Analysis of Slum Management Plan in East Area Covering Medan Area and Medan Denai District

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Abstract

This research is based on the need to analyze the planning of handling slums in Medan where in SK slums in 2018 the slum area of Medan City is 200,292 ha but then in 2020 with the renewal of SK Kumuh increased to 819.80 Ha. The Eastern District of Medan Area and Medan Denai are part of the slums of Medan City which has a slum area of 73.74 ha needs to be analyzed to obtain proper planning so that the budget for handling slums in the area is effective and efficient. For the efficiency and effectiveness of the slum handling budget is done by analyzing 8 (eight) indicators. To obtain influential indicators and priorities of handling 8 (eight) indicators are carried out with several approaches, namely field observation and Analytical Hierarchy Process (AHP) method by analyzing questionnaires given to informants of this research, namely 10 (ten) Government Representatives and 10 (ten) Community Representatives and strengthened by secondary data that is then described qualitatively. Based on the results of the analysis obtained that 8 (eight) indicators analyzed have an effect on the Slum Management Plan in the East because all these indicators have problems that create slums and AHP results show that both government representatives and community representatives agree drainage and waste as a priority indicator of initial handling and Fire Protection and WasteWater as the last handling so that the planning of handling slums in the Eastern Region in the top - down and bottom - up is the same.

I. Introduction

The availability of houses in Medan in 2018 based on the RP3KP Document of Medan City in 2019 there are 502,574 units where in 2019 the population of Medan City as many as 577,080 families and ideally each household occupies its own residence but due to government and community limitations there is a residential backlog for 74,506 households. In Medan, the most houses in Medan Labuhan District as many as 40,078 units, and the fewest houses in Medan Baru District with a total of 8,092 units, this condition shows the uneven distribution of houses in Medan. In addition, economic factors as well as poverty and due to the increase in the number of residents both from immigrants and the indigenous people of the city itself became one of the triggers for the emergence of unfit housing that was largely built but did not have access to PSU facilities to be one of the causes of the existence of slums.

Medan City has 3 (three) times conducted the determination of slums in 2015 at the Decree of the Mayor No. 640/039.K/I//2015 amounting to 200.29 Ha located in 42 villages in 18 Districts, in 2018 at DECREE No: 640/580.K/XI/2018 is located in 40 Districts and 17 Districts also with an area of 200.29 ha then re-identified in 2020 which is stipulated in the Decree of the Mayor Number: 640/06.K/XII/2020 and obtained 15 Districts and 42

Villages with the addition of an area of 819.80 ha slum area. From the data in the Medium Term Investment Program Plan Document of Medan City in 2018-2023, the allocation of slum management budget has a job value of ± Rp.200.5 billion with the largest contribution from the Medan City Government itself of Rp.118.5 billion and the rest through the State Budget and North Sumatra Provincial Budget.

Medan City Government has conducted collaborative handling of slums at every level of government ranging from the Central Government, Provincial Government and together with related stakeholders, environmental activists and activists. However, the data in the Medan City Medium Term Investment Program Plan Document for 2018 - 2023 from 2017 to 2019 shows that the allocation of the Medan slum management budget has a job value of ± Rp. 200.5 billion with the largest contribution from the Medan City Government of Rp. 118.5 billion where most of the funds for handling the slums are used for environmental road rehabilitation (47.7%) and rehabilitation of environmental drainage (34.6%).

II. Review of Literature

2.1 Regional Planning

Planning as a decision for the future, what will be done, when to do and who will do (Handayaningrat *in* Safi'i, 2007). While the region or region can also be interpreted in general as a "region" that has a boundary, that can be in the form of one country, one or several provinces, one or several districts and or one or more cities (Achmad Djunaedi, 2012). Also according to Achmad in one region (country, province, district, city) development planning can be sectoral (e.g. education, tourism, health, and so on) or cross-sectoral. Cross-sectoral planning is most often done is: *spatial planning* and regional *development planning*. Judging from the aspect of the target groups planning a plan can be aimed at a certain group (eg: communities in slums, poor communities, certain tribal communities, disadvantaged communities and so on) or for the public (the wider community) in an area.

2.2 Housing and Settlements

Housing is a collection of houses as part of settlements, both urban and rural, equipped with infrastructure, facilities, and public utilities as a result of efforts to fulfill habitable homes (Law No.1 of 2011). Nugroho (2010), *settlement* or settlement is a group of units of residence or human residence that includes facilities such as house buildings, roadways and other facilities used as a means of human service.

The term slum settlement has been regulated in "Law Number 1 of 2011 concerning Housing and Settlement Areas which states that slum settlements are uninhabitable settlements due to building irregularities, high levels of building density, and insufficient quality of buildings and facilities and infrastructure. terms ". Slum settlements often appear in areas where buildings should not be allowed, such as in watersheds (DAS). Slum settlements in the watershed can damage the face of the city, more fatally it can cause flooding (Aldhila et al, 2021).

2.3 Residential Environmental Infrastructure

Jayadinata (1992 in Juliawan, 2015:5) defines infrastructure as a potential factor that is very important in determining the direction and future of development of an area, because development will not be successful and run well without adequate infrastructure support, city infrastructure is a public facility that becomes the main support for the

implementation of a process or activity in the city that will ultimately determine the development of the city.

There are several indicators of environmental infrastructure that must be fulfilled so that a settlement can be said to be habitable, namely:
1) SNI 03-1733-2004 on Procedures for Urban Residential Environmental Planning.
2) The United Nations has developed 17 targeted sustainable development goals that can be met by 2030 where the *Sustainable Development Goals (SDGs)* indicators for decent Housing and Settlements in Indonesia.
3) Based on The *Sphere Handbook (2018)* entitled *Humanitarian Charter and Minimum Standards in Humanitarian Response*.

2.4 Slums

According to Muta'ali (2006) the characteristics of the slums that stand out and need to be considered are as follows: Houses that use straw as roof coverings; Do not have good windows/ventilation; Division of space that does not meet the standard of allocation; Weathered floor and wall conditions; Inhabited by unproductive family members; The livelihoods of the head of the family in the low-income segment of the job; Sanitation of the house is not feasible; Residential neighborhoods are in settlements with poor sanitation.

Acharya (2010) argues that the slums are settlements whose physical facilities are not feasible such as the unavailable green open space, poor drainage system, inadequate clean water, non-existent communication networks and social facilities such as inaccessible health facilities. Regulation of the Minister of Public Works and Public Housing No. 14/PRT/M/2018 concerning Prevention and Quality Improvement of Slums and Slums Article 18 paragraph (2) there are criteria for slum housing and slums that are determined to be reviewed from the conditions: Building Buildings, Environmental Roads, Drinking Water Supply, Environmental Drainage, Waste Water Management, Waste Water Management and Fire Protection

2.5 Direction of Housing and Settlements in Indonesia

To achieve the City of the Future, the Government set a long-term scheme targeted for achievement in 2045, namely a competitive and technology-based Smart City realized throughout Indonesia. This target begins with the achievement of Minimum Urban Service Standards in 2025 with indicators of the realization of 100% Livable Cities and then continued in 2035 with the realization of 100% Green City whose explanation can be seen in Figure 1 below.

Figure 1. National Urban Development Roadmap

Here are three concepts of urban planning in Indonesia that will be used as a reference, namely the concept of Livable City, the concept of Green City, and the concept of Smart City.

The explanation of the three concepts of urban planning in Indonesia is as follows:

1. Concept of a Livable City

Livable City or also called Livable City is an urban condition where the people who live in it feel calm and comfortable. Hahlweg (1997) argues that the city is said to be habitable if the city can accommodate and organize all activities in the community safely. In order to realize a livable city or *Livable City* there is a basic principle for the creation of a livable city and comfortable for the people who inhabit it. The basic principles for the realization of *Livable City* are: Availability of basic needs such as decent housing, electricity, clean water; Availability of public and social facilities such as green open spaces, religious facilities, health and education; Availability of public areas as a place to socialize and interact; Safe, no fear; Social, economic and cultural functions are well supported; Access to sanitation and the physical environment is well maintained. The government designated the Livable City as part of Indonesia's Future City Target by prioritizing slum handling, providing access to drinking water and sanitation as well as waste management and transportation.

2. Green City Concept

The city can be referred to as the Green City, among others has the following criteria: Urban development must comply with applicable laws, such as Law No. 24 of 2007 on Disaster Management (Green city must be a disaster alert city), Law No. 26 of 2007 on Spatial Planning, and Law No.32 of 2009 on Environmental Protection and Management, and other regulations; *Zero Waste* (has an integrated waste processing system); *Zero Run-off* (using an eco-drainage system where all surface water must be absorbed back into the ground); Green Infrastructure (availability of pedestrians and lanes for bicycles); Meets 30% area for Green Open Space from city area (20% for Public and 10% for Private); Green Building; Green Transportation (the availability of environmentally friendly mass transportation, the use of non-fuel transportation such as bicycles, delman, rickshaws and the community is actively on foot); Community Participation Rate through the establishment of Green Community.

3. Smart City Concept

The concept of *smart city* originated from IBM company that aims to create Smart City that utilizes technology for public services such as for utilities and energy, health, clean water, public safety, education and government systems so that urban systems can run more effectively and efficiently. Some countries that have implemented Smart Cities such as Korea (Seoul), The Netherlands (Amsterdam), Spain (Barcelona) and Denmark (Copenhagen). Smart City was created to improve the quality of life of people in urban areas. Smart City indicators are: *smart living, environment, utility, economy, mobility, people*.

III. Research Methods

This study uses a qualitative descriptive approach. The research was conducted in Medan Denai District and Medan Area District of Medan City, with the object of research analysis on the handling of slums. In choosing reponden can be done intentionally (puposive sampling) or accidentally (random sampling). Data collection is done by Analytical Hierarchy Process (AHP) Method (Saaty, 2003). Data analysis using observation/ direct observation and literature.

IV. Results and Discussion

4.1 Condition of Infrastructure facilities in the Eastern Area of Medan City

In the Eastern Region, the number of building units is the largest in Tegal Sari Mandala III village with 2,971 units and 295 uninhabitable building units, Tegal Sari Mandala I village with 1,928 units and 120 units of uninhabitable buildings, Tegal Sari Mandala II Village with 1,577 units and 185 units of uninhabitable buildings, Tegal Sari I Village with 959 units with 181 units of uninhabitable buildings and Tegal Sari III Village with 723 units and 616 uninhabitable building units. The location of settlements in the Eastern Region is a typology of lowland settlements where there arealso irregular building conditions in the Eastern Region and not in accordance with the Spatial Plan Spatial Detail Plan includes the allocation, laying that does not meet the provisions of building and quality systems, and the concept of identity and environmental orientation seen in buildings that stand on the border of the Sulang Saling River totaling 219 units and 25 units standing on the drainage of Jl. Elang.

a. Road Conditions

The road condition in Tegal Sari Mandala III Village has a length of 10,436 meters with a damaged road surface of 2,511 meters, Tegal Sari Mandala II village has a length of 8,289 meters with a damaged road surface of 1,920 meters, Tegal Sari Mandala I Village has a road length of 7,706 meters with a damaged road surface of 1,606 meters, Tegal Sari I Village has a road length of 5,177 meters with a damaged road surface of 3,428 meters and Tegal Sari III Village has a road length of 3653 mete r with a damaged road surface of 1,278 meters.

b. Drainage Conditions

Based on the area with puddles of 30cm>2 hours>2x per year sorted from the widest area of the inundation level that tegal sari mandala II village inundated with an area of 23.77 ha with a drainage length of 16,578 meters, Tegal Sari I village is inundated with 10.74 ha with a drainage length of 10,354 meters, Tegal Sari Mandala III village is inundated with 9.72 ha with a drainage length of 20,872 meters, Tegal Sari Mandala I Village is inundated with 6.42 ha with a drainage length of 15,400 meters and Tegal Sari III Village is inundated with 4 ha with a drainage length of 7,270 meters. Areas in the Eastern Region are prone to flooding if heavy rains are caused by secondary channels connected to the primary channel (river) with conditions have decreased function, the thickness of sediment in drainage and there are house buildings standing on the drainage seen in Tegal Sari Mandala II Village so that drainage does not work properly.

c. Drinking Water Conditions

The condition of drinking water with a sufficient quantity of drinking water 60 liters / day in the Eastern Region namely Tegal Sari Mandala II Village with a population of 20,861 people is only enough 19,250 people so that there are 1,611 people who are not fulfilled, Tegal Sari I village with a population of 8,933 people is sufficient for 8,900 people and only 33 people are not fulfilled, Tegal Sari III Village with 10,635 people is sufficient 8,200 people and 2,435 people are not, Tegal Sari Mandala I village with a population of 11,123 people is sufficient for 6,680 people and 4,443 people who are not and Tegal Sari Mandala III village with 31,479 people fulfilled 14,730 people with 16,749 people who have not fulfilled the most drinking water needs. Access to drinking water in the Eastern Region is sourced from PDAM, land wells, rain water reservoirs and river water, and there are a number of residents who consume gallons of water to be used as drinking water.

d. Waste Water Conditions

Based on The Baseline Data of Kotaku Year 2019 in the Eastern Area of Medan City as for the number of families that are not accessible waste water system in accordance with technical requirements as many as 2787 families where sequenced from the low access of waste water is in tegal sari I village, Tegal Sari Mandala II village, Tegal Sari Sari III village, Tegal Sari Mandala I village and Tegal Sari Mandala III village.

e. Waste Conditions

Based on Kotaku Baseline Data in 2019 there are the number of households with waste management facilities and infrastructure not in accordance with technical requirements (bin trash, garbage carts, TPS 3R, TPST) as many as 8288 families and the number of families with waste processing systems is not in accordance with technical requirements (waste, collection, transportation, processing) as much as 6844 families. Waste management system that is not in accordance with the technical standards is due to the system of waste management that hasnot functioned optimally and the lack of concern of residents in waste management is one of the causes of the system has not run well and the number of residents in Tegal Sari Mandala II Village who work as garbage collectors / scavengers who put the results of the garbage collection in the front area of the house or the yard and on the street. If ordered from the waste processing system is not in accordance with the widest technical requirements namely Tegal Sari Mandala III Village, Tegal Sari Mandala II Village, Tegal Sari Mandala I Village, Tegal Sari III Village and Tegal Sari I Village.

f. Fire Protection Conditions

Based on Kotaku Baseline Data in 2019, the number of buildings not served by fire protection infrastructure as much as 7025 units and the number of buildings that are not served by fire protection facilities as much as 7025 units, where one of the fire protection problems is caused by the unavailability of water supply for blackouts that meet technical requirements and inadequate road width conditions for firefighting facilities, especially in Tegal Sari I and Tegal Sari Districts III which is dominated by environmental roads that have a width of <3 meters and the absence of fire posts that serve the area as a result of the unavailability of fire protection is obtained data from the Department of Prevention and Fire Department of Medan City that from 2016 - 2020 in the Eastern District of Medan Area and Medan Denai include Tegal Sari I Village , Tegal Sari III Village, Tegal Sari

Mandala I Village, Tegal Sari Mandala II Village and Tegal Sari Mandala III Village over a period of 5 years there have been 21 (twenty-one) fire incidents in the area.

g. Green Open Space (RTH)

In accordance with Permen PUPR No. 05/PRT/M/2008 concerning Guidelines for The Provision and Utilization of Green Open Space in Urban Areas, RTH village should be available at least 9,000 m² or equivalent to 0.3 m²/soul but from the observation of the RTH field in all villages is not yet available.

4.2 Priority handling of slums in Medan Area and Medan Denai Districts

Priority indicators of handling slums in the East District of Medan Area and Medan Denai are as follows.

Table 1. Priority Handling of Government Representatives

Slum Indicators	Priority Handling
D = Drainage	1
F = Waste	2
B = Environmental Road	3
H = RTH	4
A = Building	5
C = Drinking Water	6
G = Fire	7
E = Waste water	8

Table 2. Priority handling of community representatives

Slum Indicators	Priority Handling
D = Drainage	1
F = Waste	2
H = RTH	3
B = Environmental Road	4
C = Drinking Water	5
A = Building	6
G = Fire	7
E = Waste Water	8

Table. 3. Average Government and Community Responses

criterion	government	community	sum	Average
A = Building	0.0702	0.0531	0.1233	0.0617
B = Environmental Road	0.1427	0.1374	0.2801	0.1401
C = Drinking Water	0.0695	0.0669	0.1364	0.0682
D = Drainage	0.2896	0.2789	0.5685	0.2843
E = Waste Water	0.0191	0.0176	0.0367	0.0184
F = Waste	0.2132	0.2054	0.4186	0.2093
G = Fire	0.0574	0.0519	0.1093	0.0547
H = RTH	0.1382	0.1888	0.3270	0.1635

Based on Table 3. above, then through the calculation of the average results of AHP priority government representatives *(expert sampling)* and community representatives *(participatory sampling)* obtained a priority order indicators handling slums in the Eastern District of Medan Area and Medan Denai as follows:

Table 4. Priority of Handling Slums in The Eastern Area of Medan City

Slum Indicators	Priority Handling
D = Drainage	1
F = Waste	2
H = RTH	3
B = Environmental Road	4
C = Drinking Water	5
A = Building	6
G = Fire	7
E = Waste Water	8

V. Conclusion

1. From the observations and secondary data obtained related to 8 (eight) indicators in the Eastern District of Medan Area and Medan Denai that both Buildings, Environmental Roads, Drinking Water, Environmental Drainage, Waste Water, Waste Water, Fire Protection, and Green Open Space have an effect on the Plan of Handling Slums in the East Because all these indicators have problems that create slums in the area.
2. *Analytical Hierarchy Process (AHP)* against 8 (eight) indicators in the Eastern District of Medan Area and Medan Denai include Tegal Sari I Village, Tegal Sari III Village, Tegal Sari Mandala I Village, Tegal Sari Mandala II Village and Tegal Sari Mandala III Village concluded the priorities of handling government representatives *(expert sampling)* and community representatives *(participatory sampling)* are as follows:
   a. Both Government Representatives *(Expert Sampling)* and Community Representatives *(Participatory Sampling)* agreed that the priority of handling slums in the Eastern Region should be to solve drainage and waste problems.
   b. That there is a correlation between the two priority indicators.
   c. Differences in community and representative priorities.
   d. In the third priority community representatives indicate the need for Green Open Space.

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