



Impact of Tourism on Urban Morphology in Lasem City, Indonesia

Mutiawati Mandaka^{1,2*}, Wiendu Nuryanti¹, Dyah Titisari Widyastuti¹

¹ Architectural Doctoral Program, Department of Architecture, Gadjah Mada University, Yogyakarta 55281, Indonesia

² Department of Architecture, Pandanaran University, Semarang 50268, Indonesia

Corresponding Author Email: mutia.mandaka@mail.ugm.ac.id

Copyright: ©2024 The authors. This article is published by IETA and is licensed under the CC BY 4.0 license (<http://creativecommons.org/licenses/by/4.0/>).

<https://doi.org/10.18280/ijstdp.190609>

ABSTRACT

Received: 10 May 2024

Revised: 9 June 2024

Accepted: 15 June 2024

Available online: 24 June 2024

Keywords:

historic town morphology, urban form, tourism, Lasem

Lasem City, a charming trading town nestled on the north coast of Central Java, Indonesia, is currently experiencing a surge in tourist popularity. This surge is attributed to the city's rich historical legacy, which adds an intriguing layer to the allure of this vibrant destination. To comprehend the distinctive attributes of this city, it is essential to conduct a morphological overview, delving into the formation and evolution of the urban landscape throughout history. The physical identity of the city shaped by geographical location, historical events, and local culture, serves as a conceptual framework for deciphering its unique character. Therefore, this study aimed to examine the impact of tourism on the morphology of Lasem, from the Hindu Majapahit era to the post-independence period in Indonesia. Exploring both positive and negative influences, the study meticulously obtained spatial and historical data through a combination of field observations, analysis of historical maps, and insightful interviews. The discernible growth pattern of tourism in Lasem was adeptly shown through content analysis and triangulation. The results showed a surge of tourism in post-independence Lasem, particularly gaining momentum after the 2000s. Furthermore, an indelible mark on the city was left by the influx of Chinese cultural influences brought by immigrants establishing elite settlements. Economic dynamics further catalyzed a shift in land function, transforming former spaces into thriving commercial hubs. The dynamics of Lasem as a historic city experienced a profound transformation directly influenced by tourism. This elucidates a compelling interrelationship between the morphology of historic cities in Indonesia, the burgeoning tourism sector, and the nuanced field of heritage management.

1. INTRODUCTION

The development of urban morphology and tourism in Indonesia is becoming an increasingly important issue along with economic growth and increasing public interest in local history and culture. As an archipelago rich in cultural and historical heritage, Indonesia has great potential in developing tourism destinations that focus on historic cities. One example is Lasem, a small town located in Central Java, which is rich in cultural and historical heritage. The city has become an increasingly popular tourist destination, attracting travellers to explore the beauty of traditional architecture, historical sites and rich cultural life.

However, the rapid growth of tourism often brings complex impacts on urban morphology. These phenomena include changes in urban layout, increased commercialisation, socio-cultural changes and environmental challenges. It is therefore important to understand the impact of tourism on the morphology of a historic tourist city such as Lasem, both from the perspective of urban development and cultural heritage preservation. An in-depth study on this subject can provide valuable insights for sustainable policy development and responsible tourism management in historic cities.

In this context, the research entitled 'The Impact of Tourism

on the morphology of the historic tourist town in Lasem, Central Java' is relevant and important to conduct. This research will explore how the growth of tourism affects the structure and face of the historic tourist town of Lasem, as well as its impact on environmental sustainability and the lives of local communities. Through an in-depth understanding of this phenomenon, it is hoped that evidence-based policy recommendations can be produced to maintain a balance between tourism development and cultural heritage preservation, so that Lasem remains an attractive destination for tourists while still paying attention to environmental sustainability and the social life of local communities.

Several previous studies have successfully applied the concept of urban morphology in the Indonesian context [1-18], focusing mainly on urban landscapes in general. However, these studies have limited scope in their specific examination of coastal cities in Indonesia [19, 20]. Several studies have also provided important insights into the impact of tourism on the morphology of historic tourist towns in various geographical locations. For example, research conducted in historic cities in Europe has identified patterns of change arising from massive tourism growth. In Asia, research has also highlighted the challenges and opportunities for sustainable tourism development in historic cities such as Kyoto and Luang

Prabang.

Nevertheless, despite this wealth of research, there are still gaps in knowledge that need to be further explored. Indonesia's context as an archipelago with a rich cultural heritage offers a unique landscape for understanding the impact of tourism on the morphology of historic tourist towns. Therefore, this study aims to complement the existing literature by focusing on the historic tourist town of Lasem in Central Java, identifying the morphological changes of the historic tourist town that occur due to tourism activities and analysing the positive and negative impacts of tourism growth on the sustainability of the historic tourist city.

Lasem was chosen as the research focus in this study because it has abundant historical heritage and cultural richness and is one of the significant historical tourist destinations in Indonesia. Some of the reasons why Lasem was chosen as the research object include its experience in several historical periods, including the Hindu-Majapahit period, Chinese Muslim period, Colonial period, Japanese period, and Post-Independence period. In the 19th century, Lasem became a trading centre for 'opium cigars' [21] and Tiga Negeri batik tulis, which became Lasem's trademark. Lasem is also known as the largest location for Chinese immigrants in Java and was one of the third largest areas in Indonesia with a Chinese community in the 19th century. In the past, Lasem was the centre of the teakwood trade in the Dutch East Indies. Lasem is a trading town, with many Indo-Chinese labourers and is one of the most 'Chinese' towns in Java. Lasem is also the largest Chinese village in Indonesia with the most complete and original village components.

The structure of this study unfolds with an introduction providing the background of the problem and the research objectives. The literature section delves into urban morphology, historical city formation, and the formulation of tourism cities. The study methodology adopts a qualitative approach, focusing on a single case study of the city of Lasem, a small coastal city on the north coast of Java, Indonesia. Subsequently, a thorough examination of how tourism development shapes the morphology of Lasem City will be conducted, leading to a conclusion addressing the research questions.

2. LITERATURE REVIEW

2.1 Tourism in the small city of Lasem

Lasem, a small town located on the coast, presents an alluring landscape with a unique combination of beautiful beaches, diverse topography, and stunning mountains [22]. However, what makes Lasem truly special is the presence of historical buildings that become the main focal point for visitors [23]. The city is a place rich in cultural heritage, with a diverse Chinese-Javanese culture adding colour to its identity [24], and a deep-rooted spirit of religious tolerance within the community.

Since the ancient times to the present day, Lasem has witnessed an amazing development in tourism. Through its various historical periods, such as the Hindu-Majapahit period, Chinese-Muslim period, Colonial period, Japanese period, and Post-Independence period, Lasem has maintained its appeal as an attractive tourism destination. In addition, as a vital trading centre, Lasem was famous for trading 'opium funnels' in the 19th century and for being the centre of the

famous Tiga Negeri batik. Not to forget, Lasem's glorious past as a teak trading centre in the Dutch East Indies also enriches its tourism history.

The historical beginnings of tourism can be found in ancient times, when travelling was done for the purposes of trade, knowledge, cultural exchange and health [25]. This phenomenon also occurred in Lasem, where since the Hindu-Majapahit period, the city has been a destination frequented by traders due to its role as a spice trade route on Java Island. Mass tourism then flourished towards the end of the Middle Ages, especially through the concept of the Grand Tour which was originally an educational trip for the elite [26]. Significant changes occurred in the early 19th century, triggered by political, social, and technological changes [27]. Historically, tourist visits have been influenced by the natural setting of the destination [28, 29], with the main impetus being to experience different cultures and heritages [30]. The main attraction for tourists is the opportunity to travel back in time and explore a vanished world [31]. Heritage tourism provides a platform for travellers to re-imagine history in the context of the present, creating an infinite space and time where experiences of the past can be gained through diverse interpretations [32]. History, the experience offered, and religious motivation are the main factors in attracting tourists to visit heritage sites [33, 34].

Lasem's potential to attract tourists cannot be doubted. With its attractions that include stunning nature, rich cultural heritage, diverse social activities, and various man-made attractions, Lasem is a promising destination for travellers. Anticipating the growing tourism potential, the government and local organisations in Lasem have taken various strategic steps. The Lasem Heritage Foundation, for example, has been instrumental in managing cultural tourism by adopting digital storytelling technologies and encouraging sustainable practices [35, 36]. In addition, the use of effective signage has also become an important part of the visual aesthetics of Lasem Batik Tourism Village, providing clear directions for visitors to explore the rich culture of Lasem [37].

As tourism expands, Lasem also undergoes a transformation in its urban morphology. This research examines the complex relationship between tourism and the physical form of historic towns. A literature review of previous studies that examined the influence of tourism on the morphology of historic towns in other places provides valuable insights into the changes that occurred in Lasem.

2.2 Morphological approach

It is necessary to understand the unique characteristics of a city to explore its evolution through a morphological review [38]. Urban morphology focuses on the formation and metamorphosis of urban form throughout its history [39], influenced by local sites and cultures [40]. Analyses of morphological transformations are conducted with various approaches, including the Conzenian school, lot shape typology, and space syntax theory [41], covering street patterns, land use, and building architectural styles [42].

Urban morphology involves buildings, open spaces and street networks. The history of a city forms the basis of a morphological overview as its evolution shapes its unique characteristics. Human activities, such as indoor-outdoor movements, contribute to the interconnected structure of roads, land and buildings [43, 44]. An integrated approach to morphological analysis is important to interpret the evolution

of the city's physical form and support its preservation, as well as the basis for education in metropolitan architecture and design.

The morphological approach is applied in many studies to understand the urban environment and its characteristics [45, 46]. It is useful for evaluating urban vitality in informal settlements, identifying areas that require improvement, and contributing to urban preservation and management by balancing historicity and sustainability.

The exploration of urban morphology facilitates the understanding of the evolution and characteristics of urban form in various cultural contexts. It also investigates the materiality of urban areas and their relationship with informal settlements. The integration of various morphological approaches deepens the understanding of urban form [47-50], and provides valuable insights for metropolitan planning and management [49]. Tourism activities, including attractions, facilities, accessibility and ancillary services [51], have a significant impact on the morphology of small coastal towns such as Lasem. The evolution of spatial structures in tourism destinations is influenced by factors such as natural elements, government intervention, community participation, and the types of activities allocated to the area [52, 53]. This article investigates the origins of tourism in Lasem to identify urban planning changes resulting from tourism activities. The next section outlines the research methodology adopted in the primary research to achieve its objectives.

3. RESEARCH METHODOLOGY

3.1 Study area

Indonesia was characterized as an equatorial archipelago boasting a wealth of historical relics, ancient art, and diverse culture [54]. Lasem, located on the north coast of Central Java, was once a modern city that transformed (Figure 1).



Figure 1. Lasem's position on the map of Indonesia

Initially, Lasem held the status of a historical city before transitioning into a historic tourism destination. The historical narrative of Lasem extended from the Hindu-Majapahit era to the post-independence period. Tourism in Lasem started evolving in 2012, with Rembang district culture and travel office data showing that, from 2016, 3,430 archipelago explorers visited the Lasem old town or Chinatown. In 2019, the peak visitation reached 72,9134 tourists, but due to the COVID-19 pandemic, the number sharply declined to 1,909 in

2020. The evolution of tourism in Lasem had a significant impact on the development of the city.

3.2 Research design

A qualitative approach was used in this study to identify multiple influences and compare events, aiming to spot unusual patterns and themes across events. This is important because quantitative measures may not fully capture the changes that occur in urban morphology.

This research uses the case study method as written by Yin Robert [55]. Case studies are considered the most appropriate because of the research questions that use how and why, research gaps that tend to be abductive, researcher control over the object under study and the general state of the morphology of historic tourist cities that are more suitable for the case study method. The design of the case study method in this research is a single case design with a single unit of analysis, namely Lasem.

Primary data traced physical conditions or phenomena, particularly architectural morphological changes observed in road patterns, land parcels, and buildings. Non-physical phenomena are obtained from interviews with visitors, innkeepers, managers, and others. Interviews with sources or informants aim to obtain data related to tourist movement patterns in the observation unit. Secondary data is obtained through literature or document review, including scientific articles, books, and old maps relevant to the focus of observation.

The steps taken to address the research question "How did tourism affect urban morphology in Lasem" were as follows:

- (1) Identified the city morphology in each era of Lasem City development based on morphological components.
- (2) Identified tourism in each era of Lasem City development based on tourism components.
- (3) Examined the influence of tourism on the morphology of Lasem City.
- (4) Analyzed the results regarding the influence of tourism on the morphology of Lasem City.
- (5) Explored the factors influencing tourism's impact on the morphology of Lasem City.

3.3 Data analysis

In analysing the data, old sketches and maps were used, namely Pratiwo's sketches and surviving Dutch maps of 1865, 1905, and 1913-1917. Then the maps were examined for changes in street patterns, parcel layouts, and building configurations observed on the old and current condition maps. To visualise these changes, the maps were overlaid, so that a comparison could be made of the differences in each period. After getting the identification of changes, it is then associated with tourism activities. Then it is seen whether there is an influence on changes in urban morphology related to tourism development. Further analyses were conducted to ascertain the influencing factors that contributed to these changes. The results are then compared with the theories discussed in the literature review, and linked to the research objectives.

4. STUDY RESULTS

The evolution of cities in Java had a significant impact on

the development of coastal cities along the north coast of Java, including the coastal city of Lasem. To delineate the morphology of Lasem's coastal city, a timeline was established, drawing from the classification of Java's city

development [56, 57]. This timeline was adapted from the seven periods that mark the development of Lasem City based on its historical formation, as depicted in Figure 2.

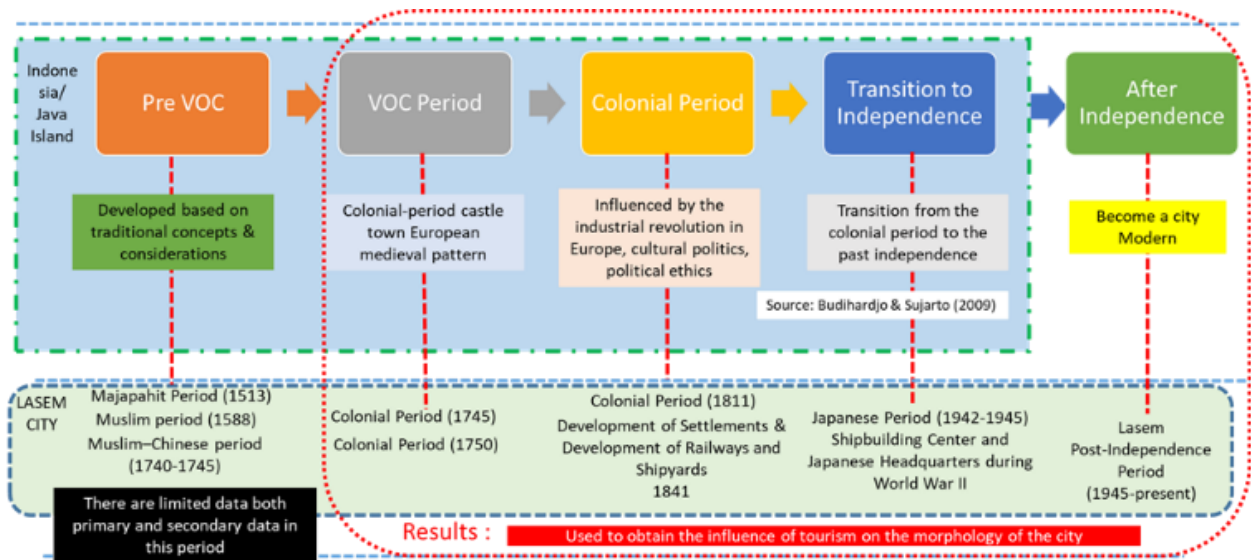


Figure 2. Timeline of the development of the coastal city of Lasem

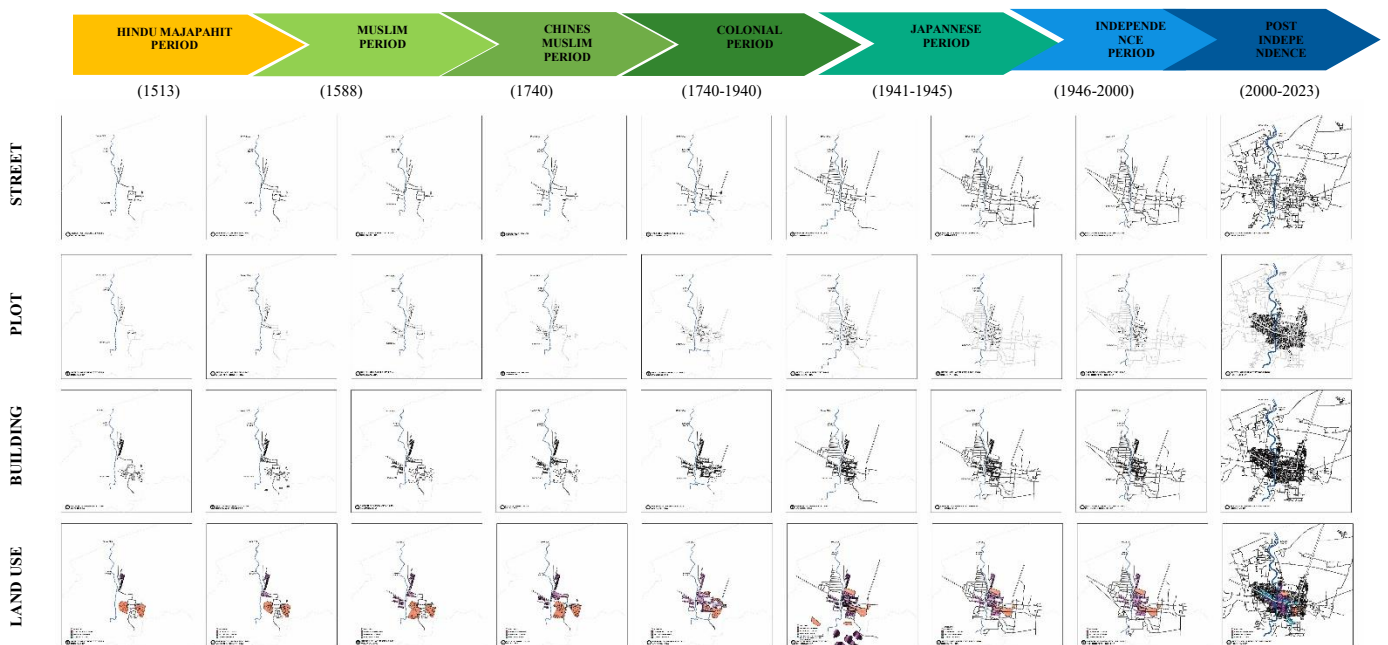


Figure 3. Morphological development of the coastal city of Lasem

4.1 Identification of Lasem City morphology

The search results showed that the morphological development of the Lasem small town could be observed from the Hindu-Majapahit period to the present through changes in roads, plots, and buildings or their spatial functions, as shown in Figure 3. This comprehensive analysis sheds light on the dynamic evolution of the town's physical features [58].

4.2 Identification of Lasem City tourism

4.2.1 Hindu-majapahit period tourism (1513)

In the Hindu-Majapahit period, Lasem has several historical relics that attract tourists, including Samodrawela Temple,

Malad Temple, Pasraman Pamulang, Regol Harbour, Kadipaten Binangun Lasem, the Tomb of Princess Campa Bi Nang Ti, and the Tomb of Dhampoawang Pr. Santipuspo. Facilities included the harbours of Bandar Regol and Kairingan for large ships, and two shipyards in Dasun and Bancar as the main access points to Lasem City.

Early identification of the morphology of this period suggests that Lasem was a vassal kingdom of Majapahit with few access road patterns. Chinese settlements developed in Dasun village near the Lasem river, while the centre of government was south of the square. Literature studies and interviews with historians did not yield valid data on tourism in Lasem during this period, making it difficult to identify the beginnings of tourism in Lasem.

Based on field data, only a few sites are intact and are now visited by special-interest tourists, with no information about past visits. Thus, it can be concluded that accessibility and attractions have emerged as the embryo of tourism in Lasem.

4.2.2 Muslim period tourism (1588)

In the Muslim period, Lasem has important relics such as the tomb of Adipati Tejakusumo I and the Jami' Lasem Mosque, as well as an ancient Chinese building in Gang III no. 3, Babagan village, which dates back to 1678. Despite this cultural wealth, the city's accessibility from the outside remained dependent on the harbour.

Morphological developments in this period include the beginning of the road pattern branching out from Dasun, the forerunner of Soditan village, as well as the establishment of the first temple of Cu An Kiong. Chinese settlements continued to develop along the Lasem River, following the customs of their ancestors. Despite the development of the city during the Muslim period, no authentic evidence and documentation has been found to support the existence of tourism activities during this time.

4.2.3 Tourism Muslim-Chinese period (1740)

In the Muslim-Chinese period, Lasem experienced significant development with the construction of ancient Indis-style buildings on Jalan Raya Lasem numbers 130 and 132 in 1718. The establishment of Batik Tulis Maranatha in 1722 also added to the cultural richness that still survives today. In addition, Cu An Kiong Temple, the first temple in Soditan-Lasem, was built, followed by Po An Bio Temple in Karangturi, and finally Yong Gie Bio Temple in Babagan village. During this period, architectural remains in Lasem include temples, large Chinese settlements with original ancient walls, as well as important sites such as batik houses and opium houses. The opium house is known for its widespread smuggling activities in Lasem at the time.

The beginning of tourism is thought to have started in the Muslim-Chinese period, where important figures in the kingdom or government were still honoured or visited at their resting places. An example is Prince Muhammad Syihabudin Sambu Digdaningrat, or Mbah Sambu, who was the son-in-law of Prince Bagus Srimpet or Tejakusuma I. He was born in 1585 and died in 1632, and his grave is known as Mbah Sambu. Born in 1585 and died in 1632, his tomb is located in the courtyard of the Jami' Mosque in Lasem next to the tomb of Mbah Srimpet, believed to be frequented by locals and outsiders alike. Accommodation was not common in this period, as visitors were mostly locals or outsiders who could reach Lasem without the need to stay overnight. In conclusion, the beginning of tourism in Lasem appeared during the Muslim-Chinese period with the presence of Mbah Sambu's tomb as a respected community figure. The initial form of tourism was pilgrimage tourism, which was driven by the desire to visit the graves of ancestors or respected figures such as leaders or scholars.

The identifiable morphology of this period includes the development of roads to the west and the road network to the south. However, there was no connecting road from the square to the west, hindering traffic. The expansion of the Chinese settlement (building mass order) followed the road pattern from the west to the Babagan area. Based on the map and historical data, it can be concluded that the morphological changes of the city have not been influenced by tourism in this period.

4.2.4 Colonial period tourism (1745-1941)

The colonial period marked a significant mark on Lasem's historical heritage. In 1811, the Dutch built roads, including Jalan Daendels or Jalan Raya Lasem, to improve connectivity between cities and facilitate land transport. This road, which connected Anyer to Panarukan, became an important infrastructure during the colonial period. From 1900 to 1940, many historic buildings were developed, and the Lasem railway station in the Dorokandang area opened in 1912 but ceased operations in 1989.

Tourism persisted during the colonial era, characterised by the existence of a Chinese community lodging building believed to be a lodging facility for Chinese visitors exploring Lasem. This building has now been converted into the Al-Hidayat Asy-Syakiriyah Islamic Boarding School founded by KH Ma'shoem Ahmad in 1916. Moreover, the peak of the batik business in Lasem occurred in 1860, suggesting that apart from being a merchandise, batik may have been used as a souvenir or gift for visitors. Lasem batik even became famous and appeared on the front cover of the book 'Kartini: The Complete Writing 1898-1904' [59].

In the Dasun area, in addition to batik production, shipbuilding using teak wood was also an important activity. In 1808, around 8,800 teak trees were cut down in Rembang, with 3,000 coming from the forest [60]. A Dutch shipyard owner, P. Berendsen, took advantage of this opportunity to set up business in the Dutch East Indies, specifically in Dasun Lasem. Although his three sons and their wives lived in the Netherlands, they periodically visited Dasun Lasem to maintain links with their family's shipyard business in the region [61].



Figure 4. Activities of Dutch people who are thought to be traveling in the shipyard area

Source: KITLV Leiden register number 117277

Tourism in Lasem during the colonial period was characterised by the presence of Dutch individuals involved in various businesses, including shipyards, a thriving batik industry and the establishment of Islamic boarding schools. Initially rooted in pilgrimage tourism, it later developed into family visits, such as the family of the NISEK shipyard owner, P. Berendsen (see Figure 4). The main motivation for tourism in this period was to visit family or relatives, attracting travellers from Lasem, other regions, and even from abroad, particularly the Netherlands.

The colonial era brought significant morphological changes to the city, with the construction of Jalan Raya Daendels or Jalan Jati Rogo by the Dutch. This road connected Lasem with the surrounding cities due to the silting of the Lasem River, forming a linear pattern in the main road network. Building orientation follows this road pattern, shifting away from the river. Land use and spatial functions along the main road

changed from residential to commercial areas, with Chinese houses dominating the position of Jalan Daendels. The Dutch deliberately divided the square during the construction of Daendelsstraat, which eventually disappeared and turned into markets and shops.

4.2.5 Japanese period tourism (1942-1945)

During the short Japanese occupation from 1942 to 1945, Lasem City served as a shipbuilding centre and Japanese headquarters during World War II. The morphology of Lasem City during the Japanese period experienced minimal changes, both in street patterns and building orientation. Minor changes in land use occurred, switching from residential to shipbuilding sites and Japanese headquarters due to the impact of World War II. Despite these changes, the city remained accessible by water and land, although river routes silted up and were gradually abandoned. The lack of waterway access and changing transport patterns during World War II meant that Lasem did not experience significant tourism activity during this particularly turbulent period.

4.2.6 Independence period tourism (1946-2000)

In the post-independence period, Lasem's morphological changes became apparent with the expansion of main roads. The structure of the road pattern in Lasem consists of primary (main), secondary (supporting) and tertiary (additional) roads, which include highways, Dasun Street or Jatirogo Street, and Karangturi Alley [62]. Initially, Lasem had two settlement structures: Jalan Jatirogo, which connected the Regent's House and the square with settlements in the interior of Central Java, and the river and dock area where the Chinese settlement was established.

Tourism activities that developed during this era included religious events such as Haul Mbah Sambu, Chinese New Year celebrations, Pe-Cun parties, prayers and ancestor gatherings. Jalan Raya Lasem became the main route for the procession of decorated vehicles in this procession, known as 'tongue' or Zhuang-yi in Mandarin [63].

In the post-independence period, the only infrastructure leading to Lasem was by road, with an intercity bus station near Lasem market, while the railway station had long since ceased operations. This made Lasem increasingly difficult to access by public transport. In 1980, accommodation options included Hotel Gajah, Hotel Surya and Hotel Wijaya (now closed).

Tourism activity during this period is believed to have taken the form of religious attractions, including visits to places of worship and relatives. Existing tourism types consisted of pilgrimage tourism and cultural tourism, driven by the desire to visit the graves of respected ancestors, seek entertainment, and others. Visitors or tourists mainly come from the local community around Lasem, with some coming from outside the city.

4.2.7 Tourism after independence (2000-2023)

After the 2000s, Lasem's development underwent little significant change in the pattern of roads, land and buildings, maintaining the legacy of the previous period. The existing street layout features old buildings transformed into cultural heritage structures worthy of preservation. However, Lasem has developed into a unique tourist destination with various attractions such as ancient Chinese settlements, places of worship (mosques and temples), tombs, Lasem Festival activities, and Lasem River Tourism, which attract visitors

from within and outside the city.

Tourism growth in Lasem faced challenges due to inadequate transport links. The terminal only serves inner-city vehicles, and Lasem railway station ceased operations in 1989. Interviews with local tour guides indicate that historical tourism began in 2012, attracting foreign tourists interested in observing batik activities and visiting the preserved ancient temple. In 2013, tours such as the Lasem Heritage Trail were introduced, fuelling the development of backpacker accommodation. In 2015, homestays were added, followed by river trekking tours in 2016, which increased the number of visitors and the need for additional accommodation.

In 2019, accommodation options have expanded, including batik houses as the main souvenir provider. However, tourism development suffered a setback from 2019 to 2021 due to the global COVID-19 pandemic [53], resulting in economic challenges and unfavourable conditions for the tourism sector in Indonesia, including Lasem. In 2020, during the pandemic, tourism adapted to virtual platforms, offering online tours with themes such as Batik Tiga Negeri and virtual walks in Penawar Rindu.

5. DISSCUSSION

5.1 The influence of tourism on the morphology of Lasem City

According to The World Tourism Organization (UNWTO), tourism is a social, cultural and economic phenomenon that involves the movement of people to countries or places outside their usual environment for personal, business or professional purposes. Therefore, it can be said that during the Majapahit Hindu period, the embryo of tourism began to emerge in Lasem. This is in line with the view that the origins of tourism in history can be traced back to ancient times, with journeys made for trade, knowledge, culture and health. In Lasem, during the Hindu Majapahit period, trade activities became the main focus that attracted several visits from outside. Tourism in Lasem then continued during the Chinese-Muslim period. Based on previous data and interpretations, it is likely that tourism during this period was related to religious activities, such as visiting the graves of important figures from that era.

During the Chinese-Muslim period, the colonial era, the Japanese occupation and the post-independence period, the development of Lasem City appears to be planned, in accordance with Kostof's concept of urban history typology [64]. The pattern of city formation on the North coast of Java, especially in Lasem, shows a grid pattern, especially during the colonial period. However, changes in the pattern of roads, plots and buildings during this period do not show changes caused by tourism activities. Perspective on urban development factors that include human factors, activities and movement patterns [64], it can be concluded that tourism did not affect the morphology of Lasem City until the post-independence period.

Figure 5 shows the commencement and progression of tourism in Lasem. No data about tourism activities were identified from the Hindu-Majapahit to the Muslim period. However, during the Muslim-Chinese and colonial periods, it is speculated that tourism activities evolved, primarily in the form of religious and nature tourism. The presence of a sizable port facilitated visits from abroad, trade activities, and possible tourism engagement. The Dutch-established overland route further increased land visits from outside Lasem. There were

no tourist activities during the Japanese period, but in the post-independence era, activities began to surface, including attractions from religious events such as the hauls of Muslim figures and significant Chinese celebrations. The rich culture developed by both Muslim and Chinese communities remains essential and well-preserved in Lasem, contributing to the unique inter-religious harmony observed in the town.

The development of tourism in Lasem gained momentum in the post-independence period, approximately from 2000 to

2023. This is substantiated by the establishment of essential tourism infrastructure, including accommodations (hotels, homestays, guesthouses), restaurants, and souvenirs (see Figure 5). Classifications of tourism objects into three categories, namely natural, cultural, and special interest attractions [65]. The tourism categories that have developed in Lasem include pilgrimage (Figure 6A), nature (Figure 6B) [66], as well as cultural and Chinese heritage tourism (Figure 6C).

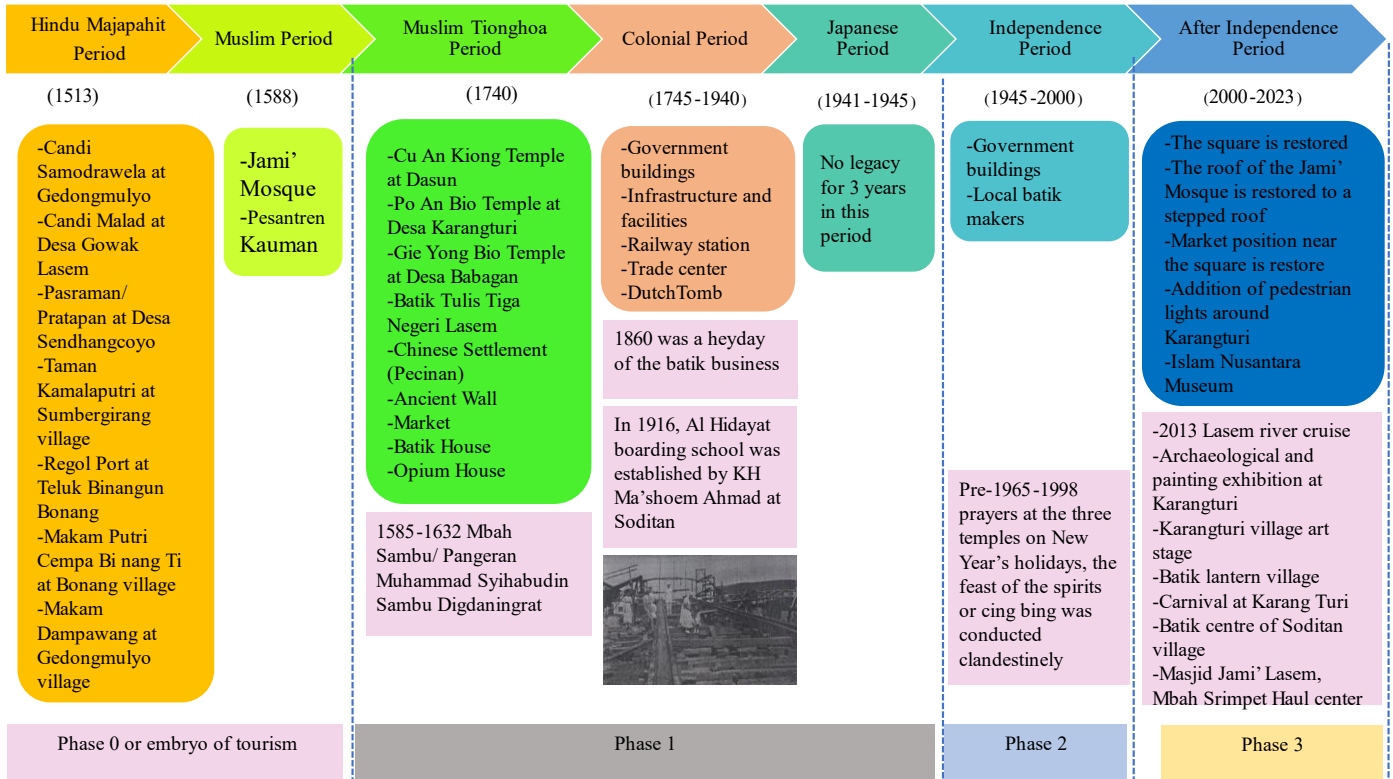


Figure 5. The beginning of tourism in the morphological periodization of Lasem City



Figure 6. The beginning of tourism in the morphological periodization of Lasem City

The establishment of sites to accommodate tourism facilities has prompted a shift in land use within Lasem's urban structure. Previously designated as residential areas, these lands have now transformed, assuming the function of tourist zones. This transition was catalyzed by economic circumstances, namely the closure of the port and the cessation of the trade route with the rest of the world. Consequently, the local economy experienced a decline, leading to the abandonment of Lasem by the descendants of the once-affluent Chinese community, who were the prominent commercial elite with sizable residences in the town.

5.2 Factors affecting morphological change due to tourism

During the Hindu-Majapahit and Muslim periods, no data on tourism existed, showing the absence of factors that could initiate morphological changes. From the Chinese-Muslim period to the Japanese era, recorded tourism activities did not visibly impact the town's morphology, as road patterns, plot structures, and building configurations remained unaffected by tourism's presence. Town alterations were primarily driven by commercial interests and local government influence. In the independence period, tourism surfaced through attractions rooted in local cultures and the continuing presence of Chinese residents in Lasem. Although tourism activities evolved during this era, the event did not lead to significant morphological changes in the town. It was only in the post-independence period, around 2000, that tourism truly started to flourish in Lasem. Land use slowly transformed with the introduction of exploration activities such as nature, culture, and special interest tourism. Accommodation and food became essential for visitors, necessitating changes in land use and impacting the town's morphology. Factors influencing the town's initial formation include natural aspects, such as water access and the presence of a large port, fostering extensive trade routes from abroad over centuries. Significant cultural factors include the influence of Chinese migrants, contributing to elite settlements. Tourism-driven economic factors played a crucial role in influencing land use and the town morphology [67].

6. CONCLUSIONS

In conclusion, Lasem, a small trading town on the north coast of Central Java, Indonesia, experienced significant development as a historical tourist destination. The analysis further explored the influence of tourism on the morphological development of Lasem, showing that it had no impact on the streets, plots, land use, and buildings until the pre-independence period. The inception of tourism development occurred in the 2000s after Indonesian independence, primarily influencing land use in urban planning. Tourism categories that evolved in Lasem included pilgrimage, nature, and Chinese heritage. Various factors contributed to the city's morphological development, including natural elements such as water access, leading to the establishment of a large port on Lasem's coast and extensive trade routes from abroad. The presence of Chinese culture, introduced by settlers who founded elite settlements, was also a significant cultural factor. Economic elements, particularly those related to tourism, played a crucial role in driving changes in land use.

In terms of urban development, tourism played an essential role in shaping Lasem's morphological evolution from 2000 to

2023, impacting the natural, cultural, and economic dimensions. This study contributes to a comprehensive understanding of the historical development of the city, which shows tourism as a major force in its transformation. Further development should therefore focus on the integration of tourism in urban plans that consider environmental sustainability and the needs of local communities. This could include the construction of environmentally friendly tourist facilities, as well as the provision of supporting infrastructure such as access roads, accommodation and public facilities.

Subsequently, Lasem has a significant wealth of Chinese culture, introduced by settlers who established elite settlements. Efforts to empower local communities through training and participation in cultural tourism activities can help preserve and promote such cultural heritage. It can also improve the economic welfare of the local community. Developing tourism attractions that highlight Lasem's cultural heritage, such as cultural festivals, art exhibitions and historical tours, can attract more tourists. Collaboration with local historians, artists and culturists will ensure that tourist content remains authentic and educational.

Further research is needed to explore how future tourism trends may continue to influence the morphological development of other cities in Indonesia, as well as to identify best practices in managing these changes. By implementing these recommendations, Lasem can optimise its potential as a historic tourism destination while maintaining environmental sustainability and a rich cultural heritage. The results of this research are not only relevant for Lasem, but also provide valuable guidance for the planning and management of other historic cities in Indonesia.

ACKNOWLEDGMENT

This journal article was written by Mutiawati Mandaka, Wiendu Nuryanti, and Dyah Titisari Widyastuti from the Doctoral Programme in Architecture, Department of Architecture and Planning, Faculty of Engineering, based on research on the Morphology of the Historic Tourism City of Lasem, Central Java, Indonesia, funded by the Directorate of Research of Universitas Gadjah Mada through the 2024 Final Project Recognition Programme (Grant No.: 4971/UN1.P1/PT.01.01/2024). The contents are the sole responsibility of the author.

REFERENCES

- [1] Yasmira, A. (2019). Amorphological analysis of Bandung city space case study: Cipaganti residential area - north Bandung. *Arsitekno*, 3(3): 11-18. <https://doi.org/10.29103/arj.v3i3.1212>
- [2] Falah, M. (2018). Morphology of Bandung city in the XX century: Historical perspective. *Metahumaniora*, 8(3): 335-350. <https://doi.org/10.24198/mh.v8i3.20712>
- [3] Falah, M., Lubis, N.H., Sofianto, K. (2017). Cities Morfologi in east Priangan of the 20th and 21st century: A case study of Garut, Ciamis and Tasikmalaya. *Patanjala*, 9(1): 1-14. <http://doi.org/10.30959/patanjala.v9i1.342>
- [4] Wulandari, S., Pradoto, W. (2018). Changes of spatial morphology in segment I SIS Al-Jufri corridor, Palu city and the contributing factor of the changes. *Jurnal*

- Pembangunan Wilayah dan Kota, 14(2): 131-142. <https://doi.org/10.14710/pwk.v14i2.17640>
- [5] Lake, R.C., Mberu, Y.B., Diaz, A. (2019). Elemen-elemen pembentuk sistem kota-lama kupang. *Jurnal Arsitektur Komposisi*, 12(3): 257-269.
- [6] Lamahoda, R.A., Setiadi, A., Lake, R.C., Samara, R. (2020). Morphological development of the Kupang old town area. *EMARA Indonesian Journal of Architecture*, 6(2): 77-90. <https://doi.org/10.29080/eija.v6i2.1010>
- [7] Litolily, M.K. (2019). Engineering approach to biofeedback: evolution of equipment and engineering models. *Jurnal Arsitektur Komposisi*, 12(3): 211-224. https://doi.org/10.20595/jjbf.19.0_3
- [8] Romdhoni, M.F. (2020). Analysis of city density, movement and city growth concentration of Palembang city morphology, Indonesia. *Arsir*, 4(2): 25-38. <https://doi.org/10.32502/arsir.v4i2.2771>
- [9] Aulia, A., Akmal, M.F., Hisyam, V.R., Purwantiasning, A.W. (2021). Morphological analysis of the old city of Jakarta using a Conzenian school approach. *Vitruvian Jurnal Arsitektur Bangunan Dan Lingkungan*, 11(1): 53. <https://doi.org/10.22441/vitruvian.2021.v1i1.006>
- [10] Afrianto, F., Hariyanto, A.D. (2022). Clustering and visualization of city shapes in east Java. *Jurnal Plano Buana*, 2(2): 57-67. <https://doi.org/10.36456/jpb.v2i2.5303>
- [11] Tallo, A.J., Pratiwi, Y., Astutik, I. (2014). Identification of urban morphology pattern: The case of Klojen District, Malang City. *Jurnal Perencanaan Wilayah dan Kota*, 25(3): 213-227. <https://doi.org/10.5614/jpwk.2015.25.3.3>
- [12] Wijayaputri, C., Arif, K.A., Siregar, S.A. (2014). Konsep gagasan adaptasi kota sabang sebagai lingkungan binaan. *Research Report-Engineering Science*, 1.
- [13] Hendro, E.P. (2014). Perkembangan morfologi kota Cirebon dari masa kerajaan hingga akhir masa kolonial. *Paramita: Historical Studies Journal*, 24(1): 17-30.
- [14] Yulfa, A., Syahar, F. (2012). Analisis kecendrungan spasial (spatial tendency analysis) kota padang melalui pendekatan kenampakan fisik morfologi. Sebagai Basis Data Dalam Pengambilan Kebijakan Keruangan, 4(1): 67-79.
- [15] Pratama, I.P.P.A., Ariastita, P.G. (2016). Factors influence the size of urban compactness in Denpasar city, Bali. *Jurnal Teknik ITS*, 5(1): 1-6. <https://doi.org/10.12962/j23373539.v5i1.11095>
- [16] Djumiko, D. (2016). Morfologi batas kota surakarta kasus: Batas kota surakarta, sukoharjo dan Karanganyar. *Jurnal Teknik Sipil dan Arsitektur*, 18(22).
- [17] Mataufani, N.A., Rahayu, P., Rini, E.F. (2020). Physical appearance of the city and Peri urban area of Surakarta. *Desa-Kota*, 2(2): 130. <https://doi.org/10.20961/desa-kota.v2i2.41509.130-142>
- [18] Utama, P.G., Nurini, N. (2016). The impact of commercial activity for Chinatown area's morphology in Semarang. *Ruang*, 2(4): 233-242. <https://doi.org/10.14710/ruang.2.4.233-242>
- [19] Kusliansjah, K. (2012). Jalan dan sungai, kanal sebagai elemen pembentuk struktur kota sungai banjarmasin kalimantan selatan. *Research Report-Engineering Science*, 1: 50-77.
- [20] Mansyur, S. (2017). Colonial period on coastal of east seram island (Maluku): Early contact until the establishment of morphology of Bula city. *WALENNAE: Jurnal Arkeologi Sulawesi Selatan Dan Tenggara*, 15(1): 59-74. <https://doi.org/10.24832/wln.v15i1.1>
- [21] Rush, J.R. (2007). *Opium to Java: Revenue Farming and Chinese Enterprise in Colonial Indonesia, 1860-1910*. Equinox Publishing.
- [22] Mandaka, M., Nuryanti, W., Titisari, D. (2022). Exploring the potential tourism objects in the small city of heritage Lasem. *Journal of Humanities and Social Sciences Studies*, 4(4): 36-47. <https://doi.org/10.32996/jhsss.2022.4.4.7>
- [23] T. Tessa, Eka, Darmayanti, T. (2022). 'Reading' Lasem heritage buildings as marketing strategy for the cultural tourism sustainability: A Phenomenological. *International Conference on Business Economics, Social Sciences & Humanities*, 3: 617-622. <https://doi.org/10.34010/icobest.v3i.193>
- [24] Lohjiwa, V., Taufik, A., Gyshovadhira, R., Irliana, S.H., Supriyadi, M.A. (2021). The experiential tourism: Dari bangunan bersejarah hingga aktivitas wisata di kawasan pecinan Lasem. *Barista: Jurnal Kajian Bahasa dan Pariwisata*, 8(1): 20-35.
- [25] Crous-Costa, N., Vidal-Casellas, D., Morere-Molinero, N. (2023). A chronological exploration of key influences on the development of tourism. In *Tourism: A temporal analysis*. <http://doi.org/10.23912/9781911635840-5449>
- [26] Stephen, J.P., Joanne, C. (2020). *The evolution and development of tourism*. In *Tourism*. Routledge.
- [27] Zuelow, E. (2015). *A History of Modern Tourism*. Bloomsbury Publishing.
- [28] Padma, P., Ramakrishna, S., Rasoolimanesh, S.M. (2022). Nature-based solutions in tourism: A review of the literature and conceptualization. *Journal of Hospitality & Tourism Research*, 46(3): 442-466. <https://doi.org/10.1177/1096348019890052>
- [29] Fraga, V. (2014). Tourist destination Azores: Perspectives and strategies to overcome less favourable conditions. *Worldwide Hospitality and Tourism Themes*, 6(5): 458-465. <https://doi.org/10.1108/WHATT-09-2014-0029>
- [30] Kennedy, D. (1998). Shakespeare and cultural tourism. *Theatre Journal*, 50(2): 175-188. <https://doi.org/10.1353/TJ.1998.0044>
- [31] Metin, K. (2013). *Aspects of Tourist Behavior*. Cambridge Scholars Publishing.
- [32] Nuryanti, W. (1996). Heritage and postmodern tourism. *Annals of Tourism Research*, 23(2): 249-260. [https://doi.org/10.1016/0160-7383\(95\)00062-3](https://doi.org/10.1016/0160-7383(95)00062-3)
- [33] Braun-LaTour, K.A., Grinley, M.J., Loftus, E.F. (2006). Tourist memory distortion. *Journal of Travel Research*, 44(4): 360-367. <https://doi.org/10.1177/0047287506286721>
- [34] Olsen, D.H., Munro, D., McIntosh, I.S. (2022). *New Pilgrimage Routes and Trails*. Peter Lang Ltd, International Academic Publishers.
- [35] Cahyani, I.P., Mardani, P.B., Widianingsih, Y. (2023). Digital storytelling in cultural tourism: A sustainable communication approach at the Lasem heritage foundation. *International Journal of Management, Entrepreneurship, Social Science and Humanities*, 6(1): 45-69. <https://doi.org/10.31098/ijmesh.v6i1.1348>
- [36] Haage, G.Y. (2023). Creating a stakeholder table, identifying hidden stakeholders, and exploring relational interventions for the Bayano region of Panama.

- Challenges in Sustainability, 11(1): 34-45. <https://doi.org/10.12924/cis2023.11010034>
- [37] Mandaka, M. (2019). Analysis of the existence of signage in batik Lasem tourism village. *Journal of Architectural Research and Education*, 1(2): 75. <https://doi.org/10.17509/JARE.V1I2.22296>
- [38] Jahn Kassim, S., Kamaruddin, K. (2023). Eco-inflections of the 'Mandalic' city-form: Morphologies of the pre-colonial urban cores. In *Eco-Urbanism and the South East Asian City: Climate, Urban-Architectural Form and Heritage*, pp. 3-27. https://doi.org/10.1007/978-981-19-1637-3_1
- [39] Al-Saaidy, H.J.E. (2020). Urban morphological studies (concepts, techniques, and methods). *Journal of Engineering*, 26(8): 100-111. <https://doi.org/10.31026/J.ENG.2020.08.08>
- [40] Ahmadi, V., Farkisch, H., Irfan, A., Surat, M., Zain, M.F.M. (2009). A theoretical base for urban morphology: Practical way to achieve the city character. *Journal of Social Sciences and Humanities*, 4(1): 30-39.
- [41] Mohamed, S.A., Harun, N.Z., Abdullah, A. (2018). Urban morphological analysis framework for conservation planning and management. *Planning Malaysia*, 16(1): 360-371.
- [42] Smailes. (1955). *Dalam Buku Struktur Tata Ruang Kota*. Pustaka Pelajar. Yogyakarta.
- [43] Moudon, A.V. (1997). Urban morphology as an emerging interdisciplinary field. *Urban Morphology*, 1(1): 3-10.
- [44] Sima, Y., Zhang, D. (2009). Comparative precedents on the study of urban morphology. In *Proceedings of the 7th International Space Syntax Symposium*, Stockholm: KTH, pp. 1-8.
- [45] Conzen, M. (1958). *The growth and character of Whitby*. In *a Survey of Whitby and Surrounding Area*. Eton: Shakespeare Head Press.
- [46] Whitehand, J.W.R. (1977). The basis for an historical-geographical theory of urban form. *Transactions of the Institute of British Geographers*, 400-416.
- [47] Guo, F., Schlink, U., Wu, W., Mohamdeen, A. (2022). Differences in urban morphology between 77 cities in China and Europe. *Remote Sensing*, 14(21): 5462-5462. <https://doi.org/10.3390/rs14215462>
- [48] Busheneva, Y.I. (2022). Disciplinary image of city morphology in urban planning. *Visnik Nacional'nogo uniVersitetu "L'vivs'ka poliTechnika,"* 4(1): 83-94. <https://doi.org/10.23939/sa2022.01.083>
- [49] Oliveira, V. (2019). Urban forms, agents, and processes of change. *The Mathematics of Urban Morphology*, 529-535. https://doi.org/10.1007/978-3-030-12381-9_28
- [50] Idak, Y. (2019). Interdisciplinary approaches to the study of morphology: Theoretical and methodological aspects. *Introduction to city morphology*. *Przestrzeń i Forma*, (38): 163-174. <https://doi.org/10.21005/PIF.2019.38.C-03>
- [51] Cooper. (1995). *Tourism Principles and Practice*. England: Longman Group Limited.
- [52] Ma, H., Xi, J., Wang, Q., Liu, J., Gong, Z. (2020). Spatial complex morphological evolution and influencing factors for mountain and seaside resort tourism destinations. *Complexity*, 2020: 4137145. <https://doi.org/10.1155/2020/4137145>
- [53] Ghafourian, S., Sadeghzadeh, M. (2022). Coastal tourism planning using GIS-based system: the case of Shirud coast, Caspian Sea, Mazandaran, Iran. *GeoJournal*, 87(4): 3231-3248. <https://doi.org/10.1007/S10708-021-10424-3>
- [54] Nuryanti, W. (2023). The role of tourism within the opportunities and challenges of the world heritage cities. *HERITOPOLIS*. <https://heritopolis.org/coming-events/?mod=document&uid=37>.
- [55] Yin Robert, K. (2017). *Case Study Research and Applications: Design and Methods*. Sage Publication, Inc.
- [56] Budihardjo Sujarto. (2009). *Kota Berkelanjutan*. Bandung: PT Alumni.
- [57] B. . Sinulingga, *Pembangunan Kota: Tinjauan Regional dan Lokal*. Jakarta: Pustaka Sinar Harapan, 2005.
- [58] Liputan 6. (2021). 6 Fakta tentang Lasem, Tionggok kecil di Jawa Tengah. <https://www.liputan6.com/lifestyle/read/4486783/6-fakta-tentang-lasem-tionggok-kecil-di-jawa-tengah/>, accessed on Jul. 1, 2023.
- [59] Coté, J. (2021). *Kartini: The Complete Writings 1898-1904*. Monash University.
- [60] Kusumo, R. (2023). Menelusik sisa galangan kapal terbaik kala zaman majapahit dan rembang, 2022. <https://www.goodnewsfromindonesia.id/2022/12/28/menelusik-sisa-galangan-kapal-terbaik-kala-zaman-majapahit-dari-kota-rembang/>, accessed on Jul. 1, 2023.
- [61] Setyonugroho, E.A. (2022). *Dasun Jejak Langkah dan Visi Kemajuannya*. Lintas Nalar.
- [62] Pratiwo, Nazir, S.M. (2010). *Arsitektur Tradisional Tionghoa dan Perkembangan Kota*. Yogyakarta: Ombak.
- [63] Handinoto, Lasem: Kota tua bernuansa Cina di Jawa Tengah. Yogyakarta: Ombak, 2015.
- [64] Salat, S. (2012). Resilient and efficient synergy communities (A morphological, structural and approach to energy efficiency). Chinese: CSTB.
- [65] Sujarto, D. (1989). *Faktor-Faktor Perkembangan Kota Perencanaan Pembangunan Kota*. Bandung: Departemen Planologi Fakultas Teknik Sipil dan Perencanaan, Institut Teknologi Bandung.
- [66] Suwanto, G. (2004). *Dasar-Dasar Pariwisata*. Yogyakarta: Penerbit Andi.
- [67] Sabri, A., Aimon, H., Amar, S. (2024). Interdependencies of environmental quality, poverty, and green growth: A simultaneous equation analysis across Indonesian Provinces. *Challenges in Sustainability*, 12(1): 52-64. <https://doi.org/10.56578/cis120104>