



PLANNING MALAYSIA:
Journal of the Malaysian Institute of Planners
VOLUME 21 ISSUE 6 (2023), Page 17 – 28

STUDY OF SPATIAL CHANGE IN ASTANA VILLAGE HERITAGE AREA, CIREBON, INDONESIA

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Abstract

Astana Village which located in Gunungjati District, Cirebon Regency, West Java Province, In-donesia, belongs to a rural area. However, there lies the grave complex of the kings of the Cirebon Sultanate. This 14th-century funerary complex is a structure with a long history. This graveyard is designated as a historical site. The tomb complex was constructed in the shape of a palace, with different ceramic embellishments adorning the walls. It has become a popular tour-ist site for pilgrims. It is open 24 hours a day, seven days a week, to encourage local economic activity. As a result, this area grows seldom and shows signs of grave complicated injury. The purpose of this study is to characterize the spatial changes in Astana Village, which was desig-nated as heritage area from 2006-2020. The method used is by using GIS. The results of the study are used as material for digital documentation of the changes in space that have occurred. The study findings serve as a guide for area conservation.

Keywords: Astana village, Heritage area, Spatial change

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INTRODUCTION

Land use change is induced by human activities. Land use in a center shows the main concentration on residential, educational, trade, services and recreational activities (Pozoukidou et al., 2017). Land use systems define the location and arrangement of socioeconomic activity within the bounds of spatial entities (Collazo, 2020). The modification of natural ecosystems is responsible for the majority of land cover changes (Li et al., 2019). Spatial abnormalities can be seen everywhere around us, and as a result of human action, they will grow increasingly unpredictable.

Uncontrolled land use changes in heritage areas put ancient artifacts at risk of being damaged. The Cirebon Sultanate's kings' burial complex is a heritage site in Astana Village, Gunungjati District, Cirebon Regency, Indonesia. Local regulations define the heritage area. Documenting the ancient artifact space is an endeavor to introduce cultural heritage (Dalkılıç & Nabikoğlu, 2020). The awareness of particular values in humans that must be protected is stimulated by tangible and intangible heritage (Vecco, 2010). Human and environmental processes endanger the preservation of cultural relics (Mubaideen & Al Kurdi, 2017). It was only in the 20th century that care for protection, rehabilitation and proper use of cultural heritage has expanded significantly especially the understanding of its relationship to the environment (Petrić et al., 2020).

The research on Astana Village has primarily focused on pilgrimage tourist places that are well-known in other countries (Hindersah et al., 2021). Because of the tradition and space, studies on heritage values have been conducted in this location. The tomb of the youthful pharaoh Tutankhamun is the most famous of all royal tombs in the Valley of the Kings (VOK) in Luxo, and studies on historical graves as tourist sites are carried out using technology (Sambuelli et al., 2019). However, no research on the spatial changes that threaten the area's destruction have yet been conducted. Despite the fact that the research location is located in the Mount Sembung highlands, occasional land cover changes may pose a threat to the tomb construction, which is a heritage site. As a result, the goal of this research is to characterize the spatial changes in the heritage area of Astana Village in the Gunungjati District of Cirebon Regency. This research can be used as proof of area conservation efforts, particularly in terms of managing the usage of space in the area.

GIS is used to see changes of the way space is used. Maps can be displayed using GIS. Maps are essentially subjective, interpretative, and fictitious construction of facts that have the potential to affect cultural decisions, actions, and values (Hossain & Barata, 2019). GIS can be used to track the expansion of new areas and study effect trends. The analysis of cultural heritage around places experiencing growth can benefit from the use of GIS analysis of accessible data (Kristy, 2018).

Digital technologies can now be used to present cultural assets. Cultural heritage can be represented using a variety of digital tools. These tools not only illustrate cultural heritage, but also allow people to submit cultural heritage data of their own (Jaillot et al., 2020). GIS is a type of digital map technology. Understanding, interpreting, and sharing cultural heritage data will be made easier with GIS modeling. Digital technologies used to evaluate extremely diverse data, such as GIS, have shed new light on aspects, variables, and questions throughout the previous two decades. We can present four GIS applications in the subject of cultural heritage in particular: First is the use of geographic information systems (GIS) to aid in the preparation of heritage inventories. The second goal is to have a clearer understanding of inheritance. These assets must be viewed as part of a constantly changing physical and social context rather than as standalone items. Third, the use of geographic information systems (GIS) in the formulation of controls and projections for the conservation of known heritage, as well as the identification of potential site locations. The fourth GIS is to develop a strategic plan for natural and/or cultural heritage management. GIS can be used to examine existing data that is placed on the historical asset layer, and to detect, compute, and assess protection limits and levels (Ferreira-Lopes & Pinto-Puerto, 2018).

LITERATURE REVIEW

Heritage Village

Heritage village always intersects with sustainable development. Preservation of heritage village itself is able to develop benefits for the people who are in it in the physical, social, economic and cultural aspects (Sukmana & Yuliasuti, 2020). The heritage village must maintain its cultural preservation. Some things that need to be done to preserve culture include providing space for the people in the heritage village to express and develop their culture, so that the heritage value they have will always be there (Ye et al., 2020).

Spatial Change

Spatial planning in heritage areas has characteristics that are adapted to the existing landscape. Spatial change cannot be done freely and must adapt to the heritage landscape (Wang & Gu, 2020). Architectural elements have an important role in the heritage landscape. Architecturally, the value of dwellings in heritage areas has a relationship with both natural and cultural factors. Several architectural elements include building materials and architectural forms. Spatially, apart from architectural elements, heritage areas can be seen and assessed through geographical elements such as climate and landforms. Heritage areas are often found using elements of geography as a basis for constructing buildings (Fu et al., 2021). So far the preservation of heritage villages is still

constrained by funding, although several countries have allocated funding for preservation through their governments (Mu & Aimar, 2022).

RESEARCH METHODOLOGY

Astana Village is located in Gunung Jati District, Cirebon Regency. Cirebon Regency is located in the eastern part of West Java Province. With a geographical location of 108°33 East Longitude and 6°41 South Latitude (see Figure 1). The research location is located in the heritage area according to the regional regulations of Cirebon Regency. Sunan Gunungjati, a member of a walisanga (Islamic preacher) and the King of the Cirebon Sultanate, uses the research area as a pilgrimage tourist attraction (Agustina et al., 2016). The condition of the artifacts in the tomb complex area will be related to changes in space in the area. The tomb complex has become a magnet for regional economic growth.



Figure 1: The Position and Location of Research Area

Location data is obtained from Google Earth in 2006, 2013 and 2020. The information for that year is fairly complete. Field observations are used for the rest of the data. This strategy is used to keep track of regional weather and navigation. From October 3, 2021 to October 9, 2021, field observations were conducted for one week. Observations were carried out by a research team of 5 people in turn. 3 October -5 October 2021 conducted by 2 researchers. On October 6-8 conducted by 2 researchers and on October 9 conducted by one researcher. The research time was carried out for 2 hours every day to record the conditions of the surrounding environment. Recording is done by using a camera and checking with GPS (Global Positioning System). The date is determined by the fact that the study site is a popular tourist destination. Tourists come from all over the world, and there are a lot of them, despite the fact that CoVid-19 is still

a serious disease hazard for researchers. As a result, the date for data collection has been selected.

In the context of spatial analysis, GIS generates a variety of particular maps (Audisio et al., 2017). Documentation is utilized to collect data from a variety of scales using a set of GIS (Geographic Information System) program methodologies, and the results are then merged (Lesvignes et al., 2019). Similarly, in this study, geographical changes are analysed using GIS (Geographic Information System) software, specifically System ArcGIS 10.8. From the same Google Earth map, this software was used to map and evaluate the 2006 Astana Village maps, 2013, and 2020. The stages of analysis carried out are:

- Digitizing the 2006 2013 and 2020 Google Earth maps,
- Comparing the digitized maps for 2006,2013 and 2020,
- Marking the spatial changes that occurred in 2006, 2013 and 2020.
- Checking the results of GPS navigation
- Determine the spatial changes that occurred from 2006,2013 and 2020

ANALYSIS AND DISCUSSION

The graveyard complex has become a draw for local business, which has consequences for the deterioration of ancient artifact quality. The Hisan ceramics that embellish the cemetery's architectural structure are said to be ruined. The cemetery building (Mohammed Abdullah Eben Saleh*) portrays a distinct image of culture, as evidenced by the direct relationship in the form of architecture. Aside from heritage structures, the cemetery complex serves as a pilgrimage tourism site, with facilities available 24 hours a day. Tourism itself is proven can improve community economy (Aji, 2020). Tourists arrive from all around the country and even from other countries. When it coincides with religious seasons, such as the month of Mulud in the Javanese calendar, the number of tourists would increase. Figure 2 shows the quality of the artifacts that are beginning to show symptoms of damage. Ancient pottery is a sign of the Kacirebonan Sultanate's glory, and they depict the message of ancient manuscripts or manuscripts written in Arabic script.



Figure 2: Ancient ceramics become a unique decoration in the grave complex of Sunan Gunungjati which is indicated to be damaged

The outcomes of the study demonstrate that the cover space in Astana Village's heritage area changed from 2006 to 2020. The results of the mapping show changes (see Figure 3). Since ancient times, mapping has been extremely beneficial for administrative, navigational, cultural, and other purposes (Hossain & Barata, 2019). Built-up land cover and the expansion of road networks are shown to cause changes in the mapping. The morphological circumstances of earlier use, whether agricultural land or the way it was used, often shape settlements (Dovey et al., 2020) should be able to communicate with one other. The road network development map enables access in the expanded land cover region, virtually completely surrounding the graveyard complex. Every seven years, there are huge changes in space.

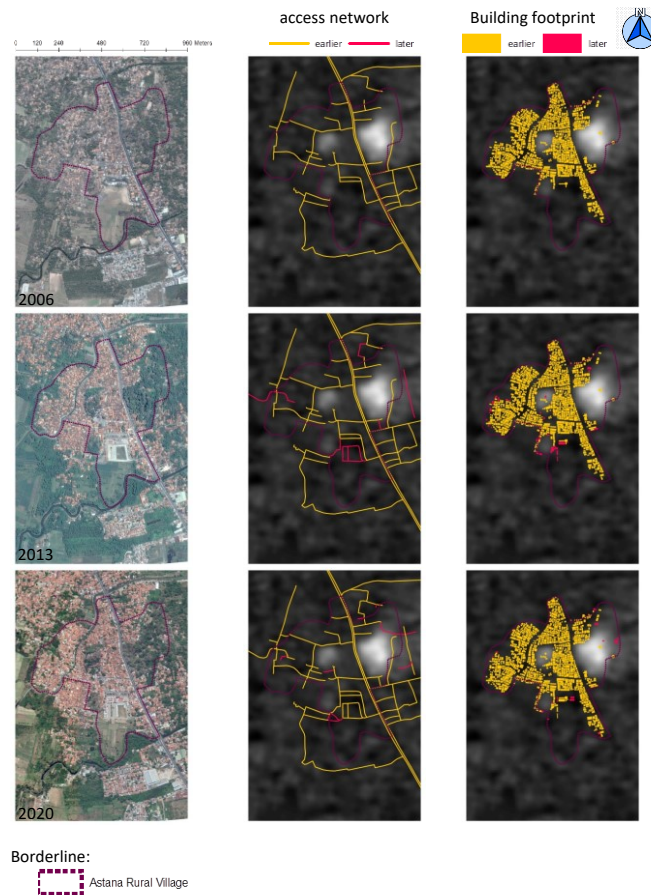


Figure 3: Ancient ceramics become a unique decoration in the grave complex of Sunan Gunungjati which is indicated to be damaged

The Astana Sunan Gunungjati cemetery is threatened by changes in land cover in Astana Village. Many businesses have opened a store in front of the cemetery complex. The building on top of the hill has cracks in the floor. Color and image began to fade from ancient ceramics. For cultural heritage preservation, the construction of the Astana Sunan Gunungjati cemetery must be a primary concern.

The term "Cultural Heritage" refers to all "movable and immovable property of great importance to the cultural heritage of every person...", hence it can be understood as an invaluable resource for the advancement of knowledge. According to the International Council on Monuments and Sites (ICOMOS), heritage is a broad concept and includes the natural and cultural environment. Landscapes, historic locations, sites, and the built environment are all part of it,

and so are biodiversity, collections, ancient and modern cultural practices, knowledge, and life experiences. It is a dynamic reference point as well as a positive instrument for growth and transformation. Each community's unique past and collective memory are irreplaceable and serve as a crucial foundation for development today and in the future (Bleibleh & Awad, 2020).

The Astana Sunan Gunungjati burial complex is rich in history and architecture. Cultural heritage encapsulates and expresses a wide range of values (Yildirim & Turan, 2012). The conservation of monuments is based on an assessment of heritage values. The preservation of historical authenticity and local identity is inextricably linked to architecture. The preservation of all places' cultural heritage, which necessitates universal compliance, is essential for a secure future (Borissova, 2018).

In order to provide future guidance, history highlights challenges and developments concerning historical patterns and protected zones (Yildirim & Turan, 2012). The Astana Sunan Gunungjati tomb complex exemplifies the magnetic appeal of a holy man who disseminated Islam in West Java reaches. There is also evidence of a king who is also a guardian with extensive Islamic knowledge. Tolerance is portrayed in ceramic artifacts from numerous countries, including China, Europe, and Arabia, as well as diverse religions (Vecco, 2010). Cultural diversity is a source of richness for humanity as a whole.

In the field of burial site study, new technological approaches are being developed (Sambuelli et al., 2019). Similarly, the Astana Sunan Gunungjati Cemetery Complex must begin digitizing its records. The creation of a formal computational approach to analyze the risks exposed to such important material assets is required by digital documenting of cultural heritage (Nebbia et al., 2021). Various technology-based planning documentation efforts are used to conserve and maintain Architectural Heritage (AH) and spatial artifacts (Apollonio et al., 2017).

In the perspective of the government, archeological sites have tourism potential, hence a management system for tourism sites must be devised (Mubaideen & Al Kurdi, 2017). Local stakeholders, heritage specialists, and local governments are involved in management, with useful tools to construct a conservation plan (Nebbia et al., 2021). Furthermore, the scientific community must show strong support for conservation activities (Parga Dans & Alonso González, 2018).

International organizations such as UNESCO are offered alternative conservation options. Through an international organization, solutions for the protection and maintenance of the Tomb of the Ancestors have been developed (Alshweiky & Ünal, 2016). As an alternative, the architectural heritage conservation movement can be utilised, due to worldwide recognition and the presence of non-governmental organizations. In emerging countries, when new construction threatens historic regions, conflicts between heritage conservation

developments are more common (Bleibleh & Awad, 2020). Because the area's rapid development caused lasting damage, maintaining a sense of balance was critical (Deghati Najd et al., 2015).

CONCLUSION

Based on the results of research using map digitization, it shows that Astana Village in Gunungjati District, Cirebon Regency, Indonesia has experienced a spatial change. Astana Village in Gunungjati District, Cirebon Regency, Indonesia has witnessed a spatial transformation, according to the results of research employing map digitalization. From 2006 to 2020, significant space changes occur every seven years. The rise in land cover due to sporadic building growth indicates changes in space. It also led to an increase in accessibility. The expansion of the road network, which includes land cover gaps, is an indicator.

The change in space has implications for the pressure on the heritage area of the Astana Sunan Gunungjati tomb complex. Indications of the obstruction of the facade of the tomb building can be seen from the coverage of the building growing along the new road network. This change in space is caused by the attractiveness of Astana Village which is the object of a pilgrimage tourist destination.

Efforts to conserve the environment must be carefully considered. International parties are offered conservation efforts involving a variety of interests and endeavors. Conservation is done to preserve cultural heritage with historical importance as well as the quality of objects that can be used as a source of information in the present and future.

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Received: 2nd May 2023. Accepted: 4th May 2023