Adam, 2020). This site also reveals three Apit Temples which are located in the south, east and west of the Vimana-Mandapa respectively.

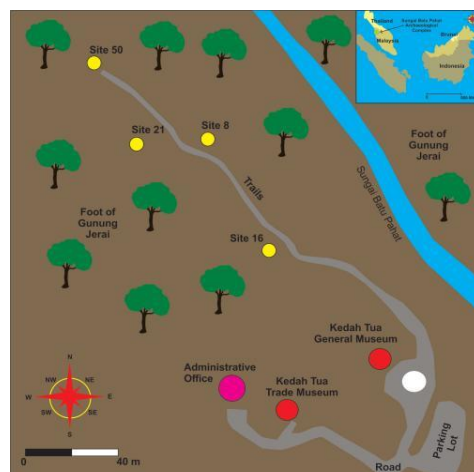


Figure 4. Bukit Batu Pahat Archaeological Complex location site (Source: Adam, 2020 and illustrated by author, 2023)

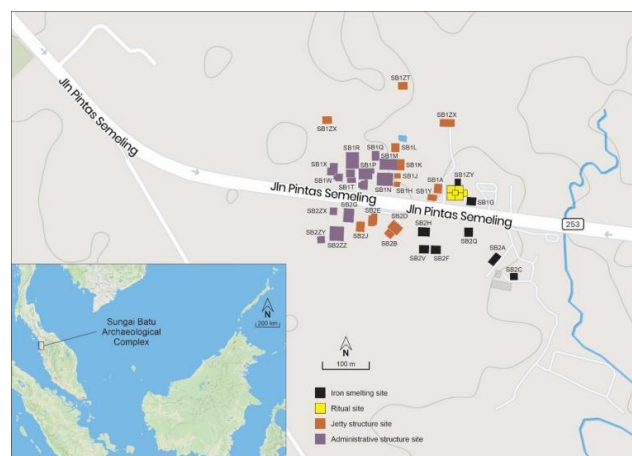


Figure 5. Sungai Batu Archaeological Complex location which reveals the evidence of iron smelting site, jetty, port management and a complex ritual and Buddhist religious (Source: Saidin et al., 2011; Saidin, 2022 and illustrated by author, 2023)

The largest Apit temple is located 4.75 m south of the Vimana-Mandapa with a size of around 4.75 x 4.75 m<sup>2</sup>. The size of the other two Apit Temples cannot be identified because they are not clearly recorded. Excavation of site 50 also revealed the discovery of Kala and Linga sculpture in addition to Chinese ceramics. Therefore, the function of this site has been interpreted as a Hindu temple of Siva, dated around the 12<sup>th</sup> to 13<sup>th</sup> Century AD (Rahman and Yatim, 1992).

Sungai Batu Archaeological Complex: Archaeological research in this complex (Figure 5) has revealed four main evidence such as iron smelting workshops, jetty, port management and a complex of animism and Buddhism (Table 3). The findings recorded in this complex are also different, which is based on the economy of the iron industry, while in Pengkalan Bujang and Bukit Batu Pahat Archaeological Complex was only used as a enterport and a Hindu-Buddhist religious area.

Table 3. The archaeological evidence of iron smelting site, jetty, port management and complex ritual and Buddhist temples that are still in situ at Sungai Batu Archaeological Complex (Source: Hassan, 2018; Mokhtar, 2019 and Halim, 2019 and illustrated by author 2023)

No.	Sites	Function	Floor Map Plan
<b>Sungai Batu Archaeological Complex</b>			
1	SB2 H	Iron Smelting Site	
2	SB2 D	Jetty Site	
3	SB1 V	Port Management Site	
4	SB1 B	Ritual and Buddhist Temple Site	

Iron Smelting Site: Archaeological excavations carried out on 17 iron smelting workshops at Sungai Batu Archaeological Complex have found the raw materials for iron smelting (hematite, magnetite and goethite) along with iron slag, tuyere, bases of furnace and iron ingot. In order to know its age, several insitu charcoal samples were taken to obtain chronometric dating data. The results have shown that this industry started as early as 788 BC. Based on the data, this iron smelting workshop has made the Kedah Tua kingdom that initiate the civilization in Southeast Asia. Furthermore, based on the discovery of millions of tuyeres at the iron smelting site, this complex is the only one in the world that reveals the largest tuyeres storage recorded through archaeological research (Mokhtar, 2019).

Jetty: Until now, 11 jetty structures have been recorded on the left and right riverbanks of the ancient Sungai Batu. It is built entirely of brick with a structure of floors, walls, corridors, stairs and mast anchoring structures. The architecture of this jetty is built oriented and sloping towards the ancient river. Chronometric dating on a brick sample that is still in situ gives the dating that it was built since 582 BC. This means that the structure of the jetty was built as an aid to the export of iron ingots in this complex. Furthermore, based on the number of jetties recorded in this complex, it is also the only one in the world to reveal a large number of jetties in the environment of a river (Halim, 2019).

Port Management: In order to fulfill the requirement of the iron trade in this complex, as many as 17 port management sites have been built using bricks (Aminuddin, 2015; Ahmad, 2016; Yusof, 2016). The Port management structure was built as early as 487 BC. The location of this site is at the back of the jetty and is built horizontally with several small rooms. In general, this port management architectural structure is the only one built whose main purpose is to meet the needs of the iron industry in this complex.

Ritual and Buddhist Complex: Sungai Batu Complex also has a monument whose architecture very different from the jetty and port management which is the SB1B site (Hassan, 2018). The SB1B monument is built with the appearance of a circular base of size 10.17 meters with a floor thickness of 0.3 meters, on top of which is built a square measuring 5.91x5.91 meters, 1.21 meters high and the upper part is built with a small circle of size 3.12 meters (Hassan, 2018). Based on the location and other sites around the site SB1B suggests that it was used as a monument for worship or ritual (base circle) and Buddha (rectangle and stupa). Chronometric dating on the brick sample of the base circular structure gives an age of around 2<sup>nd</sup> Century AD while the square and circular structure of the stupa gives an age of around 7<sup>th</sup> Century AD. This shows that it is the only one in the world that reveals evidence of continuous use from the belief of animism (2<sup>nd</sup> Century AD)

until Buddhism (7<sup>th</sup> Century AD) for the iron smelting community in this complex (Hassan, 2018). Therefore, at the Kuala Muda district level, at least has a three archaeological complexes that can be used as a successful archaeological heritage tourism product. This is because the archaeological research carried out on the site also allows the appearance of its architecture to be clearly recorded which can be used as the main tourism product of the district.

**DISCUSSION**

Academic studies have mapped the existence of three archeological complexes that are very unitary, still preserved and can be visited, causing the process of marketing heritage tourism locations to be carried out more specifically as suggested

by Thomas and Langlitz (2018). In order to strengthen the tourism package offered, the preparation of the tourism package also takes into account the location of successful archaeological heritage tourism sites such as Borobudur Temple. For that reason, the designed tourism package will also involve surrounding tourist locations such as Borobudur Temple which combines tourist locations into a successful combination of tourist packages (Tunjungsari, 2020).

Furthermore, in order to empower the heritage tourism sector, each heritage tourism destination needs the availability of a tourism information center that is able to manage all travel and package tours (Ludmila and Kristina, 2018) that are offered systematically. This is because heritage tourism requires the preparation of a package that can combine iconic heritage products with byproducts to allow the tourism sector to grow rapidly. In relation to that, the existence of a tourism information center is an initial step in providing information related to tourist destinations directly to tourists so that the selection of tourism packages becomes more effective. Based on these requirements, five special tourism packages (Table 4) that combine archaeological heritage at Sungai Batu Archaeological Complex, Bukit Batu Pahat Archaeological Complex and Pengkalan Bujang Archaeological Complex were created to preserve this tourism starting in 2022. Even Sungai Batu Archaeological Complex (SBAC) infrastructure has begun to be completed and upgraded as a one-stop center for archaeological heritage tourism in this district. At the SBAC one-stop tourism center all tourism activities involving (i) guided tours at SBAC, (ii) experimental activities of iron smelting, brick making and hands on excavation (Figure 6), (iii) guided tours to the Bukit Batu Pahat Archaeological Complex and (iv) guided tour to the Pengkalan Bujang Archaeological Complex and Archaeological Museum will be monitored to preserve tourism products.

In order to maximize the dissemination of information about the tourism package, several measures for the purpose of tourism promotion have been carried out. Promotional methods through 1) the involvement of travel agencies, 2) exhibitions, fair and festivals, 3) professional relations with stakeholders, 4) notes and press conferences and 5) the internet have been carried out. Tourism promotion involving travel agencies allows existing travel agencies to provide travel package offers at their agencies. This will help in the surge in tourist arrivals. In addition, scientific research evidence disseminated through exhibitions, fair and festivals such as the Kedah Tua Festival, Festival Purwa Puitika has helped in the process of promoting tourism areas since 2016. In addition, tourism promotion by establishing good professional relations by organizing visits by ministers, international delegations, community representatives, media representatives and university researchers is also a form of promotion in developing Kuala Muda tourism packages. Promotion through notes and press conferences is closely related to the organization of interview sessions, interviews and press conferences which is an important step to further smooth the promotion process. Because nowadays the widespread use of the internet is also used as best as possible in the process of promoting tourism sites. Brochures and information posters are uploaded on the website which allows information related to the site and tour packages to be disseminated without hindrance. This shows that at the Kuala Muda district level there has been an organized movement in the process of developing its tourism marketing.

Table 4. Tourism packages created at Sungai Batu Archaeological Complex (SBAC) (Source: Compiled by author, 2023)

No.	Packages	Location	Accessability	Duration
1	4	Guided tour at Sungai Batu Archaeological Complex + Bujang Valley Archaeological Museum + Bukit Batu Pahat Archaeological Complex + Pegmetite Jerai + Pengkalan Bujang Archaeological Complex	All means of transportation	1 Day
2	5	Full packages (Sungai Batu Archaeological Complex) + Bujang Valley Archaeological Museum + Bukit Batu Pahat Archaeological Complex + Pegmetite Jerai + Pengkalan Bujang Archaeological Complex		1 Day
3	6	Guided tour (Sungai Batu Archaeological Complex) + Pengkalan Bujang Archaeological Complex		Half Day
4	7	Full packages (Sungai Batu Archaeological Complex) + Pengkalan Bujang Archaeological Complex		1 Day
5	8	Guided tours (Sungai Batu Archaeological Complex) + Bujang Valley Archaeological Museum + Bukit Batu Pahat Archaeological Complex + Pegmetite Jerai + Pengkalan Bujang Archaeological Complex		1 Day



Figure 6. Tourism packages offered for archaeological heritage tourism in the Kuala Muda district such as site visits (a), demonstrations of iron smelting (b), brick making (c) and excavations (d) at the Sungai Batu Archaeological Complex since 2022 (Source: Research Data Analysis, 2023)

**CONCLUSION**

Academic studies conducted at archaeological complexes in the Kuala Muda district in particular have been able to provide several sets of very unique archaeological heritage tourism packages.

In addition, the archaeological evidence at Sungai Batu Archaeological Complex which is heralded as the oldest civilization in Southeast Asia (Embong et al., 2016; Halim et al., 2021) and added to the unique architecture of Hindu and Buddhist temples built from the 8<sup>th</sup> Century AD to 13<sup>th</sup> Century AD clarify the uniqueness of this archaeological heritage tourism in this district. Based on the data and examples of successful archaeological heritage tourism locations

such as Borobudur and Angkor Wat Temple, it is believed that the tourism package created since 2022 can be developed as an heritage tourism comparable to other archaeological heritage tourism sites in the world.

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