

# Applied Research in Archaeology: A Case Study on Sunan Bayat Tomb Site Area, Central Java, Indonesia

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**Abstract.** As one of the sites of the development of Islam in Java and in the archipelago in general, the site of Sunan Bayat's Tomb, located in Paseban, Bayat, Klaten Regency, Central Java, Indonesia, has been academically researched by several researchers. However, from the few publications found, it is known that the research that has been done is only at the level of basic research. The authors understand that basic research results are limited to academic problems rather than to solving practical problems. Therefore, applied research with a phenomenological approach is applied in the Sunan Bayat Tomb Site Area, which aims to raise and examine various phenomena found there. The phenomena found are data sets that are integrated and transformed so that the results are contributive, practical, and valuable for the community.

**Keywords:** applied research; community; contributive; phenomenological approach; Sunan Bayat Tomb Site Area

## 1 Introduction

The Tomb Site of Sunan Pandanaran, known as Sunan Bayat, is located in Paseban Village, Bayat, Klaten, Central Java. It is the tomb site area of one of the figures from the Wali Sanga, the spreaders of Islam on the island of Java, which is named Sunan Pandanaran. Sunan Pandanaran, or Sunan Bayat, was very close to the leading figure of Wali Songo, Sunan Kalijaga. Therefore, the tomb of Sunan Bayat has been a destination for pilgrims since the fifteenth century AD. Even Sultan Agung, the King of Mataram, ordered the people of Mataram to build and move Sunan Bayat's tomb from Dadap Tulis Hill to Cakra Kembang Hill, which is higher and broader [1]. The Sunan Bayat Tomb Site Area was built in the XVII century AD with the Candra Sengkala "Wisaya Hanata Wisiking Ratu" which means the number 1555 Javanese year or 1633 AD, using Hinduistic architecture (Fig. 1). Therefore, experts in history and archaeology are interested in conducting research in the site area.



**Fig. 1.** Sunan Bayat Tomb Site Area

Some publications from previous researchers in the Sunan Bayat Tomb Site Area are categorized into two criteria according to the research objectives. The first criterion is only limited to solving academic problems, not yet reaching practical problem solving (basic research); for example, researchers [2], [3], and [4] conducted Archaeological and Historical research in the Sunan Pandanaran Tomb Site Area. In addition, there are also studies by researchers [5] and [6], which both discuss the connectivity between the Sunan Pandanaran Tomb Site and the community, both pilgrims and the community around the Site Area. Other research also discusses the history of Sunan Pandanaran in the spread of Islam in the southern part of Central Java [7]. The second criterion is also basic research but already involves the community as stakeholders, looking for problems to be analyzed and how these problems can be solved, such as research by researchers [8] and [9].

Based on the literature review conducted, methodologically, archaeological research in Indonesia is generally still at the basic research level. Researchers use an academic approach at the basic research stage and expand the existing scientific knowledge base. Meanwhile, applied research uses a practical approach, referring to the results of academic studies to solve real-life problems. Because the results of applied research are more contributive to the interests of

society, some scientists feel that the time has come to make a shift from basic research to applied research to meet human needs that are increasingly problematic due to global overpopulation, pollution, and excessive use of natural resources [10]. Therefore, this research was conducted by applying applied research to get an output in the form of a model or product that the community can utilize. This research focuses on the problem of Batik Bayat found in the Sunan Pandanaran Site Area, the results of which can be attributed to the Batik artisans' significantly developing new ideas in creating batik motifs to find the identity of Batik Bayat.

## 2 Research Method

This research is applied research with a phenomenological approach as the basis for solving issues in the Sunan Bayat Tomb Site Area. The research method used is a qualitative method combined with quantitative, known as a mixed methodology [11]. Based on the results of basic research conducted by previous researchers, a crucial problem that needs to be resolved is the decline of Batik Bayat artisans from the 1980s until now. Hence, this applied research aims to solve problems related to real life. The researchers examined phenomena that are happening currently. It will be integrated with the current problems of Batik Bayat artisans and the Batik Bayat "PBT" Cooperative that in the phase of "live reluctantly, die unwillingly". This applied research in the Sunan Bayat Tomb Site Area will lift and revive the spirit of Batik Bayat artisans to return to work. The continuity between basic and applied research is essential to produce technology, policies, or social interventions that meet the needs. Unlike basic research, which is done chiefly to answer researchers' questions, applied research is mainly done to answer the needs of society, industry, or a broader context [12].

## 3 Data and Discussion

Based on the literature study and direct observation in the field, the research team found phenomena that can serve as a means for the emergence of emotional bonds between pilgrims and the Sunan Bayat Tomb Site Area, especially the central figure Ki Ageng Sunan Pandanaran or Sunan Bayat. These phenomena can be classified based on toponymy and artifactuality.

**3.1 Toponymy:** Dadap Tulis is the name of the place where Sunan Pandanaran and his family are buried. It is called Dadap Tulis because there is a Dadap tree in that location that reads Ga-La. Ga-La symbolizes the number 17, which means the number of Rakaat (essential unit of prayer ritual) of obligatory prayers (five times) in one day, which contains two rakaat in subuh prayer, four rakaat in dzuhur, ashar, and isya prayer, and three rakaat in maghrib prayer. The intention is to remind pilgrims always to remember and not abandon prayer. Related to batik, Dadap Tulis is interpreted as the leaf, flower, and fruit components of the Dadap Serep or *Erythrina subumbrans* tree (Fig. 2), which can be transformed into batik motifs. As for the Toponymy, Cakra Kembang is the name of a hill located on the eastern slope of Mount Jabalkaat. On this Cakra Kembang Hill, the tomb area of Sunan Pandanaran was built on the order of the

King of Mataram, Sultan Agung, to move it from Dadap Tulis Hill to Cakra Kembang Hill. Cakra Kembang is referenced in one of the reliefs found on the wall of the Bentar Temple gate in the Sunan Bayat Tomb Site Area (Fig. 3).

- 3.2 Artefactuality:** The Bayat community generally calls it Genthong Si Naga because the water barrel has a spout shaped like a dragon's head. The barrel has been placed on the right side of the stairs leading to Sunan Bayat's tomb. Pilgrims who believe in the benefits of Genthong Si Naga's water take the time to drink, wash their faces, or bring the water home for their sick relatives. Other artifacts found in the Cakra Kembang Hill are several reliefs in the form of ornaments carved on the Candi Bentar gate building (Fig. 4).



**Fig. 2.** *Erythrina subumbrans* tree



**Fig. 3.** Cakra Kembang relief on Bentar Temple Gate



**Fig. 4.** Reliefs carved on Bentar Temple Gate

From the observations, four batik motifs transformed from archaeological and historical data can be an insight for Bayat batik artisans. The four motifs are not to be imitated but used as reference and inspiration in finding the identity of Bayat Batik. Legally, the four motifs have been certified for intellectual property rights under the names of five researchers. Bayat batik artisans who have successfully designed the Sunan Pandanaran motif can then apply for

Intellectual Property Rights (HAKI) to the Ministry of Law and Human Rights, Republic of Indonesia. Our research team is ready to assist Batik Bayat artisans in developing their business until at least 2025.

## 4 Results

As a result of the discussion above, it is known that applied research in the Sunan Bayat Site Area has outputs in the form of output, outcome, and benefit.

**4.1 Output:** The output of this research is in the form of Intellectual Property Rights certificates from the Ministry of Law and Human Rights of the Republic of Indonesia for Batik Bayat motifs given to 5 researchers, 1 of whom is from the Indonesian Institute of Arts, Surakarta, and four researchers from the National Research and Innovation Agency (BRIN). This output is not academic but one that can pave the way for an outcome (Fig. 5).

**4.2 Outcome:** The outcome was obtained from the socialization and workshop of research results, attended by Batik Bayat artisans and the Batik Bayat Cooperative "PBT" representatives. Batik Bayat artisans successfully created several derivative motifs of Sunan Bayat's motif (Fig. 6-8).



**Fig. 5.** Intellectual Property Rights of Genthong Si Naga motif



**Fig. 6.** Tumpangsari motif from Ibu Insyani



**Fig. 7.** Cakra Kembang motif (for *udeng*) from Ibu Salimi



**Fig. 8.** Cakra Kembang motif (for sarong) from Ibu Enny Wuri

**4.3 Benefit:** It is the added value of an outcome whose benefits will appear later. The benefit indicator shows what is expected to be achieved if the output and outcome can be completed and function optimally [13]. The benefits of this research are innovative products by Bayat batik artisans such as sarongs, prayer mats, clothes, and shrugs (Fig. 9-12).



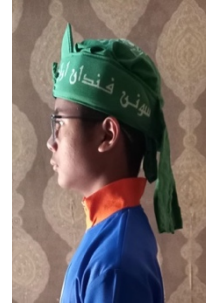
**Fig 9.** Batik *Sarong*



**Fig 10.** Batik Prayer Mats



**Fig 11.** Batik Clothes



**Fig 12.** *Udeng* Batik

Mainly, the results of this applied research have met the expectations of the government as a policy maker and the community as one of the stakeholders, especially in the utilization of research results. However, the communication between stakeholders could have improved so that the research results could benefit each party. Therefore, it is recommended that applied research be conducted collaboratively by involving various stakeholders, from planning and implementation to the realization of research objectives.

## 5 Conclusion

In the era of globalization and evolving technology, research and innovation activities in all sectors must continue to develop. Hence, researchers must apply a research model in all research groups to solve actual problems using applicable solutions. The applied research implemented in Sunan Bayat Tomb Site Area can solve the problems of the current development of the Batik Bayat industry. This outcome is a pioneer in the Archaeology, Language, and Literature Research Organization. Thus, the results of this applied research can contribute to the parties involved in the development of the Batik Bayat industry, from district, provincial, and central governments to regional researchers (BRIDA) and central researchers (BRIN), as well as the Batik Bayat artisans themselves.

The researchers realize that the results of this research still have gaps due to the limitations of the research team as ordinary human beings who are not free from shortcomings. These gaps are data and problems for future researchers interested in solving them. One of them is "Prospect of Batik Bayat in 2035". For ten years, from 2025 - 2035, what will be the fate of Batik Bayat artisans, batik entrepreneurs, and Batik Bayat "PBT" Cooperative? As part of our commitment, the researchers will continue to escort Bayat batik artisans to strengthen the identity of Batik Bayat by enriching Sunan Pandanaran's batik motif. The following two years (2024 and 2025) are the right time to develop Batik Bayat.

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