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# Spatial Structure in Baiturrahman Context District (Banda Aceh)

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**Abstract.** A city can be defined as a residential area and a place of activity for residents who dominate its spatial layout that is an area boundary, that is supported by appropriate facilities that are applied to the laws and regulations to help the lives of the people to be independent. To increase the development of the city, it is necessary to pay attention to the structure of the city space which is directed by the urban spatial plan which consists of the system of the city space and the pattern of the city space Banda Aceh is one of the cities that is the capital of the Aceh prevention, where one of the city centers is in Baiturrahman District where in the area there is a historical heritage in the form of the Baiturrahhman Grand Mosque which is the icon of the city of Banda Aceh and the Aceh province, the city of Banda Aceh itself, especially in the region. Baiturrahhman has met the service needs of both the trade, government, and education sectors, but it is still necessary to add additional facilities to support urban development in certain areas. The research method used to collect data is a descriptive qualitative method by collecting data and analyzing data. With the final result, where can we determine whether Baiturrahman District has fulfilled the spatial structure of city services in Banda Aceh?

**Keyword:** Banda Aceh, urban pattern structure

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## 1 Introduction

Banda Aceh is one of the provincial capital cities in Indonesia, namely the capital of Aceh. Banda Aceh is at the northernmost tip of the island of Sumatra. With a population of 270,321 people according to population data in 2019, which is divided into nine sub-districts and 90 villages, with different occupational backgrounds and diversity of religious beliefs [1].

Banda Aceh city spatial structure By the development strategy for Banda Aceh City RTRW 2009-2029 which combines multi-center and linear-growth development, the structure of the city activity service center is described schematically as follows: (1) The Main Center (BWK City Center) with the city and regional service scales is in the Peunayong and Aceh Market

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areas which are administratively located in Kuta Alam and Baiturrahman District. (2) West BWK, East BWK, and South BWK Kota with their respective centers in Ulee Kareng, Ulee Lheue, and Mibo with BWK service scale [2].

Banda Aceh has a reasonably wide area and a variety of activities, one of which is in the Baiturrahman sub-district area where this area is one of the urban centers in Banda Aceh, with a relatively rapid urban development where this area becomes an area of trading space, cultural heritage, settlements, offices and also green open space areas in the city of Banda Aceh. So that each of the main Activity centers has distinct characteristics of the utilization of spatial structure. so that it will have an impact on the system of the city space and the area surrounding the Baiturrahman sub-district.

## 2 Literature Review

A city can be defined as a residential area and a place of activity for residents who dominate its spatial layout, which has territorial boundaries that are supported by appropriate facilities that are applied to laws and regulations to help the life of the community to be independent [3]. By government law No.26 of 2007 concerning urban spatial planning, to create an optimal area and produce productive, safe, comfortable, and sustainable conditions. By the provisions of urban spatial planning, which consists of spatial structures and spatial patterns [4]. Cities are the most effective and efficient locations for carrying out productive activities with the support of skilled personnel, facilities and infrastructure, funds as capital, and so on [5].

Spatial structure can be interpreted as a part of the spatial organizational structure of a city that characterizes certain land uses in a town [6]. Spatial design is a spatial pattern that is the center of settlements, infrastructure, and network systems that are mutually orderly and support economic and social activities that are functionally interrelated hierarchically. Meanwhile, spatial planning is a system of the spatial planning process, spatial use utilization, and spatial use control [7].

The spatial structure will continue to develop and change along with the increase in social and economic growth and then hit specific spatial systems in the form of representations of human use of space and structures formed from the spread of special human activities [6]. By Indonesian law, the spatial frame can be created because of the arrangement of settlement centers and is connected by a network of facilities and infrastructure that functions to support community activities in the social and economic sphere, which are hierarchically interconnected functionally [4].

Space is a container covering land space, sea space, and air space, including space within the earth as a unitary area, where humans and other creatures live, carry out activities and maintain their survival [8].

Chancellor, Nathan Brent, et al. (2014), elements of city structure formation consist of road networks, functional areas, and activity centers. Words have particular aspects, which are internally related to one another [9].

Related to chen, et al. (2017) states that the structural form of space utilization includes the hierarchy of urban activity service centers such as city centers, city centers, and environmental centers supported by road infrastructure systems such as arterial roads, collector roads, and local roads [10]. city building design such as distance between buildings, building height, and skyline. While the form of spatial use patterns includes the distribution of settlements, patterns of location, workplaces, industrial and agricultural, as well as urban and urban land-use patterns [7].

The concentric theory (Parker, 2015) describes the suburb of the city center (DPK) or central business district (CBD) is a city center location located in the middle of a city in the form of a concentration zone which is caused by interactions between humans and land users, both in the political, economic and social sectors. Which then spreads to the surrounding areas [11].

The sectoral theory (Beauregard, 2007) which also describes the suburb of the city center (DPK) or central business district (CBD) is a city center location located in the middle of a city in the form of a concentration zone but the use of the land around the town center is more varied. Then it extends to the surrounding area [12].

The Double central theory explains that the suburb of the city center (DPK) or central business district (CBD) is a city center location that is divided into several regions, and not only in one city core. Cities are formed according to land functions that pay attention to economic growth and the location of the town or town history so that the town center does not have to be regular [13].

The urban spatial structure plan is formulated based on policies and strategies for urban spatial planning, namely the need for urban development and services in the framework of supporting socio-economic activities, the provisions of laws and regulations, and the carrying capacity and capacity of the city area.

## 3 Result and Discussion

This type of research is descriptive qualitative, which is a technique that describes and interprets the meaning of the data that has been collected by paying attention and recording as many aspects of the situation under study at that time, to obtain a general and comprehensive picture of the actual situation [14]. According to Smith, et al. (2012) using descriptive methods means that researchers analyze the collected data in the form of images, words, and not numbers. Such

data may come from field notes, photographs, interview scripts, videotapes, personal documents, notes or memos, and other official documents [15].

In the study conducted, the writer summarizes several policies and theories related to the spatial structure as research variables, which can then be used as the basis for the concept the spatial design. Variables that are used as the concept of space structure arrangement are worship facilities, educational facilities, office facilities, trade facilities, and other public facilities.

The research location is in the city of Banda Aceh, precisely in the Baiturrahman sub-district. This research was chosen because this district is one of the leading centers of the city of Banda Aceh, which plays an essential role in the formation of spatial structures in Banda Aceh. The type of data in this study is secondary data, namely data that becomes a reference for reading objects, which include books, articles, journals, papers, print, and internet media. The type of data in this study is secondary data, namely data that becomes a reference for reading objects, which include books, articles, journals, papers, print and internet media. Data analysis using qualitative descriptive analysis, that is, the results can be empires, considering theory and literature studies as research considerations. This study aims to determine the shape of the urban spatial structure in the city of Banda Aceh, especially in the Baiturrahman District.

## 4 Result and Discussion

This study will discuss the relationship between urban space in Banda Aceh, the Baiturraham sub-district context, which is one of the main urban center sectors in Banda Aceh. Baiturrahman sub-district consists of 10 villages, all of which have important roles and are related to one another. Namely Ateuk Deah Tanoh, Ateuk Jowo, Ateuk Munjeng, Ateuk Pahlawan, Kampung Baru, Nesu Aceh. Neusu Jaya, Peuniti, Seutui, and Sukaramai (Figure 1 and 2).

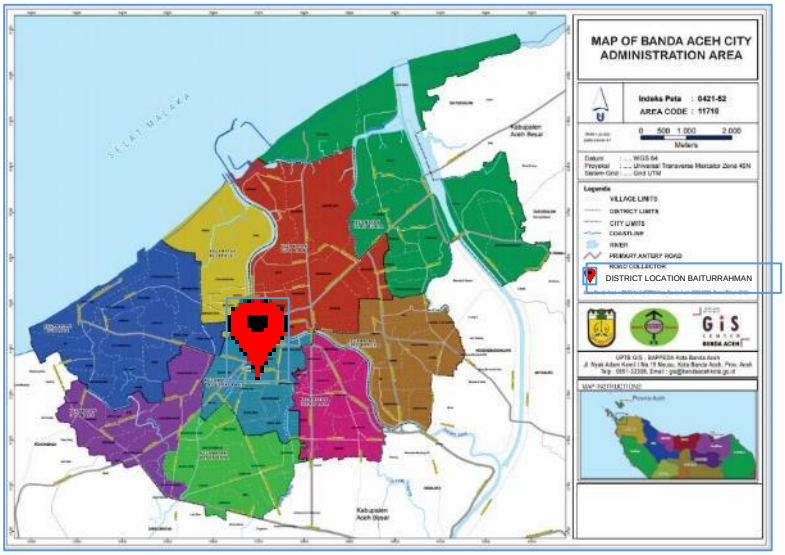


**Figure 1** Location of Baiturrahman District

Source: Banda Aceh Bappeda Map Catalog 2009-2029

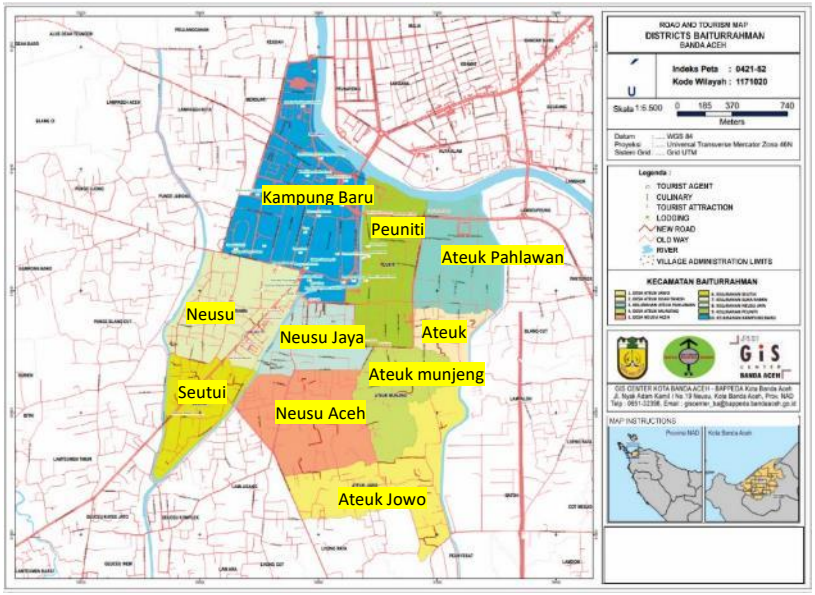


**Figure 2** Village Locations in Baiturrahman District
Source: Banda Aceh Bappeda Map Catalog

### 4.1 Study of the Structure of the Exciting Space in Baiturrahman District

Facilities in Baiturrahman District

In the Baiturahman sub-district, there are 20 units of kindergarten school facilities and 32 Educational facilities from elementary schools (SD) to senior high schools (SMA) scattered in several villages in the Baiturahman area (Figure 3). Divided from 18 units of elementary school, six units of junior high school, and eight units of senior high school, educational facilities in this area are relatively evenly distributed, However, some villages still have to go to other towns but are still in the same sub-district [16].

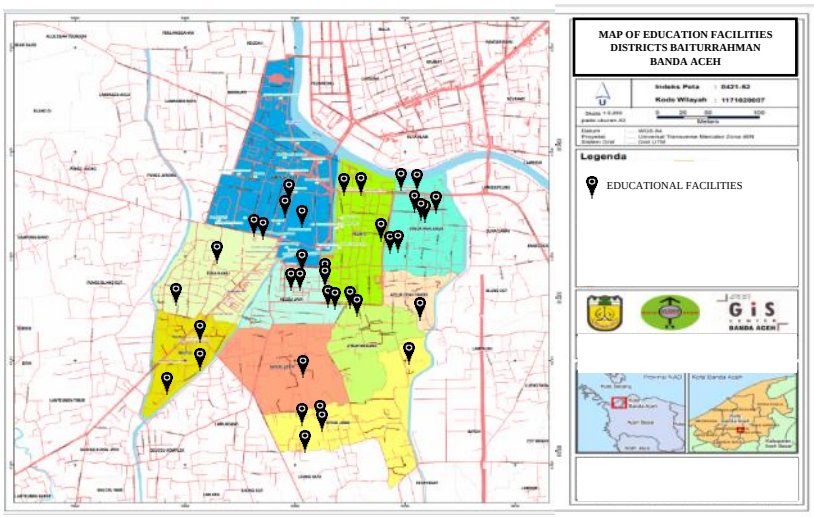


**Figure 3** Location of Distribution of Education Facilities in Baiturrahman District

Health facilities in Baiturrahman District

In the Baiturahman sub-district, health facilities are scattered in each village in the Baiturahman sub-district, namely two hospital units, two community health units, one village health center unit, one integrated health center unit, and 18 pharmacy units (Figure 4).

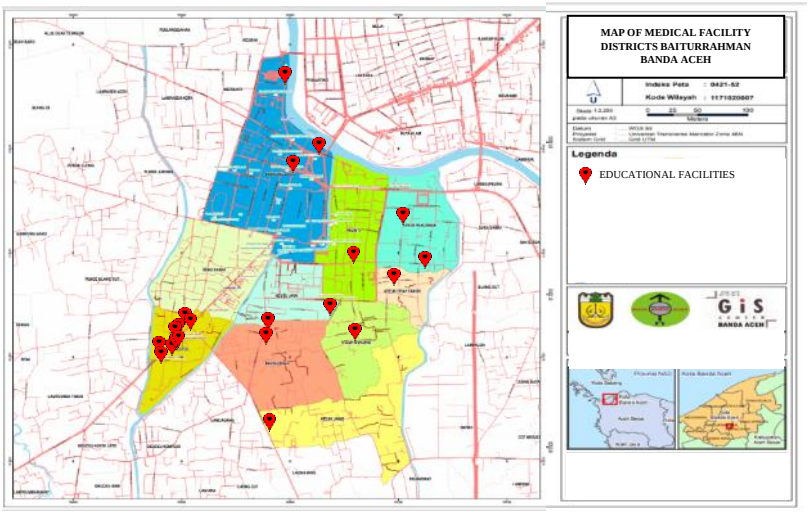


**Figure 4** Location of Distribution of Health Facilities in Baiturrahman District

Office facilities in Baiturrahman District

In the Baiturahman sub-district, there are office facilities that support all administrative problems for the people of Banda Aceh and especially for people in the Baiturrahman area. In this sub-district, there is a mayor's office, DPRK office, state finance office, the office of the ministry of religion, Bappeda, Police, BPJS, and many more others, which make this sub-district one of the city centers of Banda Aceh (Figure 5).

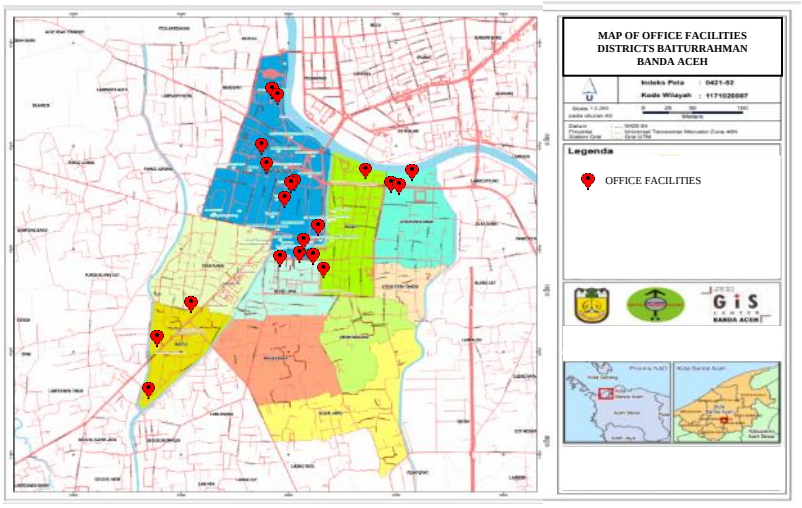


**Figure 5** Location of The Distribution of Office Facilities in Baiturrahman District

Trade and service facilities in Baiturrahman District

Trade and service facilities in the Baiturrahman sub-district have met the needs of this sub-district They have become the center of trade and services for the city of Banda Aceh itself, where the most extensive level of trade is in the new village and Peuniti, which is the center of business and services in Banda Aceh, also scattered throughout national roads and along the causeway in other villages in Baiturrahman sub-district (Figure 6).

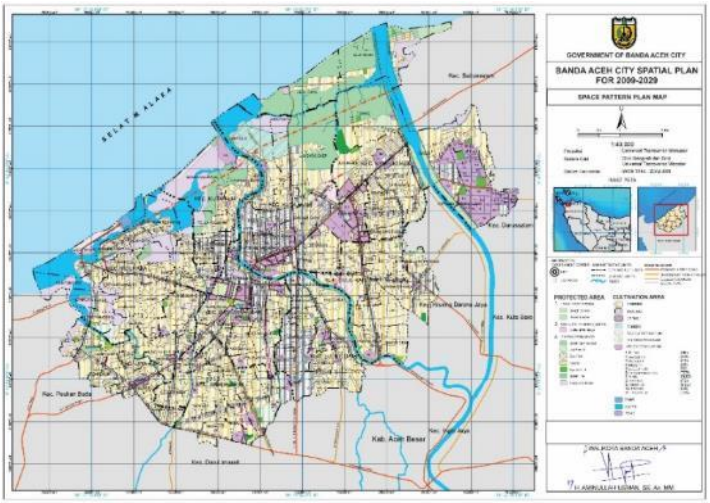


**Figure 6** Banda Aceh City Spatial Plan 2009-2029

Source: Banda Aceh BAPEDA Map Catalog

Religious facilities in Baiturrahman District

The facility of worship is one of the critical facilities that must exist in an area, because the majority of the population in Banda Aceh, especially in the Baiturrahman sub-district, are Muslims. Mosque facilities are more dominant in this area, in the Baiturrahman sub-district, there. Are 15 mosque units and 20 Musholla units, which are divided into each village in the Baiturrahman sub-district (Figure 7).

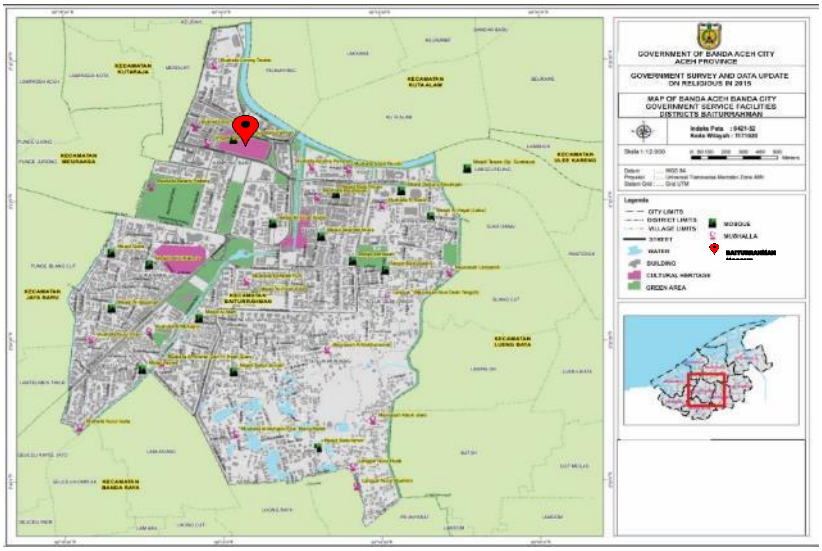


**Figure 7** map of Religious Facilities in Baiturrahman Sub-District in 2015

Source: Map Catalog of BAPEDA Banda Aceh

One of the city-forming structures in this sub-district is the Baiturrahman Grand Mosque (Figure 8), which is one of the city centers, where the area around the Baiturrahman Grand Mosque cannot be higher than the Baiturrahman Grand Mosque, the radius of the building which cannot be higher than the Baiturrahman Grand Mosque is 100 m, as stipulated by the Banda Aceh Qanun No.2 of 2018 concerning the planning of the city of Banda Aceh in 2009-2029 [17].

**Figure 8** Baiturrahman Grand Mosque
source: Nasution, 2018 [18]

## 4.2 Study of the Prasana Network in Baiturrahman Understanding District, Banda Aceh

Road network development

The road network system in Banda Aceh is good enough where the road network connects every sub-district in Banda Aceh, making it easier for the community to reach service needs in other subdistricts quickly. Especially in the Baiturrahman sub-district, which is one of the service centers in the city of Banda Aceh. The road network development includes plans to build a new road network and improve the road network's function.

Baiturrahman sub-district is also a national cross-Sumatra road network that crosses the area of Peuniti Village and New Village. In the Baiturrahman District area, the road network is quite good (Figure 9).

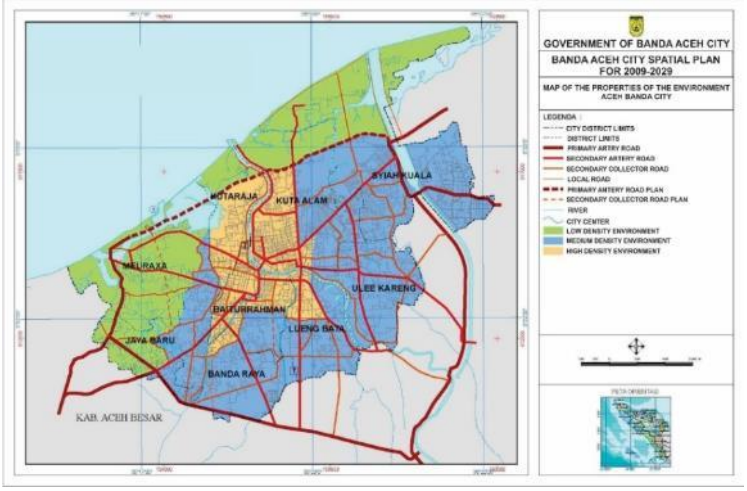


**Figure 9** Map of Banda Aceh City Road Network 2019-2029
Source: Banda Aceh Bappeda Map Catalog

Development of the terminal network for Baiturraham sub-district, Banda Aceh

In the city of Banda Aceh, the type A terminal facilities are in the Banda Raya sub-district, and type B is in the Lungbata sub-district. In contrast, in the Baiturrahman sub-district, there is only one type C Labi-Labi terminal in the new village area that serves passengers in the area around the Baiturrahman sub-district, apart from the Labi- Labi there is also a Kuta Raja Trans bus. An increase in terminal facilities is urgently needed where this terminal becomes a transportation center for the trade and service center in Baiturrahman sub-district and also a trade and service center in the city of Banda Aceh. In addition to the terminal, increasing the number of bus stops is also very important because there are still many areas in the Baiturrahman sub-district that do not yet have a Kuta Raja Trans Bus stop.

### 4.3 Hierarchy of City Spatial Structure Banda Aceh, Baiturrahman District Based on Activity Service Centers

From the results of the research by looking at the development of Banda Aceh, especially in Baiturrahman Sub-district and existing city development, it can be concluded that the researcher can argue that the development of Baiturraham Sub-district is quite rapid, where this sub-district is one of the main sectors of Banda Aceh City, The distribution of office service facilities, education, health, religion, and trade is scattered in this area.

Educational facilities have been scattered in every village in the Baiturrahman sub-district. However, the more dominant areas are in the of Nesu Jaya and Atheuk Heroes, which make education areas.

Health facilities in Baiturrahman Subdistrict, the most dominant health facilities are in the Seutui Village area. In other areas, health facilities have also been scattered, such as the community health clinic, integrated health center, and pharmacy.

The most dominant office facilities in Baiturraham sub-district are in the new kampung area. They can be called the city service center where in this area there is a mayor's office, DPRK office, and different offices. However, office facilities are also scattered in other villages in the Baiturahhman sub-district, such as the state finance office located in village Peuniti and other offices.

The most dominant trade and service facilities in Baiturrahman Sub-district are in New Village, Peuniti Village, and Aceh Nesu Village, they are also scattered in the villages around Baiturrahman District.

### 4.4 Shape and Spatial Structure Model of Banda Aceh City, Baiturrahman District Based on Spatial Structure Theory

Based on the theory of the urban spatial structure form Banda Aceh approaching the Central theory (Qismullah, 2019) which describes the suburb of the city center (DPK) or central business district (CBD) is the location of the city center which is divided into several regions, and not only in one city core [19]. These cities are formed according to land functions that take into account economic growth and city sites or the city's history so that cities do not have to be in order or orderly. The city of Banda Aceh has several city centers, one of which is in Baiturrahman District, namely the Baiturrahman Grand Mosque, which is the core of the city center where the mosque is a historical heritage and an icon of Banda Aceh City. The Baiturrahamn area also has service facilities in the form of government offices, education areas, trade and service areas, health facilities, and other supporting facilities. For the spatial structure model, Banda Aceh applies a multi-centered structure model in which the city area has several city centers and several city soups that are connected to each other, as shown in the RTRW for Banda Aceh City (Figure 10).

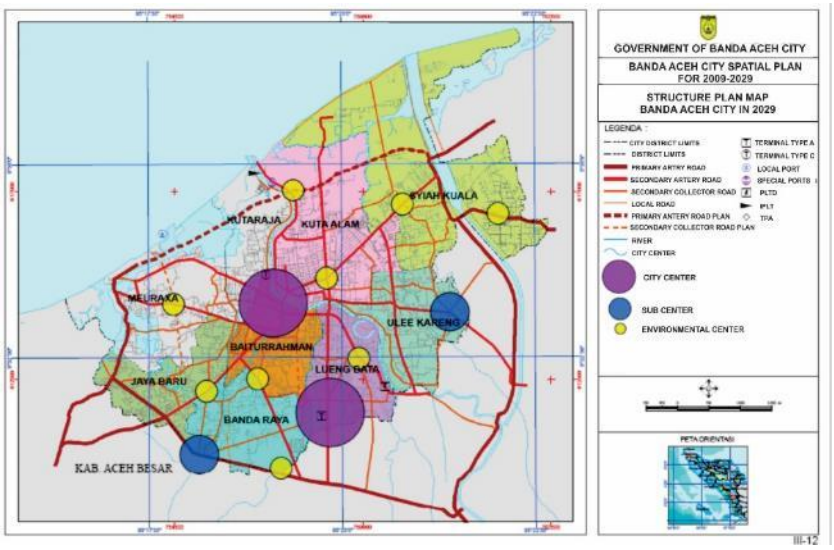


**Figure 10** Map of Banda Aceh City Spatial Plan 2019-2029

Source: Banda Aceh Bappeda Map Catalog

## 5 Conclusion

Banda Aceh's city spatial structure plan adopts the Double central theory in which the main city center of Banda Aceh is not located in one area, but in several places that are formed due to land functions that consider economic growth and historical sites of the city, for the spatial structure model Banda Aceh applies the model a multi-centered structure where the city area has several city centers and several city soups that are connected.

The Baiturraham sub-district area, which is the main subject of discussion which is one of the main centers of Banda Aceh City, has an essential role in providing facilities for Banda Aceh City, so it is necessary to pay attention to the completeness of services that exist in the villages in the area. In the Baiturrahman area, the new village is the main center for service activities in the sub-district because in this area there are worship facilities which are historical relics, namely the Baiturrahan Mosque, the mayor's office, a Labi-Labi terminal, and trade facilities. Baiturrahamn area is also an area with a high population level so that an increase in service facilities is needed.

## Acknowledgment

The results of this study intend for us to both know and are able to understand the shape of the urban spatial structure and urban patterns in Banda Aceh, especially in the Baiturrahman sub-district, which is one of the city centers of Banda Aceh and is also the Aceh Province which is responsible for being the main center of the Aceh Government. The Baiturrahman area is also the old city area

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