Regulatory function of spatial structure on Ujung Pancu area, Aceh

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Abstract. Ujung Pancu is on the North coast of Aceh, known as one of three defense areas (Lhee Sagoe) during the Aceh Darussalam Kingdom, in 18-19 centuries guarding against enemy attacks from the sea, and the role of Hamzah Fansury in the 16-17 centuries. This area has destroyed when the tsunami disaster, causing some traces of the old city to be relatively lost but still can be traced. This paper aims to reconstruct and discuss the concept of Ujung Pancu spatial structure, especially Lam Pageu Village in the 18th century. It also will examine the approximate architecture of the Hamzah Fansury cultural site. This paper is considered essential as a historical study to bring back the experience of cultural sites as national personality assets under the UNESCO concept and has the opportunity to be a religious cultural tourism destination around Banda Aceh City, as well as being a location for religious relaxation in the face of the Covid 19 outbreak. This study uses exploration by exploring the potential of the natural environment and reconstructing the regional spatial organization system and spatial patterns. The results show that a) The area organizing system is very considerable of the coastal-bay-hills ecological aspect, with the orientation of the area towards the sea in the North-East, with the hills as natural fortresses in the West-Southern part, the three main spots are important areas with the system integrated location of each other; b) 3 important spots, namely: 1). the location of the cleric Hamzah Fansury’s hermitage on the hills, it is estimated that it also functions as a “reconnaissance” place; 2) Footprints of the harbor fort on the beach are inundated, 3) Coastal residential areas that are still ongoing today. The conclusion of the study, the regional spatial management system shows a spatial hierarchy based on security zones, the closer to the mountain the more private, and the closer to the beach the more common (profane). There is a synergy between the need to maintain regional space and natural character.

1. Introduction
The Artificial Environment is part of a human culture product. It is built to meet community needs determined based on certain decisions, choices, and ways. Since the built environment appears certain patterns that distinguish it from the pattern of the natural environment around it [1]. The consideration of place for the activity located in a natural environment is also determined by activity and challenges of socio-cultural life and existing geographical conditions [2]. Therefore, studying the location of
activity can explain the character of certain activity by relating the various alleged needs for activities specifically from an area.

The most important human need in developing life is the need for security, thus creating a place for protection against disturbances from outside [1]. The choice of place becomes important, related to natural elements which contribute as a barrier between himself and others, such as hills as a dividing wall and open beaches as a direction of orientation [3].

Ujung Pancu is a land at the tip of Sumatra Island, in the form of a hilly promontory overlooking the waters, very strategic as a transit point for cross-sea travel of the Andaman and Malacca Straits. The existence of Ujung Pancu has been recorded on a map made by the Portuguese in the 16th century, associated with Banda Aceh City, as the tip of Aceh Pancu [4]. The naming of the Pancur place is very close to the name of an early Sufi figure in Aceh, Hamzah Fansury. He played an important role in the early Aceh Darussalam Kingdom.

This strategic potential is expected to continue which makes the Ujung Pancu area one of the locations of Lhee Sagoe defense center during the 17-19 Century Aceh Darussalam kingdom, instead of IndraPuri and IndraPatra area. In the past, The Kingdom of Aceh had developed as a cosmopolitan maritime airport with its current capital in Banda Aceh [5]. Understandably, the most essential basic human need is the fulfillment of a sense of security. Therefore, geographical considerations are essential to provide physical protection.

Currently, Ujung Pancu, especially Lam Pageu and around Hamzah Fansury tomb, is only a traditional residential area on the north coast of Aceh. This area continues developing slowly, after being destroyed in 2004 when the tsunami disaster occurred. The tsunami has also damaged most of the coastal areas in Aceh and their settlements [6], which is estimated to have happened again 200-250 years ago. In 500 years, this area has lost its land about 1 km [7], causing the physical traces of past civilizations lost. However, there are still noticeable traces in some places of history. Thus, it is still possible to trace their existence spatially.

Based on the socio-cultural aspect, the people in Aceh, especially Banda Aceh and its surroundings, have less understanding about the importance of the history of Ujung Pancu area in the past, so that the current generation does not appreciate the cultural sites so that the handling of some cultural sites is less integrated with the existence of these objects and the character of the place.

Unesco, which handles world cultural sites, really appreciates local wisdom which can also function as conservation, education, and tourism. Many ideas raised cultural sites in Banda Aceh that were developed as tourist attractions [8]. Therefore, this paper hopefully will contribute to giving an insight related to the existence of cultural sites at the end of Pancu, especially in the area of Lam Pageu, understanding the object management system and its spatial structure is important to study before the physical construction of the cultural site.

This paper wants to highlight two things: a) reconstructing the spatial system of the area and an estimate of the architectural form where Hamzah Fansury's tomb is located, as evidence of historical traces and as a sustainable cultural site; b) reconstructing the historical existence of the Ujung Pancu area and the geographical study of the defense concept of the Lhee Sagoe’s center place.

2. Materials and methods

2.1. Defense principles and regulatory system
The principle of defense as a basic human need signifies the need for protection from the world outside, and to control everything around outside of him. This is realized by creating a control room and a sense of scope for a sense of protection (from observation and affordability), and both in the boundary plane and in the opening [1]. Control elements are in the form of: a) wall elements as a dividing area, and accessibility doors between outside and inside. Both elements can be sourced from
the character of natural elements and man-made elements. Thus, private, semi-private and profane spaces will be created in an area.

![Figure 1. Control concept of the boundary plane and door openings that determine the level of protection.](image)

The impression that surrounds it on a macro scale (regional environment) will be able to provide a sense of security, which can be obtained from the composition of the character of natural elements, such as mountains or evidence that will form a dividing wall; coast or valley as a gateway and direction of environmental orientation. However, if an area is relatively flat and open, then the place and elements of defense buildings such as artificial forts will be designed, which are adapted to the geographical context and the needs of the defense itself.

Referring to the development of civilization of ancient cities in the world [3] the spatial structure will reveal the main facilities of the area according to the function and role of the area from that function: such as palace/government buildings, places of worship, storage of agricultural products, settlements based on land, connecting roads for activities, gates, and ports. The area facilities are placed by the geographical conditions, thus revealing the pattern and form of a certain spatial structure.

2.2. Methods
This paper is the result of research with an approach to tracing the historical physical traces of an area and an estimate of the architectural embodiment in a contextual manner. Furthermore, a physical reconstruction of the spatial layout of the area is carried out, by understanding the elements of the area's landscape with a defense approach, then a logical reading is carried out and an analysis related to considerations in choosing the location of important functions in the area.

The research method is descriptive qualitative research [9]. The data is in the form of a reconstructed map of the location of traces of important functions in the Ujung Pancu area, both intact and incomplete, as well as the alleged location and circulation patterns of liaisons between these functions. The data can be obtained through literature studies for story tracing and architectural comparative studies, interviews with community leaders in the fields of history, religion, and architecture in Banda Aceh, as well as interviews with local communities. The data is analyzed by linking logical thinking patterns about the concept of defense from the logic of activity to the geographical conditions of the hilly coast (waters, beaches, sloping land, and hills), and the potential of natural resources for the development of defense architecture.

3. Results and discussion

3.1. The role of the region and the estimated history of the early existence of the Ujung Pancu area
The Ujung Pancu area is estimated to have developed as a center of residential activity in the North End of Sumatra Island, which is oriented towards the culture that developed from mainland India and the Andaman Islands [10]. The last ancient record from the 6th century describes the development of Hindu-Buddhist (Pre-Islamic) culture in the Ujung Pancu area with the name Indra Purwa Kingdom. If it is related to the geopolitical aspect, the Ujung Pancu area as the location of the Indra Purwa Kingdom, is very strategic as a gateway to the East across the Indian Ocean and the Malacca Strait.

In the political development of the Acehnese kingdom in the 17th century, Aceh became the target of conquest by European colonials who came from the west of Aceh. Therefore, in the 18th century, the kingdom of Aceh developed the concept of defense of the Lhee Sagoe region, namely three important points for the location of fortifications around the area outside the center of the kingdom of Aceh Darussalam, to maintain the sovereignty of the royal capital. One of the fortresses is in the Ujung Pancu area, the former location of the Indrapurwa Kingdom, in addition to two other locations (Indrapuri and Indrapatra) [10]-[11]. The location of Ujung Pancu with a hilly headland is very strategic for monitoring the waters of the North-West part of Aceh. See a picture of the geographical location of Aceh and a schematic of the Lhee Sagoe area.

Figure 2. Geographical conditions of the area around the northern tip of Aceh and the location of Lhee Sagoe in the defense concept of the 17th Century Aceh Kingdom.

Figure 3. Geographical condition of Ujung Pancu area and approximate location of the city center.
The river estuary serves as a port area and as supporting facilities, and is expected to be crowded when ships cannot go to sea during the stormy season.

In a map of the 16th century, the name Ujung Pancu appears on the headland of the hills at the northern tip of Aceh. If it is associated with the name Fansur, then the name is certainly attached to the name of the cleric Hamzah Fansury as a 16th century Acehnese Sufi, who is both a traveler and a trader [12]. See the verse of “Perahu dan Dagang” which describes the depth of his knowledge of the waters and how to trade properly. This shows the possibility that he was a tradesman between nations and taught religion in that place, so that foreign nations attribute a place at the end of Aceh to his name.

The current search for Hamzah Fansuri's traces appears to be in the form of a grave location, which may be the location of Hamzah Fansuri's transit place which functions as a "hermitage". People outside Aceh, especially from Malaysia, are very enthusiastic to know the place, because the influence of Hamzah Fansury reached Malaysia.

3.2. Reconstruction of padepokan hamzah fansury

Nowadays it is important to raise the spirit of the place from Hamzah Fansury's hermitage. For this reason, it is necessary to reconstruct the image of the area physically and architecturally, so that people who come will feel its heyday.

There are several architectural principles and logical thinking behind the reconstruction of the Hamzah Fansury hermitage:

1. Location aspect, the possibility of former environmental sites of important buildings during the Hindu kingdom, strategic from the geopolitical aspect (observation area).
2. Experience from ancient buildings in Aceh, Environment that is a daily activity is lined with earthen forts.
3. The building mass is relatively small based on the technology system and wood tree trunk material. Generally one building for one function.
4. Hamzah Fansury as a famous person, will have a variety of activities in his neighborhood, including people who want to learn to be self-taught, then it is likely that there will be a large mass of buildings, at least 4 masses consisting of functions of places of worship/study, private residences, services, guest house.
5. There is a grave for family members or close people who may stop at his residence (considering he is a newcomer from Barus)

![Image](image_url)

**Figure 4.** The current condition of grave site and reconstruction of the Hamzah Fansury hermitage as well as the function of water surveillance.
Based on the regional space hierarchy, the location of "hermitage" is in the private zone, but can still observe outside to monitor activities in the waters. This makes the place very strategic for protection or defense activities.

3.3. Ujung Pancu area in the 17th century to 19th century
The city center of Ujung Pancu continues to develop around the mouth of the river, and is increasingly complex with its port and warehousing functions, considering that Aceh was the largest pepper producer in Southeast Asia in the 16-18 centuries [13], one of which came from the Ujung Pancu area.

Besides, the Ujung Pancu area is very close to the center of the kingdom and acts as a guard at the entrance to the bay of Aceh. The location of the former hermitage of Hamzah Fansury continues to be a fortress where water surveillance is carried out and is free from residential activities. This can be seen in the current naming of the area as Lam Pageu (language: in the fence), which can be interpreted as something private that cannot be entered by others. The Lam Pageu area is currently only developing as a small village in the hills from a kinship; this is an indication that in the past there were no settlements in the hills.

Residential settlements appear to expand towards the hills to the south and the outskirts of the city to the east, connected by trails to the center of the royal city. This indicates that semi-private activities in the form of villages will support the existence of downtown life as a hinterland, and will not interfere with private areas (fortresses). It is described by the image below:

![Figure 5. Estimated regional structure of the End of the 17-19 centuries and its relationship to the royal center of Bandar Aceh Darussalam.](image)

Fort buildings will be increased by the functions and roles of the area both internally and externally. The warehouse in the form of a fort, is suspected to resemble the pattern carried out by Europeans in the early wandering (15-16 centuries) in Southeast Asia as Loji [14]. The lodge is a fortress surrounded by a moat, which functions as a warehouse to collect produce which is then ready to be shipped to Europe. Loji also serves as a residence. Traces of the density of urban areas on the coast can still be seen from the former building foundation footprints which local people call the Diwai site. Diwai is understood by the community as the former site of a rectangular building, which is also known as Kuta. There are four Kutas: Kuta Keubok, Kuta Mukaddim, Kuta Madat, Kuta Puntong.

When referring to the character of the pre-modern coastal trading city in the world, it is certain that it always has the main building in the form of a fort for warehousing, to maintain the durability of imported and exported goods before being shipped [15]. In the history of a small town on the coast of
the West Coast of Aceh, there are also many names of Kuta found at the mouth of the river, many of which have now been lost and have become traditional coastal settlements [16].

Logically, the design of the fort prototype would make it easier to build with simple technology and materials at that time. Currently, it can still be seen from the fort building in Indrapatra, whose architectural character responds to the natural challenges of the coastal area, namely: tides, storms, heavy rain and dry air. The design of the fort is: it has a high building base, is surrounded by solid walls, and has a yard for drying produce, there are warehouses and wells. See the design drawing of the fort at Indrapatra, which is thought to have been built by the Portuguese on the site of a pre-Islamic building.

![Design drawing of the fort at Indrapatra](image)

Figure 6. The atmosphere of the Indrapatra building and the surrounding area, as the area of Lhee Sagoe, in the 18-19 Century Aceh Kingdom defense fortress.

Conclusions
The spatial structure of the Ujung Pancu area as a defensive fortress was developed based on the composition of the geographical elements of the hilly bay coast, so the placement of the function of the area is very ecological and logical-rational. The hierarchical area space synergizes the character of natural elements and the needs of the function and role of the city, so that a regional hierarchy appears which places the city center as a profane area and the surveillance fort area (Hermitage of Hamzah Fansury) as a private area. Currently, the character of the place still shows the strategic value and uniqueness of the landscape, and it is very possible to develop it as a cultural heritage site.

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