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Flood Management Strategy in Samarinda City, East Kalimantan Province

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ABSTRACT

Samarinda is the capital city of East Kalimantan Province. Geographically the location of Samarinda City is very strategic, thus making Samarinda a city of services, industrial trade and settlements with environmental insight. As the capital, the rapid urbanization and migration from other areas has spurred the development of settlements which tend to deviate from the concept of sustainable development without proper mitigation. This incident resulted in the frequency of flood disasters in Samarinda City being increasingly encountered by the public. The flood disaster hampers the traffic activities of people's lives and causes losses suffered by the community. The Samarinda City Government must pay attention and make efforts to improve and restore governance in flood control strategies. So that flooding in Samarinda City can be mitigated and prevented in order to create a flood-free on Samarinda City.This reasearch intends to formulate a strategy of flood control in the city of Samarinda using the theory of the strategy proposed by Bryson, with a qualitative descriptive ap- proach. Data collection through interviews and documentation.

1. Introduction

Flood disasters in urban areas have become an endless problem for humans, these disasters are the result of natural events or the result of human activities and can even be simultaneously caused by nature and humans. Flood disaster can harm many people because it has a negative impact on health or on the environment. Floods often paralyze facilities and infrastructure and hinder human activities. One area that is often hit by floods is Samarinda City in East Kalimantan Province. With the enactment of Law Number 23 of 2014 concerning Regional Government, it will bring broad responsibilities for government agencies at the

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regional level to realize the goal of regional autonomy, namely accelerating the achievement of people's welfare. . Given that the main function of the government is to improve the welfare of the community, local governments with renewal and supervision need to continue to strive to increase the quantity and quality of development, one of which is to increase the quantity and quality of physical development of flood control in Samarinda City.

Samarinda City is a city with rapid development from all aspects, especially Samarinda City is the capital of East Kalimantan Province and is also a buffer zone for the current state capital. Based on its geographical condition, Samarinda City has an area of 718 square kilometers, of which 180,000 square meters is a water catchment area. However, in the midst of this development, the city of Samarinda is still plagued with flooding problems. The phenomenon of flooding that occurs in Samarinda City does not only occur during the rainy season but when it rains with a duration of 3 hours it can cause flooding, as happened on Jalan Erjadi in Palaran District, Antasari Street, Juanda Street, Wijaya Kusuma Street, and Suryanata Street (Muhammad Budi Kurniawan, 2022). This condition is very concerning for the residents of Samarinda City because it interferes with community and government activities in carrying out project work. Previously, in March 2022, according to data from the East Kalimantan BPBD, the flood in Samarinda City affected 3,208 families or 13,447 residents in 3 sub-districts and the flood also submerged 1,722 houses (Muhammad Budi Kurniawan, 2022). In addition, in the previous year, in 2021, floods in Samarinda City caused 9,444 residents of five villages in two sub-districts in Samarinda City, East Kalimantan (Kaltim), to be affected by floods (Safyra Primadhyta, 2021).

The following presents data on the number of floods in Samarinda City in the last 3 years, namely 2019, 2020, and 2021.

Table 1
History of Flood Disasters in Samarinda City in the last 3 years.

No	Year	Number of Flood Disasters in Samarinda City
1.	2019	22
2.	2020	71
3.	2021	12
Total		105

Source: Pusdalops BPBD East Kalimantan Province (processed by the author)

Disaster management efforts in the regions need to start with regional policies aimed at tackling floods that harm all aspects of people's lives. It takes a strategy in dealing with disasters that need to be adapted to regional conditions. The flood disaster management strategy in Samarinda City must be ensured to be effective, efficient and sustainable. This is intended to support the development of a disaster management system that includes policies, strategies and operations. Thus, of course, strategic and significant efforts are needed from the Government, especially the Regional Government of Samarinda City in overcoming and tackling flood disasters in Samarinda City.

2. Method

This research is a research with a descriptive qualitative approach. One of the reasons for using a qualitative approach is that this method can be used to find and understand what is hidden behind phenomena that are sometimes difficult to understand satisfactorily, so this method is needed to understand more deeply

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about phenomena that are considered difficult to understand. Informants were determined by snowball sampling technique. Data collection techniques are interviews and documentation.

3. Results and Analysis

Samarinda City is the capital of East Kalimantan Province and is bordered by Kutai Kartanegara Regency. The area of Samarinda City is 718 km2 and is located between 1170 18' 00" east longitude and 1170 18' 14" east longitude between 000 19' 02" south latitude and 000 42' 34" south latitude. The city of Samarinda is located in a topography with a non-extreme altitude, ranging from 0-200 masl. Almost 24.17% of the area is located at an altitude of 0-7 masl which is generally located in the middle near the Mahakam river. About 41.1% is an area that is at an altitude between 7-25 masl, this is an altitude that dominates the Samarinda City area.

As the capital city of East Kalimantan Province, rapid urbanization and migration from other areas has spurred the development of settlements which tend to deviate from the concept of sustainable development. The number of low-lying areas (swamps, lakes) that originally functioned as water reservoirs and riverbanks that have turned into settlements, coupled with the habit of people throwing garbage into rivers, exacerbates this condition. Reduced land or can reduce the quality and quantity of rainwater infiltration that falls regularly once a season. Directly or indirectly, sooner or later, the effects of changes in the hydrological cycle have an impact on environmental conditions and comfort of living, especially in urban areas.

From this, flood disasters are difficult to avoid if they are not addressed in both the short and long term, it is possible for floods to inundate all of Samarinda, including areas that have been called flood-free areas. With Samarinda's topography, which has many areas that are below the surface (30%) of rivers, this is the reason for frequent flooding in Samarinda. The loss of water catchment areas further worsens the condition of Samarinda City. In addition, poor drainage management is also a trigger for frequent floods that hit the Samarinda City area. The existence of supervision, licensing, and law enforcement is still project oriented so that it exacerbates flood disaster risk reduction efforts which consequently are not optimal.

Based on this explanation, of course, a holistic and integrated flood control strategy is needed to ensure protection for the people of Samarinda City. As for the strategy in flood control, first, it takes a firm commitment from the leadership in this case the policy makers in Samarinda City to work together in formulating values and policies that are effective and efficient so that flooding in Samarinda City can be mitigated. This is based on Article 17 paragraph (1) of the Law of the Republic of Indonesia Number 23 of 2014 concerning Regional Government which states that "Regions have the right to determine Regional policies to carry out Government Affairs under the authority of the Regions".

Then, there is a strengthening in the aspect of the budget that supports the operational development of flood disaster control management in which the budget is intended to build and improve drainage and so on. Furthermore, an outreach and socialization to the community is needed about the importance of caring for the environment in mitigating the occurrence of floods. The aspect of law enforcement as a preventive and repressive effort is also carried out. This is considering that the function of law as a social engineering tool is "law as a tool of social engineering" in which the law must function to regulate the traffic of people's lives in order to create harmony and balance. Therefore, it is necessary to develop a policy framework that becomes a strategic reference in alleviating flood problems in Samarinda City, which can be done by making improvements and development of urban planning and river flows. Building habits of life that care about the importance of protecting the environment in order to avoid disasters that can certainly harm humans and formulating public policies that are oriented towards safety and environmental sustainability in order to create a city of Samarinda that is free from flood disasters.

Matters relating to internal conditions in the form of strength consist of:

a. Leadership commitment. It is necessary to affirm the Constitution with the aim of reducing the risks or causes of impending disasters such as landslides, forest fires, and floods.

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b. Availability of APBD budget for Central/provincial Government Assistance.
c. There are main duties and functions regarding flood control, facilities and infrastructure as well as thorough preparation (ready for alert).

The weaknesses that are often encountered are:

a. The number of drainage channels that are not functioning (blocked) between one channel and another are not connected smoothly.
b. Lack of water catchment areas due to continuous development.
c. Lack of awareness from within the local community who are still littering.

Matters relating to external conditions in the form of opportunities consist of:

1) Samarinda, the provincial capital with an adequate area,
2) Samarinda is traversed by the Mahakam River and 20 tributaries (DAS)
3) The existence of the Karang Mumus River which divides in the middle of Samarinda City so that it can function as a canal

The threats consist of:

1) There are puddles of water on several city streets when the rainy season arrives.
2) The level of river pollution that exceeds the limit.
3) The ebb and flow of the Mahakam water level and high rainfall and densely populated settlements that occupy the banks of the river.

In the flood disaster control strategy in the city of Samarinda, BNPB through the BPBD (Regional Disaster Management Agency) of Samarinda Province formed the Disaster Resilient Village (DESTANA) program with the aim of reducing the causes and effects of natural disasters, namely floods that often occur in Samarinda City. The village is a legal community unit that has territorial boundaries that are authorized to regulate and manage the government, the interests of the local community based on community initiatives, origin rights, and or traditional rights that are recognized and respected in the government system of the Unitary State of the Republic of Indonesia. Through this Village/Urban community unit, the Disaster Risk Reduction (DRR) approach can be carried out through community empowerment so that the Village/Kelurahan is resilient to disasters known as Disaster Resilient Villages/Kelurahan (DESTANA/KELTANA), one of which is carried out through Village/Kelurahan Disaster Risk Assessment and Mapping.

The BPBD of East Kalimantan Province formed DESTANA in one of the villages in Samarinda City, namely the Airport Village, Sungai Pinang District. The disasters that have occurred in this Airport Village include flooding, in 1998, 2019 and 2022 which is an annual flood every time it enters the rainy season. The impacts that occurred as a result of the disaster were property damage, threat to life and environmental damage. Based on this background, it is necessary to make efforts for preparedness, prevention and reduction of disaster risk through the Establishment of a Disaster Resilient Village (KELTANA) which includes Disaster Risk Mapping and Study as well as the establishment of a Disaster Risk Reduction Forum and a Volunteer Team.

In assessing the risk of disaster in the Kelurahan Bandara, the threat of flooding is high. During times of high rainfall, it usually occurs throughout the Kelurahan Bandara, especially when the Benanga dam/reservoir cannot accommodate the flow of water anymore. Vulnerable areas are: RT 01 to RT. 29 but the most vulnerable areas are RT 17, 18, 19, 21, 22, 23, 24, 25 and 26.

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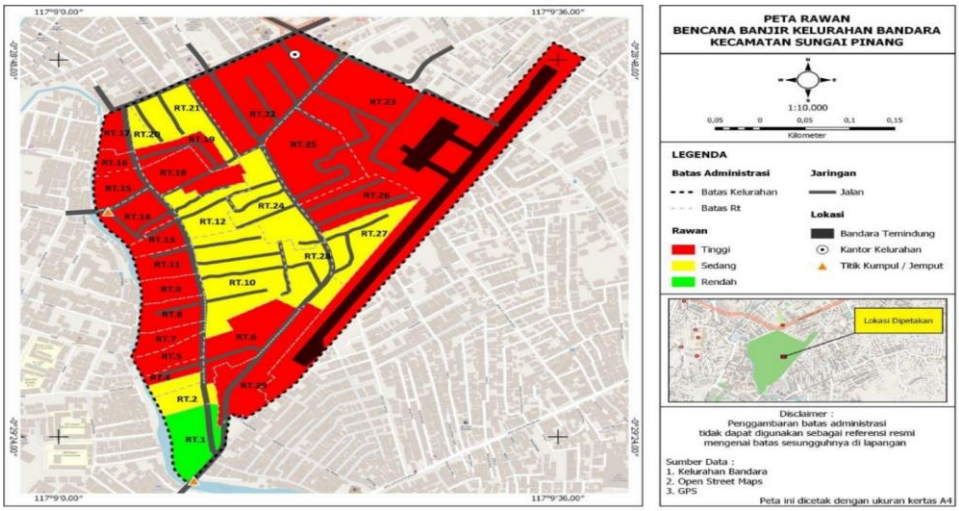

Fig 1.Disaster Risk Map

4. Conclusion

Based on the above discussion, it can be concluded that:

The existing challenge is in the form of a lack of human resources so that it becomes an internal aspect of the obstacles that occur in handling flood disasters in Samarinda City. Then for the external aspect in the form of effective and efficient law enforcement in order to regulate the traffic in the lives of the people of Samarinda City through socialization or counseling to the community related to the urgency of handling floods in Samarinda City. With high awareness and concern for the flood problems that occurred in Samarinda City, the flood problems in Samarinda City will soon be able to be overcome and mitigated.

The flood prevention strategy in Samarinda City, which has a position as the Capital of East Kalimantan Province, must be carried out holistically and continuously in order to create a Samarinda City that is free from flood disasters that can harm the people of Samarinda City. So that massive and strategic steps and efforts are needed that must be carried out through public policy planning that is oriented to the aspects of safety and environmental sustainability, building commitment to all relevant stakeholders which also involves aspects of community participation so as to optimize flood prevention efforts in Samarinda City.

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