

Collaborative Administration Model For Communities Affected by Tidal Flood in Coastal Area

Edy Lisdiyono¹, Setiyowati², Charis Christiani³, Rahmad Purwanto W.⁴, Bambang Widodo⁵

^{1,2}Faculty of Law, UNTAG Semarang

^{3,4}Faculty of Social and Philosophy Sciences, UNTAG Semarang

⁵Faculty of Technics, UNTAG Semarang

¹edylisdiyono@untagsmg.ac.id*, ²setiyowatie.untag@gmail.com, ³charis-christiani@untagsmg.ac.id,
⁴purwanto.untag@gmail.com, ⁵bambang-widodoft@untagsmg.ac.id

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ABSTRACT

Keywords:

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Abs Rob is an event where sea air rises to inundate the surrounding land, causing environmental problems tract. This condition is the area in North Semarang City as one of the northern coastal areas of Java which is affected by tidal floods that enter villages and even enter people's houses that have not stopped for a long time, resulting in greatly disrupted activities and community access, including economic losses, damage to building facilities and infrastructure and the increasingly damaged environment. The University Service Team on 17 August 1945 Semarang has carried out socialization and assistance to communities affected by the tidal wave in the North Semarang area, especially the North Tanjung Mas Village with the Independent Learning Policy Program for the Independent Campus and received funding assistance from the Directorate General of the Ministry of Education, Research and Technology in 2021 and the results of the Service. This has been presented. The method of implementing community service is carried out by Tanjungmas Village, North Semarang District divided into two types of activities, namely: (1) Socialization activities and (2) Assistance for community groups in improving collaborative community service involving five parties (Pentahelic Approach) by involving regional officials (in this case the Regional Disaster Management Agency, Bappeda, North Semarang District and Tanjungmas Village) as the regulator and executor of authority in the context of disaster management. There are several problems or obstacles found in the outreach and mentoring activities, namely the low capacity of human resources and the capacity of community institutions in Tanjungmas sub-district, low community involvement in tidal disaster management efforts, both individually and in institutions.

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1. INTRODUCTION

In general, the causes of tidal waves are high tides, land subsidence, prolonged rain and inadequate drainage both in terms of dimensions and slope of the channel/river bottom towards the sea resulting in back water, and also due to heating global.

Tide is an event where sea water rises to inundate the surrounding land, causing environmental problems. So far, the problem of tide in the North Semarang area, for the villages of Tanjung Mas, Bandarharjo, Dadapsari, and Panggung Lor, is getting out of control day by day, and the community has no way to solve it, of course the Government must try and take

action to overcome the problem of tidal flooding. The city of Semarang, especially the North Semarang area, includes the North Coast of Central Java with a coastline length of 13.6 Km covering the Mangkang area in the west to Kaligawe in the east. Based on BPBD data from Semarang City, it is known that in 2016 - 2020 there were 182 flood and tide events recorded (Semarang City Regional Disaster Management Agency, 2020).

This condition is the area in North Semarang City as one of the northern coastal areas of Java which is affected by tidal floods that enter villages and even enter people's houses which have not stopped for a long time, resulting in greatly disrupted activities and community access including economic losses, damage to building facilities and infrastructure and the increasingly damaged environment. The Service Team of Universitas 17 Agustus 1945 Semarang has carried out socialization and assistance to communities affected by the tidal wave in the North Semarang area, especially the North Tanjung Mas Village with the Independent Learning Policy Program for the Independent Campus and received funding assistance from the Directorate General of the Ministry of Education, Research and Technology in 2021 and the results of the Service have been presented.

Tide in the city of Semarang has not been handled properly and caused various losses that occurred in the city of Semarang, especially in several urban areas, such as Tanjung Emas, Bandarharjo, Dadapsari, and Panggung Lor. According to the narrative of one of the local people, Rakiman, a resident of RW 15, Tanjung Mas Village, that the Tide has occurred since 1996. This also happened in RW 12, RW 13, while the worst Tide was in the RW 14 (fourteen) and RW 15 (fifteen), which is getting out of control, and there are tides every day starting at 15.00 until it starts to recede at 03.00 in the morning.

The impacts caused by tidal waves can cover various aspects of life such as changing the physical environment, decreasing environmental quality, and economic losses. Tide can also cause traffic disruptions at some points that are flooded and even damage roads. Besides, the tidal wave can cause the health condition of the community to decline, because they have also felt the impact of the garbage that has floated into the settlements due to the brunt of the tidal wave. The tidal disaster also affected

children's physical condition, which could result in stunting. Many local residents are also affected by hypertension because they are often anxious about the dangers of the tidal wave that continues to threaten.

People affected by the tidal wave certainly hope that the problem of the tidal wave that has been going on for a long time will not decrease but instead increase. Therefore, this condition requires ongoing assistance and solutions so that tide can be overcome or prevented in the long term. In addition, long-term solutions through ecosystem-based mitigation efforts and this method will not only help to overcome the tidal disaster, but to maintain a sustainable environment.

In addition, this service and assistance activity is in order to provide assistance and reinforcement for adaptation for the community which can increase social resilience. Community response in dealing with tide, in accordance with the life experiences felt by each individual. As one of the impacts of tidal flood conditions that are continuously experienced periodically, it seems to be a psychological problem in itself (Ikhsyan et al., 2017). Individuals experienced by the community already feel hopeless, the tidal flood has caused losses that have been suffered, namely economic losses due to the tidal flood which reduces income and increases community expenditure, damages to buildings, household furniture and motor vehicles. The health impacts felt by the community include the emergence of various diseases such as itching that the health impacts felt by the community are affected by the tidal wave, because the higher inundation water conditions and the long inundation time will affect the slums of residential areas. From the problem of tide, that the impact that is most felt by the community is a dirty environment due to scattered garbage. Poor environmental conditions and piled up garbage will trigger disease.

The objectives of implementing community service are stated as follows:

1. To find solutions to partner problems in overcoming solutions and handling tidal flooding in Tanjungmas Village, North Semarang Sub-District, Semarang City
2. Implementing collaboration and solutions from partners in dealing with tidal flood problems at community service locations.

3. Formulating policy recommendations and provide solutions to the Semarang City Government in an effort to overcome the problem of tidal flooding in Tanjungmas Village, North Semarang Sub-District.

2. METHODS

The method of implementing community service was carried out by Tanjungmas Village, North Semarang Sub-District, which was divided into two types of activities: (1) Socialization activities and (2) Assistance for community groups in improving collaborative community service involving five parties (Pentahelic Approach) by involving local officials (in this case the Regional Disaster Management Agency, Bappeda, North Semarang Sub-District and Tanjungmas Village) as the regulator and executor of authority in the context of disaster management; Community groups are people in the Tanjungmas Exit and North Semarang Sub-District; Tertiary Education Institutions are tertiary institutions that have awareness in disaster risk management and reduction efforts and community empowerment; The business world and industrial business are the business community through the Corporate Responsibility Program for community empowerment and disaster management, Mass media including social media as a vehicle for parties to convey information and understanding about tidal flood mitigation and community empowerment through mentoring.

3. RESULTS AND DISCUSSION

Collaborative Assistance Model for Communities Affected by Tidal floods in the Region

3.1 Tidal Flood Definition

Flood is one of the natural disasters in the form of land that is inundated by water due to excess volume and discharge. According to the KBBI or the Big Indonesian Dictionary, the definition of flood is a lot of water and heavy, sometimes overflowing, a lot of water and flowing fast, as well as the occurrence of the sinking of the land due to the increased volume of water.

Generally, floods are caused by low area topography, high rainfall intensity, lack of water catchment areas, rising sea levels, due to overflowing rivers, and poor regional governance systems.

Tidal flooding is a coastal flood caused by rising sea levels which are influenced by the attractive force of celestial bodies, especially by the moon and sun against seawater masses on earth (Sunarto, 2003 in (Desmawan & Sukamdi, 2012)). Tidal flooding (tide) is a flood disaster caused by the entry of sea water into the mainland as a result of high sea tides (Marfai, 2004). Tidal flood is a flood whose water comes from sea water. This tidal flood is a flood caused by the tide of sea water, until the tidal water inundates the land. This tidal flood is also known as a puddle flood.

The characteristics of tidal flooding, among others, are that it occurs at high tide, the color of the water is not too cloudy or even clear, because there is no soil erosion process. The next characteristic is that there is no strong flow of water, the water rises to pool slowly, not suddenly. The process occurs in all seasons, both rainy and dry, occurs in areas that have lower land areas than sea level.

Tidal flooding is caused by several factors, both main factors and external factors. Tidal floods also have a negative impact on various aspects of life such as changing the physical environment, decreasing environmental quality, and economic losses (Putra & Marfai, 2012). Tidal flood was caused by one factor is global warming. Global warming causes various impacts on the earth, including exacerbating tidal floods. Global warming is a natural event that causes the average temperature of the earth's air to increase. This increase in air temperature will result in the melting of ice at the earth's poles, both the north and south poles. The increase in sea water volume due to melting ice will increase sea level, but mathematically the increase in water level due to melting icebergs is relatively small. If the volume of melting icebergs is divided by the area of the ocean, then the height of the distribution of sea level rise is relatively small.

3.2 Sea Tides

Tides are events due to the gravitational influence of the moon and or the sun. This condition occurs during the full moon and new moon. The tide factor is difficult to avoid because it is beyond human control. This also makes tidal water a regular tidal flood for coastal areas. The Indonesian Meteorology, Climatology and Geophysics Agency (BMKG) also always appeals when a full moon occurs between May-June. In the range of these

months, it has the potential to cause tidal waves that need to be watched out for by residents who

mainly live in coastal areas.

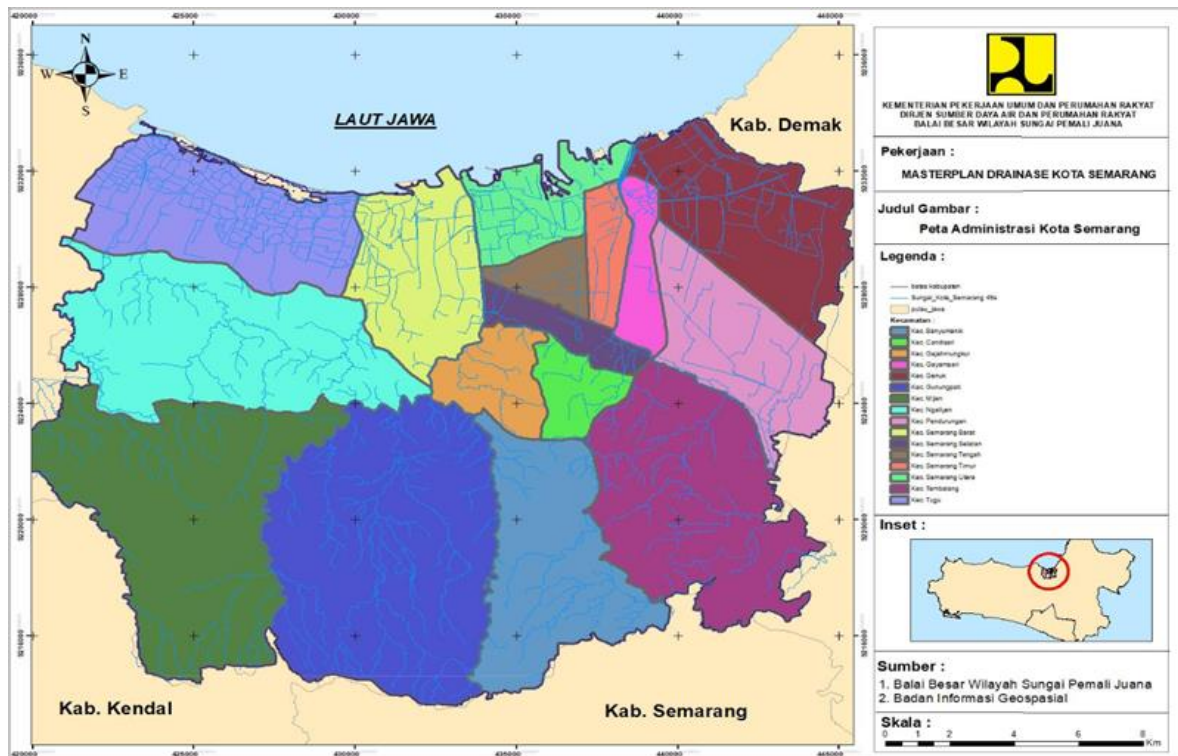


Figure 1. Administration Map of Semarang City

3.3 Damage to Coastal Ecosystems

The existence of mangrove forests on the coast is very important. This ecosystem, with the presence of mangrove forests, will be able to reduce abrasion due to the brunt of the sea waves (Irwan, 1992). In addition, this area is also used to withstand tidal waves of sea water. If the mangrove forest is damaged, the coastal area is no longer protected. This unprotected wave will be a threat to the occurrence of this tidal flood.

The occurrence of tidal flooding disrupts the balance of ecosystems on the coast of Semarang City, not only disrupting physical elements but also disrupting socio-economic activities. The negative impact received by the population is in the form of loss of residence and livelihood, so that the welfare of the population has decreased. Therefore, an in-depth study is needed to deal with the threat of tidal flood inundation. The analysis of the level of tidal flood vulnerability is a cooperative solution for risk reduction in the coastal area of Semarang City.

3.4 Environmental Damage

The factors causing environmental damage are divided into 2 (two) types, namely natural factors and human factors.

- Environmental damage due to natural factors in the form of recent natural disasters, such as tidal floods, landslides Tide has hit many coastal areas in Indonesia and has caused environmental damage. Namely natural events that have an impact on environmental damage, among others; volcanic eruptions, earthquakes, hurricanes, floods, and so on. These natural events cause damage to the environment.
- Environmental damage due to human factors

Humans as environmental rulers on earth play a major role in determining environmental sustainability as regulated in Law No. 32 of 2009 which humans do not match with thoughts about the future of life for the next generation. Humans are one of the categories of factors that cause environmental damage (Christie et al., 2013; Keraf, 2010). Likewise, Article 21 To determine the occurrence of environmental damage, standard criteria for environmental damage are set. (2) Standard criteria for

environmental damage include standard criteria for ecosystem damage and standard criteria for damage due to climate change. (3) Standard criteria for ecosystem damage include: a. soil degradation standard criteria for biomass production; b. standard criteria for coral reef damage; c. standard criteria for environmental damage related to forest and/or land fires; d. standard criteria for mangrove damage; e. standard criteria for damage to seagrass beds; f. standard criteria for peat damage; g. standard criteria for karst damage; and/or h. other standard criteria for ecosystem damage in accordance with the development of science and technology. (4) Standard criteria for damage due to climate change

Socialization Model

The socialization model was provided continuously from socialization to assistance. The first socialization provided knowledge to the public on the causes and impacts of tidal flooding. The second socialization was delivered on disaster mitigation, namely how to cope with and prepare for the occurrence of tidal disasters. The third socialization conveyed how to strengthen community groups, in the fourth and fifth socialization discussed the changing role of women who used to be the ribs now become the backbone of the family, followed by socialization on how to empower women affected by the tide so that they can be resilient in facing social and economic impacts. from the flood disaster Tide. The sixth socialization was given understanding and socialization materials were given continuously from the first socialization to the seventh socialization. The first socialization provided knowledge to the public about the causes and impacts of tidal flooding. The second socialization was delivered on disaster mitigation, namely how to cope with and prepare for the occurrence of tidal disasters. The third socialization presented how to strengthen community groups. While the fourth and fifth socialization discussed the changing role of women who used to be the ribs now become the backbone of the family, followed by socialization on how to empower women affected by the tidal wave so that they can be resilient in facing the social and economic impacts of the tidal flood. The sixth socialization provided understanding and knowledge on how to handle and overcome environmental damage caused by tidal flooding.

The average attendance in the socialization activity was attended by 40-50 people from 16 RWs. They were very enthusiastic in participating in the socialization. Many questions and comments related to the material presented, this was because most of the Tanjung Mas village community were affected by the tidal wave. In this activity, the community told what they experienced and the conditions of the tidal flood that occurred every day starting from 15.00 in the afternoon to 03.00 in the morning in their area, and they also told about the floods that occur all the time.

Mentoring Model

This mentoring activity was carried out from 16 to 23 December 2021 with Mentoring material, namely strengthening community institutions. This activity was attended by representatives from 5 social institutions, namely the Rukun Warga, the Neighborhood Association, Family Welfare Empowerment, Posyandu, and the Disaster Risk Reduction Forum in Tanjungmas Village, North Semarang Sub-District, Semarang City.

The purpose of this mentoring activity was to strengthen community institutions in Tanjungmas Village, North Semarang Sub-District in handling tidal flooding.

This mentoring activity was carried out in several stages:

1. Inviting participants to identify problems faced by social institutions, identify their potential. At this stage, participants are asked to write down what are the problems and potentials of the institution seen from the institution, system and individual of the social institution.
2. Inviting participants to identify opportunities and challenges from outside the institution. At this stage, participants are asked to convey any opportunities that can be taken by the institution to take advantage of and identify the obstacles faced by the institution.
3. Accompanying participants to analyze the strengths, weaknesses, opportunities and obstacles of these social institutions.
4. Determining the follow-up steps to strengthen the institution.

In this activity the participants were very enthusiastic to follow from the beginning to the end of the activity, together they identified

problems and potentials, opportunities and threats of the institution and were able to analyze it to determine the steps they should take to strengthen their institution.

Assistance to communities affected by tide was to formulate community adaptation directions that can increase social resilience. According to (Campbell-Sills & Stein, 2007) resilience is a positive adaptation in dealing with stress and trauma. Resilience is the ability to return to a state before a disaster or a better situation so that when the same disaster occurs, individuals or groups are able to deal with the disaster with the experience they have from the previous disaster.

Community responses in dealing with tide were very diverse, according to the life experiences felt by each individual, there was even one community who argued that tide is a part of life in their environment because every afternoon tidal water always enters their house, inevitably they have to adapt to the environment. tidal flood. Depression as one of the impacts of tidal flood conditions that are continuously experienced periodically seemed to be a psychological problem in itself. Individuals who experienced depression showed sad and apathetic moods, negative self-concepts, changes in activity levels such as being sluggish, lethargic or agitated (Davison et al., 2006).

The results of the analysis of these mentoring activities can be concluded that most of the problems faced by social institutions are the lack of human resources who are willing to be involved, limited infrastructure, the non-functioning role of each part of the institution, and the low competence of existing resources. While the existing potential is a sense of mutual cooperation, enthusiasm and loyalty that is still owned by members of the community institution. The existing opportunities that can help strengthen institutions, especially for individuals, are the opportunity to take part in trainings that can increase the individual capacity of institutional members, the existence of institutions community, universities, state-owned enterprises as well as agencies at the city level to the central level that provide assistance in terms of skills/training, infrastructure and support staff to strengthen the capacity of these institutions. Meanwhile, what is a threat or obstacle is the condition of the location which is very apprehensive so that it becomes an obstacle to the continuity of the activities of the institution.

From the results of the analysis, it was found that institutional strengthening strategies in the context of tackling the problem of tidal flooding, including collaborating and collaborating with various parties, namely with Universities, Non-Governmental Organizations (in this activity the UNTAG Semarang Community Service Team collaborated with the Indonesian Environmental Experts Association (INKALINDO) an organization that pays attention to environmental issues), the government, both the city government and the central government, as well as involving the mass media for communication and information facilities. In addition, it is necessary to conduct trainings to increase the capacity of human resources. Involving State-Owned Enterprises (BUMN) with their Corporate Responsibilities (CRS) to help repair environmental damage due to tidal flooding as well as provision of infrastructure for community institutions in the Tanjungmas Urban Village, Semarang City.

4. CONCLUSION

Community service which was held in Tanjungmas Village was carried out with two kinds of activities, namely socialization and mentoring which was attended by community institutions from 16 RWs in the Tanjungmas Village area.

From this service activity, it can be concluded that:

1. This service activity was carried out to fulfill the Main Performance Indicators of the Merdeka Belajar Kampus Merdeka program, namely the second and third Main Performance Indicators. The number two of the Main Performance Indicator is that students gain experience outside of campus to develop themselves through socialization, mentoring and village project activities that are packaged in thematic Public Service (KKN) activities. Meanwhile, the third main performance indicator is that lecturers can carry out activities outside the campus. Like the task of the Tri Dharma Perguruan Tinggi, namely teaching, research and community service, it must be carried out by a lecturer, so that off-campus activities that can be carried out by a lecturer are community services.
2. The socialization activity was carried out seven times with approximately 50 participants participating in each activity.

The socialization materials included: identifying the causes and impacts of the tidal wave, Mitigation of the tidal flood disaster, capacity building for Pokmas, strengthening the ribs as the backbone, Empowering women affected by the tidal wave, handling environmental damage due to tidal flooding and land rights.

3. There were several problems or obstacles found in the outreach and mentoring activities, namely the low capacity of human resources and the capacity of community institutions in Tanjungmas village, the low involvement of the community in tidal disaster management efforts, both individually and in institutions.
4. The outputs that can be achieved include increasing the understanding and knowledge of the community in Tanjung Mas village about the factors that cause tidal flooding, how to handle the flood and how to overcome tidal flooding. understanding to the community about the importance of community participation in the maintenance of flood control infrastructure buildings, the ability of the community in Tanjung Mas village on how to identify problems caused by tidal flooding and identify supporting factors that can help solve these problems public awareness to care for the environment and maintenance of flood control infrastructure in the area, increase community preparedness in dealing with tidal flooding, increase community capacity so that they can help themselves when there is a tidal flood, increase institutional capacity for existing institutions in Tanjung Mas village, including family empowerment , Youth Organizations, Community Pillars, Community Pillars, Disaster Response Forums and Health Care Forums) to handle Tide and improve the quality of Higher Education, especially for the performance of all study programs in the university as mandated in the Merdeka Belajar Kampus Merdeka Program (MBKM)

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