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Analysis of Patterns and Structure of Use of Space in Belawan Port Area and Surroundings

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Abstract

This study aims to analyze the use of spatial patterns and structures from policies that have been established through the Medan City Spatial Planning (RTRW) and the Medan Belawan District Spatial Detail Plan (RDTR) against current conditions. The analytical method used in this research is descriptive qualitative analysis. Qualitative descriptive analysis is a research method that gives a careful description of certain individuals or groups about the conditions and symptoms that occur. Qualitative descriptive methods were carried out to see the extent of space utilization, spatial descriptive analysis to see the distribution of land use which refers to predetermined spatial patterns and structures, and perspective analysis to determine research location development strategies from the researcher's point of view. The data analysis technique used in this study is GIS analysis using overlays, where this technique is used to determine the suitability of land use changes with land capabilities. From the results of this study, it can be conveyed that the implementation of development in Medan Belawan District refers to and is guided by spatial planning in the use of spatial patterns and spatial structures. Where in the embodiment of development which refers to the RDTR of Medan Belawan Sub-district is 81.90% appropriate, but for the embodiment of the spatial structure between the RDTR of Medan Belawan District with the actual condition of 35.43%.

Keywords
spatial pattern; spatial structure; space utilization

I. Introduction

The spatial pattern of the protected area in the Medan City area aims to prevent environmental damage and preserve the protected function. Areas that provide protection for subordinate areas, local protected areas, and other protected areas, as well as avoiding various businesses and or activities in disaster-prone areas. Types of spatial use of protected areas in Medan City include mangroves; Local protected areas (river borders, lake borders, railway lines, and extra high voltage airways); city green open space; Natural reserves and cultural heritage areas; Disaster-prone areas. Referring to Government Regulation Number 26 of 2008 establishing the National Urban Areas of Medan, Binjai, Deli Serdang and Karo as National Activity Centers, and Government Regulation Number 62 of 2011 concerning RTR The urban areas of Medan, Binjai, Deli Serdang and Karo have designated Medan City as the Center for Activities in the Core Urban Area, namely as the center of main activities and driving the development of the surrounding urban areas. In 2020 the population of North Sumatra amounted to 14,799,361 people consisting of 7,422,046 male residents and 7,377,315 female residents, of which Medan City contributed 2,279,894 people consisting of 1,212,069 male residents and 1,223 .183 female population (BPS, 2021). The population in Medan City has increased from 1,904,273 people in 2000 to 2,435,252 people in 2020, an increase of 530,979 people over the last 20 years, where

Medan Belawan District with an area of 26.25 KM2 contributed to a population increase of 16,537 people (BPS Medan City Regions in Figures in 2021).

The economic condition of the population is a condition that describes human life that has economic score (Shah et al, 2020). Economic growth is still an important goal in a country's economy, especially for developing countries like Indonesia (Magdalena and Suhatman, 2020).

Lubis et al, (2005) in the Planning and Development of Functions of Cities in Certain Areas of Medan and Surrounding Areas stated that Medan City is part of the Metropolitan Area, which is an area that has a major role in the development of North Sumatra Province, because of the role of Medan City as the Capital of North Sumatra Province. And the potential carrying capacity of the hiterland region will become a locomotive for economic growth and the North Sumatra region, so it must be designed in such a way as to become an area that interacts with each other between cities in the area and supports and benefits each other. And this will happen if the concept of planning and regional development in this area is well coordinated. The northern area of Medan City, which includes Medan Belawan District, Medan Labuhan District, Medan Deli District and Medan Marelan District, has not experienced significant development and tends to lag behind the city center to the Regional Regulation of Medan City Number 13 of 2011 concerning the Spatial Referring Planning of Medan City of 2011 – 2031, the Northern Area is designated as the city center in the northern part with functions as a center for regional services and trade activities, transportation service center; center for socio-cultural activities, and center for defense and security.

II. Review of Literature

2.1 Development Planning

Planning is able to overcome the imbalance that is accumulative. This kind of imbalance can be exemplified by the concept of a vicious circle that is often suffered by most of the world's population. The real manifestation of this vicious circle is a condition where a person cannot improve his welfare as a result of the inability of the previous generation to escape poverty (Apriyanti et al, 2011).

2.2 Regional Planning

Planning is a process to determine appropriate future actions through a sequence of options, taking into account available resources. According to Sirojuzilam (2007) the main purpose of planning is to provide information and action in optimally allocating community resources, both related to macro planning and sectoral and regional planning to achieve the desired goals. Regional planning is an application of planning in a location which in this case is a region or region.

2.3 Regional Development Planning

Regional development planning is an economic entity with various elements of interaction. Arsyad, 2009, in Andiny et al, 2020 states that regional economic activities are identified based on regional economic analysis, which is evaluated comparatively and collectively on regional-scale economic conditions and opportunities. Regional development policies are decisions or actions by authorized government officials or public decision makers in order to realize a development condition. The ultimate goal of a development policy is to be able to encourage and increase overall economic growth and

social welfare in accordance with the wishes and aspirations of the people develop in society.

2.4 Spatial Planning

Planning is a form of social action that is directed at the form of the physical environment which in the process is driven by moral, political and aesthetic values. Planning is also defined as intervention in a series of social events in the community with a view to improving the existing series of events by increasing efficiency and rationality; assist or replace the market; changing or expanding choices to a higher level of well-being for all citizens. According to Zumara et al (2008), spatial planning is a process of preparing a spatial plan to improve the quality of the environment and its people as well as the quality of space utilization which structurally describes the interest of an integrated location function for various activities.

2.5 Space Utilization

Amiany (2018) in the Implementation of Spatial Planning in accordance with Law Number 26 of 2007 states that spatial utilization is an effort to realize the spatial structure and spatial pattern in accordance with the spatial plan through the preparation and implementation of programs and their financing, both vertical use of space and utilization of space in in the earth.

2.6 Cities in Regional Growth

Cities are human works of art built to foster life. On the other hand, the city is like an organism that is always evolving, undergoing changes, maturing, and even at risk of facing death. Therefore, cities in this modern age face serious challenges to sustainably survive as a home for humans (R.A. Diningrat et al, 2015). As the region developed, the city expanded, the economic base of the city became diversified, and some cities became less dependent on the periphery.

III. Research Method

This research was conducted in the Medan Belawan District - Medan City, which is one of the cities in the North Sumatra Province. The data used to support this research include: 1. Map of Medan Belawan District (RDTR Medan City); 2. Medan City Map (RTRW Medan City) and North Sumatra Province Map; 3. Map of land use RTRW of Medan City and zoning map of Medan City; 4. District in Figures and City of Medan in Figures for the period 2011-2020; 5. Other secondary data that is still related to the purpose of this study. The analytical method used in this research is descriptive qualitative analysis. The data analysis technique used in this study is GIS analysis using overlays, where this technique is used to determine the suitability of land use changes with land capabilities. The maps compiled are land use maps in 2011 with land use maps in 2020, the overlay results in the form of maps of land use changes in 2011-2020, after which the maps are compiled with land capability maps. The overlay technique is also used to determine the level of suitability of land use changes in 2011-2020 with land capabilities. The results of the overlay are classified into two categories, namely changes in land use according to land capabilities and changes in land use not in accordance with land capabilities. GIS analysis was performed using arc software version 10.1

IV. Results and Discussion

Medan Belawan District is a sub-district in Medan City which is directly adjacent to the Malacca Strait in the North, Medan Labuhan District in the South, Deli Serdang Regency in the West and East which has an area of 26.25 KM2 located at 03o - 48o North Latitude and 98o – 42o East Longitude which consists of 6 Kelurahan.

4.1 Spatial Structure and Spatial Patterns in Medan Belawan District

Medan Belawan Sub-district as one of the sub-centers of city services, which functions as a center for sea transportation services, a center for loading and unloading activities and imports - exports, a defense and security service center, a center for industrial activities and a center for fishery activities. The development of the Medan City road network system in Medan Belawan District is more focused on primary and secondary systems, both for the function of Arterial, Collector, and Local Roads.

a. City Servant Center System Plan

City service center system which aims to improve regional external services which include city service centers; sub city service center; and environmental center. The city service center includes the city service center in the center of Medan City and the city service center in the north. A city service center in the center of Medan City which functions as a center for trade/business activities, a center for services and activities for provincial and city government activities, and a center for economic services. While the city service center in the north serves as a center for regional trade and service activities, a transportation service center, a center for socio-cultural activities, and a center for industrial activities as well as a center for defense and security. Sub city service centers include the service center of Medan Belawan City; the service center for Medan Labuhan City; sub center service for Medan Marelan City; the service center for the City of Medan Perjuangan; Medan Area City service center sub center; Medan Helvetia City service center sub-center; the service center of Medan Selayang City; service center for the City of East Medan. Especially for the Medan Belawan city service sub-center which functions as a sea transportation service center, loading and unloading activity center and import-export, defense and security service center, industrial activity center and fishery activity center, it is set in Medan Belawan District, precisely at the Belawan Harbor train station Long.

b. Road Network Development Plan

1. The road network consists of a network of primary arteries, secondary arteries, primary collectors, secondary collectors, local roads and environmental roads. The primary arterial road network in Medan Belawan District includes: Road Komodor Laut Yos Sudarso starting from road Kol. Bejo to road Sumatra passing through SBWP Pulo Brayan City, SBWP Tanjung Mulia Downstream, SBWP Mabar Downstream, SBWP Mabar, SBWP Kota Bangun, SBWP Titi Papan, SBWP Tanah Six Hundred, SBWP Besar, SBWP Rengas Pulau, SBWP Martubung, SBWP Labuhan Deli, SBWP Week Labuhan, SBWP Belawan Bahari, SBWP Belawan Bahagia, SBWP Belawan 1 and SBWP Belawan 2 at BWP West Medan, BWP Medan Deli, BWP Medan Labuhan and BWP Medan Belawan.
2. Port Road I starting from road K.L Yos Sudarso to the toll gate that passes through SBWP Belawan 2 and SBWP Belawan 1 at BWP Medan Belawan;

3. The Port Road starts from the Toll Gate to the Container Port which passes through the Bagan Deli SBWP at the Medan Belawan BWP.

The secondary arterial road network in Medan Belawan District includes:

1. Plan for road Sicanang starting from road K.L. Yos Sudarso to the West Side Marelan Ring Road which passes through the Pekan Labuhan Deli SBWP and Belawan Sicanang SBWP at the Medan Belawan BWP;
2. The plan for the West Side Marelan Ring Road starting from Road Sicanang to Road Rahmad Budin which passes through the Belawan Sicanang SBWP, Labuhan Deli SBWP and Paya Pasir SBWP at the Medan Belawan BWP and the Medan Marelan BWP.

In addition, in the District of Medan Belawan there is also a collector road network the primary area covers Road Baru Sicanang starting from the Percut River City Limit – Belawan River City Limit.

c. Public Transport Infrastructure and Facilities System Plan

The Public Transportation Infrastructure and Facilities System in Medan Belawan District includes the development of the Belawan Type A Terminal in Belawan II Village. Then the mass transportation line that will be developed is the Feeder (mini bus) route Titi Kuning – Aksara – Brayan – Mabar – Titi Papan – Labuhan – Belawan.

d. Railway Network System Plan

The plan for the railway network system in Medan Belawan District includes the development of the Belawan Railway Station at SBWP Belawan 1 and Gabion Railway Station at SBWP Bagan Deli, BWP Medan Belawan, as well as the development of the railway line from Medan Besar Station – Pulo Brayan – Labuhan – Belawan – Gabion.

e. Marine Transportation Network System Plan

The plan for the Sea Transportation Network System in Medan Belawan District is to improve services at the Port of Belawan as international relations as the main port of goods transport and its supporting facilities and the main port of passengers by conducting coastal reclamation along ± 2 (approximately two) kilometers or an area of ± 294.9 (approximately two hundred 45 ninety four point nine) hectares to the Malacca Strait. Sea shipping lanes to be developed include:

1. Belawan – Tanjung Balai – Batam – Tanjung Priok shipping lanes;
2. The shipping lanes of Belawan – Tanjung Balai, Sei Mangkei and other ports;
3. Belawan – Nangroe Aceh Darussalam shipping lane
4. Belawan – Overseas shipping lanes.

f. River and Lake Transportation Network System Plan and Crossing Transportation

The plan for the River and Lake Transportation Network System and Crossing Transportation includes the development of shipping lanes on the Deli River Channel from BWP Medan Johor to the Percut River in the Planning Area Section (BWP) of Medan Belawan; Percut River flow from BWP Medan Labuhan towards the end of the sea estuary in the Planning Area Sub-Section (SBWP) Bagan Deli at BWP Medan Belawan; and the Belawan River Channel from the Sicanang SBWP at the Medan Belawan BWP to the end of the Sea estuary at the Belawan I SBWP at the Medan Belawan BWP. Development of a wharf for fishery purposes located at SBWP Bagan Deli, SBWP Belawan Bahari at BWP Medan Belawan; wharf for industrial purposes and power generation activities located at SBWP Belawan Sicanang, SBWP Belawan I at BWP Medan Belawan. Crossing

transportation, from Belawan I SBWP to Batang Sere in Deli Serdang Regency and from Belawan I SBWP to Karang Gading in Deli Serdang Regency. River transportation includes: Belawan River from SBWP Belawan I to Batang Sere in Deli Serdang Regency; Belawan River from SBWP Belawan I to Sungai Dua in Deli Serdang Regency; Belawan River from SBWP Belawan I to Paluh Subur in Deli Serdang Regency; Belawan River from SBWP Belawan I to Paluh Makna in Deli Serdang Regency; Belawan River from SBWP Belawan I to Paluh Manan in Deli Serdang Regency; Belawan River from SBWP Belawan I to Karang Gading in Deli Serdang Regency; Deli River from BWP Medan Johor to Percut River at BWP Medan Belawan.

g. Pedestrian Plan

Pedestrianization in the center of activity is integrated with the aim of improving the quality of urban tourism, conserving historical buildings and improving the quality of urban space design. The activity center area is expected to become a pedestrian-oriented area, one of which is the Transit Oriented Development (TOD) at BWP Medan Belawan, which is located at SBWP Belawan I and SBWP Belawan II.

h. Energy Grid System Plan

The actual condition related to the Energy Network System in Medan Belawan District consists of power plants consisting of PLTG and PLTU Sicanang, Belawan Substation 150 KV, and transmission networks for High Voltage Air Ducts 150 KV, and Extra High Voltage Air Ducts 500 KV. The 500 KV SUTET transmission network interconnects northern Sumatra which crosses the Belawan SBWP Sicanang BWP Medan Belawan.

i. Telecommunication Network System Plan

Development of a fiber optic network as well as plans to improve services on each road segment at BWP Medan Belawan. The plan for the placement of telecommunication towers for Base Transceiver Station (BTS) which is classified into 2 (two) types, namely Green Field BTS and Rooftop BTS. The development of Green Field BTS as many as 27 (twenty seven) BTS in Medan Belawan SBWP Bagan Deli, Belawan Happy SBWP, Belawan Bahari SBWP, Belawan I SBWP, Belawan II SBWP and Belawan Sicanang SBWP. Development of BWP Medan Belawan with a total of 4 (four) BTS at SBWP Belawan I.

j. Water Resources Network System

The development of a flood control system was carried out through normalization of the Deli River in SBWP Bagan Deli, SBWP Belawan Bahari and SBWP Belawan Sicanang in BWP Medan Belawan, as well as normalization of the Belawan River in SBWP Bagan Deli, SBWP Belawan I and SBWP Belawan Sicanang at BWP Medan Belawan. Construction of the Belawan River embankment at SBWP Bagan Deli, SBWP Belawan I, SBWP Belawan Sicanang at BWP Medan Belawan. Deli River embankment construction in all SBWP in BWP Medan Belawan. Construction of the Belawan River sluice gate located at SBWP Bagan Deli, SBWP Belawan I and SBWP Belawan Sicanang at BWP Medan Belawan. The construction of the Deli River floodgates located at the Bagan Deli SBWP, Belawan Bahari SBWP and Belawan Sicanang SBWP at the Medan Belawan BWP.

k. Drinking Water Supply System

Build clean water infrastructure for public faucets (KU) and public hydrants (HU) for communities that are difficult to reach by PDAM and for areas with poor groundwater conditions, such as in the North Medan area. Development of a pumping system (booster pump) to provide clean water or drinking water served by PDAM Tirtanadi in Medan Belawan District. Development of raw water network for clean water through improvement of piping network managed by drinking water companies.

l. Wastewater Management System

In the waste water management system of Medan City, the North Medan area including the Medan Belawan District is an on-site system development service area, so that the focus of planning is to provide public toilet facilities and communal septic tanks for 7 - 10 families. The development of the industrial wastewater network is carried out through a piping system with wastewater treatment carried out at the IPAL located in the industrial area at the BWP Medan Belawan.

m. Drainage System Plan

The plan to develop a drainage network system is carried out through a program for widening drainage channels and culverts, cleaning garbage and dredging sediment. The plan to develop a drainage network system is carried out through the development of a primary drainage network in canals located in each primary arterial road, secondary artery, and primary collector. Development of secondary drainage network in canals located in each secondary local road segment. Development of a tertiary drainage network in canals located in each road segment in the primary and secondary environments.

n. Air Transport Network System Plan

The air transportation network system consists of airports and airspace. Where the airport has been established in Kualanamu, while the air space for flights will be further determined by the management agency in accordance with applicable regulations.

o. Waste Management System

The estimated amount of waste generated in Medan Belawan Sub-district in 2030 is 291.88 m3/day, with a total served waste of 262.69 m3/day, and the need for TPS for waste is 49 units. The development of the waste management system is carried out through the realization of Temporary Shelters (TPS) for waste at each SBWP at BWP Medan Belawan.

4.2 Spatial Pattern of Medan Belawan District

The Medan Belawan Subdistrict Spatial Pattern Plan based on the 2015-2035 Medan Belawan Subdistrict Detail Spatial Plan consists of Protected Areas and Cultivation Areas. Types of spatial use of protected zones in Medan Belawan District consist of mangrove zones or nature reserves; local protection zones; green open space zone; disaster-prone zone; cultural heritage zone; and tourism zone. The type of cultivation zone space utilization in Medan Belawan District consists of a non-green open space zone; agricultural zone; residential zone; trade and service zones; office zone; industrial zone; zone of public service facilities; and special zones.

4.3 Analysis of the Suitability of Utilization of Spatial Structure Plans

The assessment of the suitability of the spatial structure with the utilization of existing space is assessed based on the realization of the program or physical in the RTRW

of Medan City in 2011 - 2031 and RDTR of Medan Belawan District in 2015 - 2035, with current conditions.

a. Analysis of the Suitability of the Spatial Structure Plan based on the RTRW of Medan City in 2011-2031

Assessment of the suitability of the spatial structure with the utilization of existing space based on the RTRW of Medan City in 2011 - 203, it can be seen that the results obtained that the suitability of the spatial structure of the Activity Service Center is 35.71%. The suitability of the spatial structure plan is based on the realization of the existing conditions with the largest percentage of 100%, namely the realization of the city service center system, sea transportation, energy network. The low assessment of the realization of the spatial structure plan in the existing condition is the Plan for the Infrastructure System and Public Transportation Facilities, pedestrians, railway networks, water resources, and solid waste.

b. Analysis of Suitability of Spatial Structure Plans based on RDTR Medan Belawan District 2015-2035

The following table presents the assessment of the suitability of the spatial structure with the use of existing space based on the RDTR of Medan Belawan District in 2015 - 2035: the results show that the suitability of the spatial structure based on the realization of the spatial structure plan in Medan Belawan District is 35.43%, with the largest suitability value in the embodiment of the BWP function. Medan Belawan is 100%, energy network system development is 86.67% and sea transportation network system development is 83.33%. The realization of the spatial structure plan with the lowest value of 0%, namely the pedestrian plan, railway network, water resources, waste water management, and waste management.

4.4 Analysis of Suitability of Utilization of Spatial Pattern Plans 4.3.2.1 Analysis of Suitability of Spatial Pattern Plans for Medan City RTRW 2011 - 2031

The suitability analysis of the pattern plan is carried out through an overlay between the allotment plan in the RTRW Spatial Pattern Plan and the actual conditions based on the 2020 land cover map. Then, the suitability of each spatial designation plan in the RTRW with actual land cover is seen. The variable assesses the suitability of the allotment plan with the actual condition of land cover, taking into account the zoning direction of the land use plan in the Medan City RTRW 2011-2031 document. 36% or an area of 1,067.02 ha, 30.04% unsuitable or an area of 706.66 ha and not suitable at 24.59% or an area of 578.5 ha.

From the results of the overlay in 2015 there were protected and industrial areas where, the spatial pattern plan contained in the Medan City RTRW for Protected Areas covering an area of 889.09 Ha or 26.99% but in 2015 it was still an area of 1,443.65 Ha or an area of 43, 83% consisting of mangrove areas, swamps/shrubs and ponds/ponds. Likewise, the planned use of land for industry is 28.29 hectares or 0.86% if overlaid in 2015 is still not in accordance with the designation where the industrial area is still not well organized with an area of 490.29 hectares or 6.28 hectares. %. Meanwhile, the fulfillment of Green Open Space is still too small, which according to the plan of Green Open Space covering an area of 501.80 Ha until 2015 is still 88.13 Ha or 17.56% fulfilled. If we compare the overlay results between 2015 and 2020 conditions, there is no very significant deviation, which means that from 2015 to 2020 there is not much land use change in Medan Belawan District.

Analysis of Suitability of Spatial Pattern Plans for RDTR Medan Belawan District 2011 – 2031

The analysis of the suitability of the pattern plan is carried out through an overlay between the allotment plans in the 2015-2035 RDTR Spatial Plan in Medan Belawan District and the actual conditions based on the 2020 land cover map. Then, the suitability of each spatial designation plan in the RTRW with actual land cover is seen. The variable assesses the suitability of the designation plan with the actual condition of land cover, taking into account the zoning direction of the land use plan in the RDTR document of Medan Belawan District 2015 – 2035.

Based on the results of the overlay outlined, the level of suitability of the RDTR Spatial Pattern Plan in Medan Belawan District in 2015 - 2035 with the actual conditions of 81.90% or an area of 2,832.37 ha, not appropriate at 7.41% or an area of 256.21 ha and not appropriate of 10.69% or an area of 369.56 ha. Where the results of the overlay carried out by the designation of Urban Forest Green Open Space that have been in accordance with their designation are only 27.63% or an area of 77.78 ha and 58.68% or an area of 165.14 ha are not suitable.

4.5 Criteria for Assessment of the Suitability of Space Utilization

The assessment of the suitability level of spatial use is carried out by taking into account the provisions of the Regulation of the Minister of Agrarian Affairs and Spatial Planning No. 9 of 2017 concerning Guidelines for Monitoring and Evaluation of Spatial Utilization. The classification of the results of the evaluation of the suitability of space utilization is presented as follows: Combining the value of the suitability of the spatial structure plan with the spatial pattern plan in the Medan City RTRW document for 2011-2031 against the actual conditions, the result is 40.53% which means the level of suitability of space utilization is of poor quality, This means that the implementation of space utilization is not in accordance with the structural plan and spatial pattern in the RTR. The combination between the assessment of the realization of the spatial structure and the spatial pattern of the RDTR of Medan Belawan District in 2015 – 2035 is 58.66%, which means that the level of space utilization is of poor quality, meaning that the implementation of space utilization is not in accordance with the structural plan and spatial pattern in the RDTR.

a. Assessment of the Suitability of the Spatial Structure Plan in Medan Belawan District

Based on the results of the analysis, it was found that the suitability of the embodiment of the spatial structure in Medan Belawan District based on the comparison between the indications of the Medan City RTRW program in 2011 - 2031 with the actual conditions, the results were 35.71%. Based on the comparison between the indications of the RDTR program in Medan Belawan District in 2015 - 2035 with the actual conditions of 35.43%, with the greatest suitability for the realization of the Medan Belawan BWP function of 100%, the development of the energy network system by 86.67% and the development of the marine transportation network system. by 83.33%. The function of the Medan Belawan sub-district is as a center for sea transportation services, a center for loading and unloading and import-export activities, a center for defense and security activities, a center for industrial activities and a center for fishery activities, based on the RTRW of Medan City in 2011-2031 and the RDTR of Medan Belawan District in 2015-2035, is not a new function imposed on the Medan Belawan District. As part of the coastal area of Medan City which is located in the Malacca Strait trade route, Medan Belawan

District is strategic for trade, fisheries, defense, security and industrial activities. However, supporting economic activities have not developed in Medan Belawan District.

b. Assessment of the Suitability of the Spatial Pattern Plan in Medan Belawan District

The suitability of the land use plan in the RTRW of Medan City in 2011-2031 with the actual conditions in Medan Belawan District is 45.36% or an area of 1,067.02 ha. The land designation plan that is not suitable is 706.66 ha or 30.04%, and the unsuitable area is 578.5 ha or 24.59%. The embodiment of the spatial pattern plan in the RDTR of Medan Belawan Sub-district in 2015 – 2035 with the existing conditions obtained results of 81.90% or the level of suitability of quality space utilization. The use of space is not suitable by 7.41% or an area of 256.21 ha and not suitable by 10.69% or an area of 369.56 ha. There is a difference in the level of suitability of the spatial pattern plan between the regulations of the RTRW of Medan City in 2011 – 2031 in Medan Belawan Sub-district and the RDTR of Medan Belawan Sub-district in 2015 – 2035. This is because there is a difference in the map scale between the RTRW document at a scale of 1:25,000 and the RDTR at a scale of 1 :5,000. In the preparation of the RDTR, several spatial use plans have not been accommodated in the Medan City RTRW document. The allocation of space with the largest area, namely mangroves/nature reserves, blue open spaces, and Paluh borders are mostly in accordance with actual land cover. Then, the reclamation plan on the RDTR covering an area of 294.90 ha has been realized in 2020. However, the utilization of the mangrove area in Medan Belawan District as one of the economic drivers of the community has not been maximized. The potential for the utilization of mangrove areas for nature-based tourism and recreation activities is very large but has not been utilized properly. In order to support the realization of the function of the Medan Belawan BWP in the RDTR of Medan Belawan District in 2015 – 2035, it is necessary to realize the spatial structure plan.

The embodiment of the spatial pattern that is categorized as not yet suitable is in the designation of settlements, urban forest green open space and urban urban green open space parks, where the actual conditions are still vacant land, shrubs, and swamps. The realization of housing designation often depends on the need for housing which is directly proportional to population growth. The development of supporting infrastructure (embodiment of spatial structure) in Medan Belawan District has not been maximized in realizing the Medan Belawan BWP as one of the activity centers in North Medan. This is also not enough to attract population movement to the Medan Belawan sub-district. With strong economic activity in the northern region, housing for the middle class is expected to grow in the Medan Belawan area which in turn will accelerate the growth of the northern region of Medan City. The low realization of urban forest green open space and urban village park green open space occurs due to constraints in land acquisition. The cost needed to realize green open space is quite large, because the Medan City Government does not have a land bank in the Medan Belawan District in the areas that are planned as green open spaces. If you look at the community side, land owners who have a designation as green open space, also cannot build on the land they own.

V. Conclusion

1. Implementation of the embodiment of the utilization of the spatial pattern has not been realized in its entirety, where: The suitability of the embodiment of the spatial pattern of the Medan City RTRW in 2011 – 2031 with the actual condition is 45.36%; The

suitability of the spatial pattern of the RDTR of Medan Belawan District in 2015 - 2035 with the actual condition of 81.90%;

2. Implementation of the embodiment of spatial structure utilization has not been realized in its entirety, where: The suitability of the embodiment of the spatial structure in Medan Belawan District based on the comparison between the RTRW of Medan City in 2011 – 2031 with the actual condition is only 35.71%; The suitability of the embodiment of the spatial structure between the RDTR of Medan Belawan District and the actual conditions is 35.43%; The greatest suitability for the function of the Medan Belawan BWP is 100%, the development of the energy network system is 86.67% and the development of the marine transportation network system is 83.33%; Meanwhile, the city service center system as a whole has also been realized, the plan to develop a special road network for primary arterial roads has also almost been realized.

If the combined value of the suitability of the structural plan and spatial pattern in the RDTR document of Medan Belawan District is 58.66%, it means that the level of space utilization is of poor quality and not in accordance with the structural plan and spatial pattern.

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