

Social Solidarity in Communities Affected by Rob Floods on the Semarang Coast

Deka Setiawan¹, Dewi Liesnoor Setyowati^{2*},
Hamdan Tri Atmaja³, Moh. Solehatul Mustofa⁴

Received: 21- June -2023
Revised: 22- July -2023
Accepted: 25- August -2023

¹ Doctoral Student at Department of Postgraduate Social Science Education, Universitas Negeri Semarang, Indonesia

² Professor at Department of Postgraduate Social Science Education, Universitas Negeri Semarang, Indonesia

³ Associate Professor at Department of Postgraduate Social Science Education, Universitas Negeri Semarang, Indonesia

⁴ Associate Professor at Department of Sociology and Anthropology Education, Universitas Negeri Semarang, Indonesia

Email: ¹ deka170884@students.unnes.ac.id, ² liesnoor2015@mail.unnes.ac.id, ³ hamdanta@mail.unnes.ac.id, ⁴ mustofa@mail.unnes.ac.id

Abstract

This study is 1) to analyze the factors that affect the social solidarity of the people affected by the tidal flood on the coast of Semarang. 2) Knowing the social, physical, and economic conditions in the community affected by the tidal flood on the coast of Semarang. This research employs qualitative phenomenological methodology. Among the methods of data collection are observation, interviews, and documentation. Co-occurring data reduction, data presentation, and conclusion drawing/verification comprised the qualitative data analysis technique for this study. The findings of this research Individual ties, communal ties, cultural ties, and the existence of cooperation between communities impacted by the tidal wave are factors that affect the social cohesion of the community impacted by the tidal flood on the coast of Semarang. 2) Social ties between the citizens of Semarang Coastal environments are well-established, as evidenced by the people's well-established social interactions. Numerous economically disadvantaged people are unable to repair their flood-damaged homes. In coastal areas, tidal flooding or tidal flooding can occur. Due to the passage of time and the sense of having the same fate, which in this case is caused by the tidal flood, people's lives are well-established. Thus, social solidarity is established and influenced by social interactions that occur as a result of cultural ties that include feelings of shared fate and interdependence. Due to existing familial ties, the majority of individuals do not wish to relocate. People's behavior and awareness of environmental hygiene and health are still lacking. The Semarang Coastal community's disregard for environmental conditions is reflected in its lifestyle, the majority of which does not reflect a culture of clean living. The findings of this study will be a milestone for developing a community-based disaster mitigation system by utilizing solidarity among community members as the main strength. A well-established relationship between community members will assist the process of disaster prevention, mitigation, and rehabilitation by optimizing individual, communal, cultural, and cooperative ties in the sphere of community social interaction.

Keywords: Social Solidarity, Flood Rob

1. Introduction

Coastal areas have a higher risk of experiencing a tidal flood or a tidal flood. Activities conducted by humans in coastal areas are the primary cause of coastal dynamics (Rijanta et al., 2014). The questionable activities include making inappropriate use of land, which is also one of the factors that contribute to tidal flooding. According to (Marfai & King, 2008), the effects of the tidal flood include the disruption of daily activities, including activities that take place in households, the difficulty in accessing roads, and the limited use of advice and infrastructure. People's lives have long been well established because of the length of time and the feeling of sharing the same fate, which in this case is caused by the tidal flood. This also means that health problems that occur as a result of flooding can be handled through the use of social solidarity in disaster-affected environments (Shmueli, 2021).

Solidarity in social interaction is also the answer to crises in disasters such as tidal flooding and even the COVID-19 pandemic, as recently happened (Mishra & Rath, 2020).

The severe problem for coastal communities is disasters caused by threats from land and ocean processes such as floods, tsunami floods, earthquakes, and others (Marfai, 2014). Tidal flooding caused by climate change genuinely impacts changes in the biophysical structure of the environment in coastal areas (Buchori et al., 2018). On the other hand, the productive northern coastal regions of Java also have quite apprehensive conditions in some of their zones. Some coastal areas of Java, such as Pekalongan and Semarang, are prone to tidal flooding (Ariadi & Syakirin, 2022). A process of land use change in coastal areas, including the construction of ponds, swamps, and rice fields that once accommodated tides of sea water naturally but now host residences, factories, and other uses, has led to the occurrence of tidal flooding in the coastal area of Semarang. Depending on the height of the wave, flooding can occur due to tidal effects. The highest tide in a given tidal cycle is the highest water level at any given time.

The optimal use of land in coastal areas, such as industrial zones and trading ports, also contributes to the devastating effects of tidal flooding (I et al., 2012). Semarang's tidal flooding is influenced by both land subsidence and changes in land use. Reduced groundwater levels, changes in land cover due to construction loads, and consolidation all contribute to this sinking land. The groundwater level in the eastern region is falling due to the widespread use of groundwater for industrial purposes. Semarang City's groundwater level only dropped by 0.5-3.5 cm in the '70s. The increase can be seen year after year, with a 2000s high of 11.5-24.6 cm. The type of soil layer along the Semarang coast is experiencing natural compaction, which contributes to the depletion of groundwater (Kahar et al., 2010).

Both natural and social factors contribute to the occurrence of disasters. A natural hazard can manifest itself in the form of a natural disaster, depending on the circumstances (geo-hazard). In contrast to the social dimension, human interference with natural systems is the root cause of disaster risk. Human actions significantly contribute to rising susceptibility and serving as disaster precursors. Damage to the environment and natural disasters may result from the excessive use of natural resources. Human behavior modification, along with raised environmental consciousness and concern, can help lessen the severity of disasters. The second factor is natural compaction, which occurs primarily in the northern part of Semarang City and tends to increase eastward to Genuk District (Yuwono et al., 2013). This is also because the Genuk area is an Industrial Estate area, which makes the soil load bigger and decreases. As a result, it is predictable that health and sanitation problems are a shared homework that must be borne by both the community and the local government. Collective awareness is needed in overcoming problems caused by sanitation and disturbed health due to poor environmental conditions due to tidal flooding and other environmental problems (Christensen-Salem et al., 2021).

The existence of social solidarity makes them reluctant to move and prefer to stay in the community. However, there are a few who choose to move to another place that is considered safe from disaster. People's attitudes and actions can be influenced through disaster education, which teaches them to be prepared for emergencies and mindful of their impact on the environment from a young age. Collective social awareness helps various parties, both local governments and affected parties, to immediately get out of the problems they face through multiple policies, actions, and appeals that will become a social gradient in the development of alleviating disaster problems (Patzina & Dietrich, 2022). Mainly to maintain the availability of boards and food, which are often the main problems when disasters occur in the community (Fonte, 2013).

The negative effects of climate change, rising sea levels (rob), and the intensification of natural disasters like tropical cyclones, droughts, and floods are enormous. Culture plays a role in the formation of social bonds, which are strengthened by shared experiences and mutual dependence (Nasution, 2009). One goal of this research is to examine the factors that contribute to the resilience of the communities along the Semarang coast after a natural disaster. 2) to assess the state of the community's social, physical, and economic infrastructure following the Semarang coast's tidal flood.

2. Literature Review

2.1 Social Solidarity

Assisting one another, providing for one another, being able to work together, sharing crops, and contributing to development monetarily and physically are all tenets of social solidarity in a community. According to DP Johnson (nd), social solidarity is "a state of the relationship between individuals and groups based on moral equality, the same collaborative and shared beliefs, and reinforced by emotional experiences" (emphasis added). Cultural ties, which include feeling, sharing, and needing each other, are shaped by social interactions and contribute to a sense of solidarity.

Social solidarity, as described by Durkheim (I et al., 2012), is the interaction between individuals, between groups, and between groups that is grounded in moral beliefs and feelings and is strengthened through shared emotional experiences. A moral society is one that supports its members. According to Durkheim, this degree of mutual understanding and cooperation is an example of social integration and social cohesion. (T, 2006). Collective collectivity, functional interdependence, and the division of labor are fundamental aspects of social solidarity. The participation, attitudes, and behaviors of individuals, groups, and institutions toward development will be examined through the lens of social cohesion. Putting aside one's pride and working toward the greater good is what we mean when we talk about social solidarity (P. Johnson & Duberley, 2011).

2.2 Rob Flood Rob

A flood is an event that overflows sea water to land caused of the tidal process of seawater (Marfai et al., 2017). A tidal flood is a phenomenon where seawater enters and inundates the land. Many factors can influence the formation of tidal floods, such as tides, sea level rise, and strong winds that produce high waves (Egaputra et al., 2022). According to (Marfai & King, 2008), The impact of the tidal flood is the disruption of daily activities, including household activities, the trouble with road accessibility, and the limited use of advice and infrastructure. According to (Alfahmi, 2020), meteorologically, several reasons can increase the impact of coastal flooding (rob), including; (1) High sea waves; (2) Strong and constant wind speed; (3) High rainfall; and (4) Sea level anomaly is optimistic. In detail, the geographical conditions of the tidal flood-prone areas are shown in table 1.

Table 1. The total area of the tidal flood in coastal Semarang

District	Area (ha)	Distribution of
North Semarang	508.23	Panggung Lor, Bandarharjo, Tanjung Emas
Gayamsari	73.23	Kaligawe, Tambak Rejo, Sawah Besar
Tugu	257.20	Mangunharjo, Mangkang Wetan, Randugarut, Tugurejo
Genuk	377.68	Terboyo Kulon, Terboyo Wetan
Semarang Timur	44.15	Kemijen

Research Data Source 2022

While the map of the distribution of the area can be seen in Figure 1.

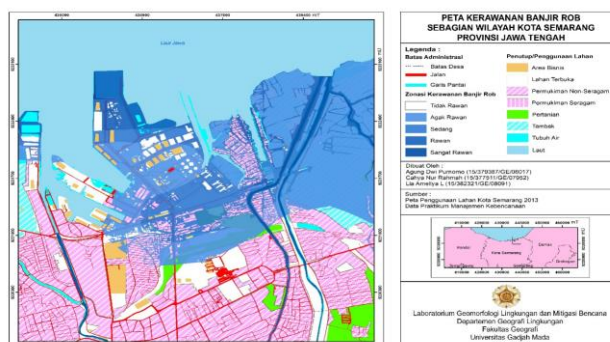


Figure 1. Map of Locations of Rob Flood Prone to Semarang City

Based on Figure 1, it is known that most areas affected by tidal flooding are the coastal areas of Semarang City which are depicted in blue, both light blue and dark blue. The darker the blue color of the area, the more prone it is to tidal flooding.

3. Research Methods

Phenomenological qualitative methods were used for this study. The community on the coast of Semarang that was hit by the tidal flood and the solidarity formed with that community went through several preliminary stages of qualitative phenomenology. The process consisted of multiple steps, including data collection and analysis. At this time, researchers observed the aftermath of the flood and recorded its effects on people through in-depth interviews and written accounts of what they saw. Following the initial data from qualitative data, phenomena that occur in the field are analyzed in regards to the condition of the community impacted by the tidal flood. This step involves collecting and analyzing qualitative data to ascertain the cohesiveness of the flooded community. Together, data reduction, data presentation, and conclusion drawing/verification made up the qualitative data analysis technique used in this study (Miles & Huberman, 1992). Analyzing qualitative data is a process that never ends. Reducing data, presenting data, and drawing conclusions are all steps in an analytical process.

4. Discussion

4.1 Factors of social solidarity of communities affected by tidal flooding on the coast of Semarang

Factors that affect the social solidarity of communities affected by tidal flooding on the coast of Semarang include:

1. Individual

Bonds that collide between community members help them feel attached, so they feel part of being affected when a disaster occurs. Individual bonds generally happen in affective, behavior, cognition, and shared feelings. *Affective* is a feeling that arises as a bond caused by a sense of the same fate as having lived for a dozen years in this village environment. This is the basis that effect in individual bonds can be used as the basis for the formation of social solidarity. In the context of affective indicators in social solidarity, individual bonds are influenced by the inner bonds in individuals who live in society, especially those affected by tidal flooding. *Behavior* is behavior that follows that feeling, whereas in the context of behavior follows what is in someone's conscience because they feel that there are friends who have the same fate in the same condition. This is reinforced by Riyanto, a Kebonharjo, North Semarang resident, who stated that the behavior of the residents became compact because they felt the same fate and had lived in the same environment for a dozen years. *Cognition* is an assessment of the object of attitude that comes from the human mind. The feeling of sharing the same fate and sharing will create a pattern of thinking that is almost the same in a group, so it helps strengthen the bonds between humans in it. Meanwhile, feeling in a situation is a form of shared feelings of shared responsibility, anxiety, disappointment and other uncomfortable feelings as a result of frequent interactions and experiences, and insights that are being felt simultaneously.

2. Communal Bonds Communal

Bonds are formed because of collective behavior that consciously or unconsciously includes a feeling of togetherness that binds one another. This feeling grows over the years as a form of harmonization of money relationships that arise during social life. Usually, it starts with gathering activities with more than one person in the same place. In the end, a friendship occurs that unconsciously binds one another.

3. Cultural Bonds in Affected Communities The

Physiological needs are the easiest to spot, and they include things like food, water, shelter, and sexual satisfaction. The second priority is security, which includes safeguards against both material and psychological harm. Affection, belonging, acceptance, and friendship are also examples of social conditions. Self-respect factors like self-esteem, autonomy, and achievement; external factors like status, recognition, and attention; and self-actualization, where there is a drive to become someone or something in accordance with one's aspirations; including development, the realization of potential, and self-fulfillment all lent their support.

4. Collaboration between Affected Communities Rob

Collaboration between community members occurs because of the similarity of personal backgrounds; Individuals who live and grow up in big cities get a lot of stimuli, so they tend to be selective in responding to various stimuli. Then there are respected personal norms where the individual feels obligated to act in certain ways and situations.

In addition, consistently maintaining a good mood can make individuals tend to help others in various situations. And foster empathy between fellow humans. The empathy hypothesis conveyed by Batson, the sense of empathy within the individual, is the key to the emergence of helping behavior. Empathy is an individual's ability to understand what other individuals are feeling and respond to it emotionally.

Natural disasters often cause solid social movements because they will comprehensively impact human life (Evlampidou & Kogevinas, 2019). Therefore, individual bonds in society need to be nurtured so that physically close people are not separated by different interests, cultures, norms, and even feelings that create gaps in social interaction (Bourgeois & Friedkin, 2001). It can be found that solidarity in society can be formed when there is mutual trust with one another, there is justice in every relationship that is carried out and relationships that have been going on for a long time and intensively so that a stronger sense of togetherness grows (Cimino & Thomas, 2022). This feeling is essential. It can be utilized in the process of disaster mitigation as well as rehabilitation (it could also be a tidal flood disaster) because it is an original form of social solidarity and supports all planned community activities (Dolničar et al., 2018). This is also an effort to prevent and anticipate government policy resistance related to mitigation, rehabilitation, and disaster prevention. Social solidarity has been formed to both immediately want to escape disaster problems that often occur (Kristiansen et al., 2015).

Loss of income, trouble getting around, and other societal shifts are typical results of a tidal wave's interference with local routines and events. Housing, means of subsistence, water supplies, agricultural practices, and social structures are all areas in which humans have adapted to changing conditions. Through repetition, the locals have internalized the unspoken norm of preparing for Rob's inevitable influence on their town. People's familiarity with and approach to Rob has changed due to their long-standing practice of predicting his every move (Setyowati et al., 2017). Despite progress, challenges persist in community-based disaster management. The lack of operational finances for operations owned by the Disaster Preparedness Group, the lack of buildings and infrastructure to support activities, the state of certain members who don't care, and the state of the local community are all limitations. There are a number of obstacles that need to be overcome for communities to play a significant role in coastal management on their own in reclamation, including those that pertain to resources, outlook, infrastructure, and participation (Setyowati et al., 2021).

Physical adaptation, economic adaptation, and social adaptation are the three main types of adaptation that can be implemented. It remains to be seen how well the Bedono Village neighborhood will recover from the devastating tidal surge. The effects of the tidal flood tragedy on the world's geography, population, natural resources, economy, society, and culture are far-reaching. The tidal flood calamity does not involve the ideological, political, or security forces (Asrofi & Ritohardoyo, 2017). There are five watersheds in Semarang City that flow through flood-prone areas: the Baboon, East Flood Canal, Garang, Silandak, and Beringin watersheds. Studies of these watersheds have revealed the following: 1) on average, 12.27% of land in each watershed unit has been converted into settlements, with the widest conversion located in the East Flood Canal watershed; 2) the carrying capacity of this watershed gets a score of 113, which is in the bad category; (Setyowati, Wilaksono, et al., 2021). The carrying capacity of a watershed can be affected by the rate at which land is converted into communities. Damage to the watershed and the frequency of floods can be mitigated if land use planning in the watershed takes into account flood-prone locations. Construction of embankments, sluice gates and pump houses; provision of the concept of stilt houses; development of mangrove forest areas; structuring of buildings along the coast; formation of government and non-government organizations related to disasters; provision of hazard and risk maps; provision of disaster-friendly spatial planning concepts; are all examples of measures taken to reduce the impact of tidal flooding (Putra et al., 2014).

4.2 The condition of the social, physical, and economic environment in communities affected by the tidal flood on the coast of Semarang

It is also crucial that people have access to a safe, sanitary place to live. When it comes to actualizing a state of public health, environmental factors play an important role. The existence and conditions of the environment have a significant impact on human life. The environment, society, and economy are all affected by tidal flooding (Mussadun et al., 2022). Because of their proximity to the water and lack of defenses, coastal neighborhoods are

vulnerable to the destructive power of tidal waves, which also has a negative impact on coastal infrastructure like roads and bridges. Loss of income for pond farmers, disruption of transportation, and the creation of new jobs are just some of the ways in which the rob has affected community life (Kusuma et al., 2016).

The community's lackadaisical attitude toward maintaining a clean and healthy environment likely contributed to the magnitude of the flood. People still don't seem to understand the connection between their actions and the health of their surroundings. People in the Semarang Coastal area don't seem to have much regard for, or knowledge of, the environment, and it shows in their generally untidy way of life. The area where they reside is still littered with trash, and open latrines that empty into the ocean are still in widespread use.

If left unchecked will cause an unfavorable effect, especially on environmental hygiene and health. In principle, improving public health requires community participation in maintaining ecological cleanliness, especially teaching a household a clean and healthy living culture from an early age. Environmental health behavior is a person's response as a determinant of human health. The scope of this behavior is as broad as the scope of ecological health itself. According to (Notoatmodjo, 2011), this behavior includes, among others, (a) behavior related to waste, including the waste disposal system, as well as the impact of improper waste generation, and (b) behavior related to a healthy home, which includes ventilation, lighting, and floors. Cultural Concepts of dirt and cleanliness by Anita Hordon et al. view that people from different cultural backgrounds have thoughts about dirt and cleanliness. Order and cleanliness in one place can be disorganized and dirty in another, and vice versa. The concept of biomedical hygiene is difficult to follow, with different cultural viewpoints on hygiene.

The average community on the coast of Semarang makes a living as factory workers around the Tanjung Emas Port, fishermen, traders, pond farmers, a small number of civil servants, and the *TNI* and *POLRI*. Choose to survive by adapting to the physical building of the house, for example, by backfilling to prevent tidal water from entering the house. This level of the economy also affects the condition of the physical building of the house; it can also cause conflicts between residents who are affected by tidal flooding and residents who have enough money; usually, they remodel their home entirely or prefer to move, but only a small number choose to move because there is some bond formed between them.

Social relations among the people of the Semarang Coastal environment are well established, which can be seen from the well-established social interactions of the people. Social interactions that occur in the Semarang coastal community occur anywhere. Findings about social and environmental conditions in communities affected by tidal flooding on the coast of Semarang include; (1) Field observations were carried out with the results, among others, that many damaged buildings were found as a result of the tidal flood, (2) many economically affected communities were unable to repair houses damaged by the tidal flood, (3) most of the people's livelihoods were true as factory workers, traders, (4) Many do not want to change their place of residence because there are already kinship ties, (5) People affected by the tidal flood survive in such a way that some are piled up until the house and roof are united, some are in "dag" so as not to be submerged, (6) Many lands have changed functions to be used as ponds/fishing places and (7) the community routinely works to clean sewers and culverts. An example of conditions that occur in the observation area can be seen in Figure 2.



Figure 2. Condition of Houses Affected by Rob Floods in the Kaligawe Region, Semarang

The condition of a social environment that cares for one another is essential to create so that problem alleviation can be carried out effectively. The shape of the social structure needs to be observed in detail so that one community and one who does not attach importance to their interests but also thinks about the consequences and conditions of other communities around them (van Mourik Broekman et al., 2018). If necessary, the formation of the emotional side of the community so that their solidarity is stronger needs to be continuously pursued so that all policies get their direct support in alleviating problems due to tidal flooding (Capistrano & Weaver, 2018). The implication is that efforts to develop and organize both physical and social in vulnerable and affected environments utilize not only physical infrastructure in managing the environment but also social infrastructure in the form of community activities that continue to receive social, emotional, and even trust support from affected communities (Bianchi et al., 2018; Marier-Bienvenue et al., 2017). Continuously efforts to foster relationships between community members must be structured and systematically arranged by stakeholders, both the community itself, local government to the central government as the holder and final policy maker in building and managing community life in disaster-prone locations (Artis, 2017; Gerry et al. al., 2017).

There will be social issues to deal with after the flood. The study found that (1) the tidal flood harmed the respondents' social lives because of the following: a) no significant changes in demographics or casualties as a result of the flood; b) the respondents' health; and c) the education level of household members (ART) experiencing difficulties in learning. d) the respondent saw a change in their living situation, such as minimal damage to their home or simply a small section of their home being harmed (e.g., a wall or floor). (2) The economic impact of floods might be inferred from a) the respondents' current means of support and b) the Respondents' financial situations have shifted, with an increased proportion reporting a total income that falls below a certain threshold. c) the number of respondents who own motorcycles, televisions, radios, tape players, and mobile phones; the number of respondents who own their own damaged rice fields; (Yunida et al., 2017). The robbery has disrupted community activities, including the loss of pond farmers' income, the closing of a central transportation hub, the creation of a wide range of new occupations, and some other social shifts (Kusuma et al. ., 2016). The findings revealed that the affected community responded to the flood with an attitude that included an idea to act (trend to conduct) against the tragedy—the closer social ties of the community result from the emergence of a shared fate. Communities in the study area that were impacted by flooding could adjust to the threat of future floods through structural and non-structural means (Purniawan & Murtedjo, 2017). Since the tragedy rendered many businesses in the study area inoperable and severely restricted access to places of employment, it stands to reason that the incomes of those who work in the private and public sectors were negatively impacted. People who work as farmers and laborers who cannot work during an evacuation are believed to be proof of the economic conditions. In contrast, contract employees and civil servants who can still work and have a fixed income say that economic conditions have improved following the evacuation (Suarjana et al., 2020).

5. Conclusions

Tidal or tidal flooding is prone to occur in coastal areas. People's lives have long been well established because of the length of time and the feeling of sharing the same fate, which in this case is caused by the tidal flood. Thus, cultural ties, such as a sense of shared fate and mutual dependence, play a significant role in the formation and maintenance of social bonds. The results of this study 1) the factors that affect the social solidarity of the community affected by the tidal flood on the coast of Semarang include the existence of individual bonds, communal bonds, cultural ties, and the presence of cooperation between communities affected by the tidal wave. 2) Social relations between the people of the Semarang Coastal environment are well established, which can be seen from the well-established social interactions of the people. Many economically affected people cannot repair houses damaged by the tidal flood. Many do not want to change their residence because there are already kinship ties. Many lands for switching functions are used as ponds/fishing places. People still don't seem to understand the connection between their actions and the health of their surroundings. People in the Semarang Coastal area don't seem to have much regard for, or knowledge of, the environment, and it shows in their generally untidy way of life. Suggestions are that some people are affected by the tidal flood; in principle, improving public health requires community participation in maintaining environmental cleanliness, especially teaching a household a clean and healthy living culture from an early age. Environmental health behavior is a person's response as a determinant of human health. The scope of this behavior is as broad as the scope of ecological health itself.

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