Spatial patterns of settlements in the Menara Kudus Mosque area

S A E Nila, A Marlina and Y Winarto
Department of Architecture, Faculty of Engineering, Sebelas Maret University, Surakarta, Indonesia

shelaagustin414@gmail.com

Abstract. The settlement in the Menara Kudus Mosque area is a catalyst for religious tourism activities that are adjacent to the residence of the local community. Menara Kudus Mosque with its own characteristics will have an impact on changes that occur both physically and non-physically. This study aims to further identify the formation of the spatial patterns of settlements in the Menara Kudus Mosque area caused by the exposure of religious tourism. The spatial patterns that occur can be seen through observations on the layout, circulation, facing direction, and hierarchy. In this study of the spatial pattern of the Menara Kudus Mosque settlement, the researcher used a meso (residential environment), micro (residential) scale coverage and the factors behind it. The research method for data analysis used in this research is descriptive qualitative with a case study strategy in the residential area of Menara Kudus Mosque. The results of this study indicate that the existing spatial pattern is the result of a response to the new activities of the surrounding community which utilize their residential space and their residential environment as a business space that supports religious tourism activities.

1. Introduction
Embryonic development of the Kudus City is located around the Menara mosque, including the villages of Kauman, Kerjasan, and Langgardenal. This area of the old city is geographically located to the west of the Gelis river, west of the kiai Haji Asnawi Road, north of the KH Ahmad dahlan Road, to the south of the Sunan Kudus Road. In the middle of the area is divided by Menara Road. The location of the Menara Kudus Mosque is in kauman village, Kota subdistrict, Kudus Regency, Central Java.

There are various religious tourism activities in Indonesia, according to Ulung [1], visiting places of religious history or to holy places, pilgrimage to the tombs of religious leaders (ulama, kyai) or community leaders. Religious tourism is a type of tourism related to the religion, history, customs, and beliefs of a community or community group that is used as a routine activity every year to visit. This religious tourism destination is to worship and to improve spirituality. In carrying out religious tourism activities contained messages and lessons to realize a more civilized life [2-3]. In addition, tourism development can have benefits in various fields, such as in the economic, social, lifestyle, political, education, technology, culture, and environment [4].

Settlements tend to continue to grow in line with human needs where their development will result in change. The changes that occur can not be separated from the activities of life in it [5]. According to
Ortman et al. [6], the relationship between humans (contents) and space (containers) is very close in forming a settlement, if contents change then the container also changes and vice versa. One of the things that cause changes to the layout of settlements and residential houses is the existence of tourism [7-8] where space will change following the growing socio-economic dimension in people's lives due to tourist activities. In addition, tourism activities have a significant impact on the economic, social, cultural, and environmental sectors of society [9-10].

The existence of the Menara Kudus area as a catalyst for religious tourism activities adjoining local people who already have their own character will have an impact on changes that occur both physically and non-physically. The People of Kudus Kulon, especially in the area around the Menara Kudus Mosque, is a community of santri traders who have a strong character. Their main livelihood is as a trader or entrepreneur. The formation of a residential environment is possible because of the process of forming dwellings as functional containers based on patterns of human activity and the influence of environmental settings or hues, both physical and non-physical (socio-cultural) that directly affect the pattern of activities and processes of revelation [5]. In previous research that has the same research locus in the Menara Kudus area more about the traditional houses of Pencu, the traditions of Muslim community life, the pattern of settlements of the Kudus Kulon community that reflects the atmosphere of ancient settlements and their order/pattern and about religious tourism activities in the change of settlements in the historic area of the Menara Kudus [11-14]. While there has been no research that discusses the spatial pattern of settlements in the area of the Menara Kudus Mosque. Therefore, through this study, the author will identify in more detail the shape of spatial patterns of settlements in the Menara Kudus Mosque area using the scope of meso (residential environment) and micro (residential) scales.

2. Literature review

2.1 Religious Tourism. Religious tourism is a type of tourism related to religion, history, customs, and community beliefs that are used as routine activities every year to be visited. In Indonesia there are various types of religion tourism activities, according to Ulung [1], visiting places of religious historical relics or to holy places, pilgrimage to the tombs of religious leaders (ulama, kyai), or community leaders. This religious tourism destination is in order to worship and to improve spirituality. Religious tourism activities in the Menara Kudus area itself vary, both daily and temporarily (eventually in a certain time).

2.2 Changes in Settlements and Residential Homes. Settlements consist of contents and containers [15]. What is meant by the contents is humans and their activities, while containers mean the physical form of settlements both man-made and natural as a place of human life with all its activities. Through contents and containers, Setyowati et al. [16] explained that settlements have five forming elements, namely man, society, nature, shells, and interconnected networks.

The formation of a settlement is a process of functional recitation based on patterns of human activity and the influence of settings both physical and non-physical (social, cultural, economic) that directly affect the pattern of activity and the process of formation of its revelation [5].

In addition, the relationship between human activities that make up a space setting occurs through the process of the dimension of time that will form changes, where the change is controlled by other factors in it [17]. Wiles et al. [18] found that a person makes changes to the residence comes from the reciprocal relationship between the occupants and his house. The change of residence categorized according to its function is divided into two, namely a house that only functions as an ordinary residence and a production house where the house is used as a business space or economic activity to support human needs in it [19].

2.3 Spatial Patterns of Settlements. Spatial pattern can be interpreted as a form of spatialness, especially the physical form of a particular area or area in the context of a settlement (city or village).
Related to the shape or pattern of settlements it is not easy to make definitions or classifications of settlements based on their shape (spatial patterns), considering that most of these settlement forms are not pure forms but tend to be mixed forms [5].

The pattern of a residential environment has a different form in accordance with the growing non-physical strength of society in the form of socio-cultural systems, government, education levels, and applied technology, all of which will bring changes to the physical expression of the environment [5].

The most commonly used classification is (pattern) spread and concentrated/centralized, which will affect the shape of the house. In the centralized form there are 2 traditions that develop, namely:

a. The entire settlement is a setting/place of life where the house/residence becomes a more private and closed place.
b. Residential houses/units are positioned into a whole place of life, while settlements act as a network of liaisons that must be passed.

2.4 Typology of Spatial Patterns of Settlements. Spatial contains elements of space with their constituent elements. Spatial is the composition and arrangement and model of a relationship between spaces. Spatial discussion includes the characteristics of space that have forming elements such as the shape of space, the function of space, the relationship between spaces, the orientation of space and the hierarchy of space [20].

Spatial patterns of settlements is given as follow [21]:

a. The pattern of settlements spreading far from each other especially occurs in newly opened areas.
b. The pattern of settlements by gathering in a village, extending according to traffic roads (road/river), while the arable land is behind it.
c. The pattern of settlements by collecting in a village while the arable land is outside the village.
d. Gathered and arranged circularly following the path. The pattern of settlements by gathering in a village, following a circular path, while the arable land is behind it.

Mannion [22] divided the pattern of settlements into these types, as given in Figure 1:

a. Focused settlements,
b. Scattered settlements,

![Figure 1. Shape of the Focused Settlement Pattern](image-url)

Information:

a. Settlements focus on street settlements
b. Settlements are focused along the way
c. Settlements focus square
d. Settlements focus on the turn of the road
e. The development of settlements is focused
3. Research Method

3.1 Location
The residential area of the Menara Kudus Mosque is in the center of the Kudus City. Administratively entered into the area of Kauman Kulon Village subdistrict city, Kudus Regency, Central Java Province. The neighborhood that surrounds the Menara Kudus Mosque is a house of the villagers of Kauman Kulon which is no longer clear the boundaries that separate the people's house and the mosque complex because between the walls of the mosque complex and the people's house has become one. Figure 2 depicts the research site.

![Figure 2. Research Sites](image)

3.2 Research Stages. Based on the problems and objectives of this study, the method used is qualitative descriptive with case study strategies in the residential area of the Menara Kudus Mosque.

The object (focus) of the study observes the condition of settlements in the Menara Kudus area from physical and non-physical aspects on a micro scale (residential house) and messo (residential environment). Then for this research analysis unit are houses and neighborhoods located in the area of the Menara Kudus Mosque such as lodging, business houses, shophouses, roads, parking spaces, public spaces, etc. Sample selected for the purpose (purposive sampling), So that data retrieval requires researchers to plunge directly into the field and interact with informants (community leaders) who are equipped with observations, documentation, and interviews more deeply (indepth interview). Data analysis is done inductively by reviewing and interpreting the data that has been obtained into the themes of findings that can answer the purpose of the research and get final conclusions.

4. Result And Discussion

4.1 Regional Development. The Menara Kudus area itself is in the center of ancient settlements in the Kudus City consisting of the villages of Kauman, Kerjasan, and Langgardalem. The development of settlements in the area of the Menara Kudus is increasingly complex and growing (figure 2), if
traced to its history there are several stages of development [23-24]:

a. The period of pre-Islamic society (before the 15th century) where this settlement area is estimated to develop along the River Gelis with inhabited by Hindu people.

b. Mataram's reign made the settlements grow and live off trade.

c. The colonial period of the city center was moved to the area east of the Gelis river which is now the center of the Kudus government with the facilities of the city square, the Agung Mosque of Kudus, the prison, and the market at the time. So that the area of the Menara Kudus seemed abandoned.

d. The peak period of socio-economic development began in the early 19th century and then began to develop the cigarette industry in the late 19th to early 20th centuries.

e. The period of socio-economic decline occurred in the early 20th to 1970s due to unstable political conditions there was a competition between indigenous and non-indigenous entrepreneurs and the era of malaise that hit the world. So that factories, warehouses, and even houses in the Menara Kudus area are widely abandoned and sold.

f. The development of the city in the late 1980s until now experienced changes where small industries began to develop again and many improvements in urban infrastructure facilities. While the Area of the Menara Kudus has not changed much but interest in tourism to Sunan Kudus is increasing. And until now the Area of the Menara Kudus is growing with religious tourism owned.

\[\text{Figure 3. Development Made by tours of the Menara Kudus}\]

The main room used in religious tourism activities is in the Mosque, Tomb, Menara Kudus where all tourist activities are focused on the area then facilities develop out of the area even to other settlements in Bakalan krapyak.

4.2 Changes in Residential Environment. The results of the time series documentation as in Figure 4 illustrates the changes that occurred so significantly due to religious tourism activities in the Menara Kudus area. In 2014 through the Decree of the Head of the Ministry of Culture and Tourism of Kudus Regency No.556/23.01/043C/2014 the Kudus Tower area was named as a Religious Tourism Village.
Figure 4. Time Series Documentation

a. Conditions Around the Menara Kudus Th. 1900  
b. Conditions Around the Menara Kudus Th. 1990  
c. Conditions Around the Menara Kudus Th. 2010  

In 2016 Madurekso street has experienced a widening of the former between the shop and the road there is still an intermediary space such as pedestrian lanes or yards, but now used for roads as tourist access. Menara Road, Madurekso road and narrow alleys around the Menara Kudus area have been repaired and changed the material to granite. In addition, there are also culverts to breed residential drainage channels. Street lights as street furniture for lighting at night. Figure 5 is documentation that shows the changes that occurred.

Figure 5. Dimensional and Material Changes in the road

4.3 Street Type in The Menara Kudus Area. The road in the Menara Kudus area is formed narrowly and flanked by high walls that functioned as a protector from the invaders in his day and now the streets began to be repaired and expanded to facilitate the accessibility of tourists. Based on the function and type there are differences in street classes in the Menara Kudus area, namely;

a. Public main roads, such as Jl. Sunan Kudus is traversed by all communities with various purposes.  
b. Semi-public roads, such as Jl. Madurekso and Jl. Menara Kudus are traversed by local people and tourists who visit the Menara Kudus area (usually with a purpose for religious tourism).
c. Narrow semi-private road, this road is in the form of narrow alleys located in the south and north of the Sunan Kudus Tomb Menara Mosque complex, this alley is used as an access that facilitates people from the parking lot to religious attractions.

d. Private narrow road, in the form of alleyways of houses that are only passed by the local community. If strangers pass through these alleys the community will avoid and access from these alleys the end is only known by the local community as well as the labyrinth.

### 4.4 Settlement Patterns

The pattern of settlements in this area can be categorized into two parts, namely the pattern of settlements on the edge of large roads and the pattern of settlements in the middle of the area. The pattern of settlements in the middle of the area is divided into two, namely the pattern of settlements with elongated rowdy houses and the pattern of settlements with single houses.

![Figure 6. Houses in Narrow Alleys](image.jpg)

The second pattern is the settlement with single houses marked by the location of a stand-alone house with a clear yard boundary.

![Figure 7. Houses in Narrow Alleys that are solitary](image.jpg)

The pattern of settlements on the edge of large roads is divided into two, namely the pattern of settlements with large roads on the side of buildings, and the pattern of settlements with roads on the front side of buildings.

![Figure 8. The Houses on the big road](image.jpg)

### 4.5 Land Patterns in Kauman Village

The pattern of land contained in Kauman Village is linear and tends to be a settlement cluster. In settlements directly adjacent to the Menara Kudus Mosque and Tomb complex, the pattern of land is linearly shaped connected by narrow roads or alleys. While settlements far from the Menara Kudus Mosque complex and tombs pattern the land tends to be in the
form of clusters of settlements.

4.6 Road Network Pattern. Like the pattern of settlements, the pattern of the road network is divided into two parts, namely: large roads and environmental roads. The main road is the main road to the area. While the environmental road is an achievement to the settlement in the middle of the area. The main road of the area is straight and has a fairly large road width. The main road has an important economic meaning and becomes an orientation for the buildings along its side. This is related to the livelihood of most people as traders and entrepreneurs. Spaces bordering the main road are used for trade or warehouses.

The pattern of road networks in residential areas in the form of neighborhood streets with narrow and winding road widths. Environmental roads are divided into two, namely environmental roads that suck between the yard and roads that cross the yard. The neighborhood road that runs between the grounds is mostly north south and is a public or public road, while the road that crosses the yard or yard is mostly west east, is semi-public. The direction of the nature and shape of environmental roads that occur is influenced by the pattern of settlements and the direction of house. The narrow winding road indicates that the road is formed after the settlement stands and is a shortcut to the centers of the neighborhood or area, such as mosques, langgar, schools or to large roads.

5. Conclusion
The result of the above discussion can be mentioned that the physical form of settlements in the Menara Kudus Mosque area is a form of a pattern of activities rooted in the culture of the local community, on the other hand the physical form will also stimulate and influence the pattern of activities and ultimately the cultural values of the community.

Changes in physical form will change the pattern of activities and finally cultural values, and vice versa cultural changes will change the pattern of community activities and ultimately affect the physical form of the container of the activity. The condition of the Menara Kudus Mosque area has now changed a lot, traditional houses apparently can no longer accommodate the activities of residents as a form of modern culture. Many homes are then sold and distributed to the family to avoid family disputes. Others were sold because of the high value of the building, then replaced with more practical modern buildings.

The physical form of the house and the place used to trade is adjusted to the type of trade. Today, trade and services around the Menara Kudus flourish due to the presence of pilgrims and tourists. That's why the type of trade and services available are related to the needs of pilgrims and tourists.

Physically changes occur in the appearance, spatial structure, and function of the building space. Factors behind changes in residential homes and residential environments are factors in increasing the number of visitors, the need for tourist facilities, changes in the type of business owned, and changes in the direction of building orientation following access to tourist lines. These factors arise after the new activity as a religious tourist area of Sunan Kudus. The change has an impact on changes in the economy of the community, lifestyle, and social society in the Menara Kudus area.

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