Efforts of The Roudhlotus Sholihin Islamic Boarding School in Loireng Villge in Dealing with Tidal Floods in Sayung Regency, Demak Regency

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Abstract: Roudhlotus Sholihin Islamic Boarding School is an Islamic educational institution that was affected by tidal floods in Loireng Village, Sayung Sub-district, Demak Regency. Tidal floods occur periodically, causing major losses, especially in terms of physical damage to buildings and the impact on the teaching and learning process. This research aims to identify the strategies and steps that have been taken by the Roudhlotus Sholihin Islamic Boarding School to overcome the threat of the Sayung tidal flood, with an emphasis on prevention and mitigation efforts. This research used descriptive qualitative methods by collecting data through observation and interviews. Research data was obtained through interviews with staffs, administrators and residents of the Roudhlotus Sholihin Loireng Islamic Boarding School, with the aim of gaining direct insight and a comprehensive understanding of the prevention and mitigation efforts implemented by them. The results of this research show that, first, the cause of the flood that submerged Loireng Village, especially the Roudhlotus Sholihin Islamic Boarding School area. The flooding was caused by rising sea levels and was exacerbated by heavy rainfall which submerged most of Loireng Village. Second, the efforts of the Roudhlotus Sholihin Islamic Boarding School in dealing with the flood. The Islamic boarding school in Loireng has taken various preventive measures including environmental-based counseling and education, as well as managing the Islamic boarding school environment wisely. This research is expected to provide guidance for similar institutions in other coastal areas that face similar threats. It is also expected that this effort will help to protect the Islamic boarding school learning environment and ensure the safety and welfare of students and staffs.

Keywords: environmental sustainability, Islamic ethics, natural resource management, social justice, sustainable management practices

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1. Introduction

Coastal areas, include areas that stretch from land to sea, with boundaries on land determined as far as the impact of the sea reaches the land, and boundaries on the sea determined as far as the influence of the land reaches the sea (Sunarto, 2001). Geomorphologically, coastal areas are areas that strongly interact with natural activities and phenomena, including land subsidence, tidal inundation, sea level rise, erosion, and others that can have an impact on the environment. Apart from that, human influence, whether located in coastal areas or nearby, also influences the condition of this coastal environment (Marfai, 2014). Human activity in coastal areas is one of the factors that can influence changes in coastal dynamics (Rijanta, et al., 2014). A human action which is potential to influence coastal dynamics is the land use change. For example, the transformation of coastal land into ponds and settlements leads to a more vulnerable coastal area (Chafid, et al., 2012). Even more seriously, many coastal areas are used for the construction of factories and infrastructure such as toll roads which can affect coastal conditions, especially those that have been affected by tidal floods.

Since the 1980s, Demak Regency has faced the problem of tidal floods. The impact is felt especially in four areas. Tidal floods can pose a serious threat to abrasion on the coast, which has the potential to affect the coastal map of Demak Regency and the lives of coastal communities. Sayung sub-district is an area on the coast of Demak Regency that was worst affected by tidal flooding. The intensity of tidal floods on the coast of Sayung sub-district is increasing, with inundation lasting from 6 to 8 hours every day, and the situation is getting worse every year. Moreover, the timing of tidal floods itself is unpredictable, but tidal floods can come at any time, especially during the rainy season and changing months. Currently, 26 villages have been submerged due to tidal flooding and abrasion, such as Bedono Village and Loireng Village, Sayung sub-district, Demak Regency. One of the causes of the abrasion and tidal flooding that hit Sayung sub-district was land conversion activities carried out by the community and industrial players there.

Loireng Village is one of the villages in Sayung sub-district, Demak Regency, which is divided by the Demak-Semarang PANTURA (North Coast of Java) Highway and is located close to the sea. Loireng Village is one of the villages affected by the tidal flood disaster because apart from its location close to the sea, the low land surface causes sea levels to rise and when there is high rainfall, sea water will enter residential areas. The tidal flood that occurred in Loireng Village had a major impact on community activities in several aspects. Roudhlotus Sholihin Islamic Boarding School is one of the educational institutions in Savung sub-district, specifically at Loireng Village. which was affected by the tidal flood disaster. This tidal flood phenomenon not only causes physical losses, but also disrupts the continuity of the teaching and learning process and harms assets and the surrounding environment. Tidal floods occur periodically and have become a major concern and major challenge for this Islamic boarding school in recent years. This Islamic boarding school is an Islamic educational institution that has a central role in shaping the character and education of the younger generation. However, the threat of tidal flooding in Sayung demands the adoption of effective measures to deal with it.

It is understood that the biggest threat to humanity that has a significant impact and can disrupt regional stability is disaster. In this context, the disaster is tidal flooding. Regional resilience describes the dynamic conditions of a region which covers all aspects of integrated community life. This reflects the toughness and resilience of the region, containing the ability to face and overcome various challenges, threats, obstacles, and disturbances, including those that arise from within oneself or the region's environment itself or those that come from outside the region, both directly and indirectly (Lembaga Pertahanan Nasional, 2000).

There are several previous studies that show community adaptation strategies in handling tidal flood disasters and their implications for regional resilience in Bedono Village, Sayung sub-district, Demak Regency. This research focuses on two main aspects, namely analysis of the adaptation strategies of the Bedono Village community in facing tidal floods, and the implications of tidal floods for regional resilience in the village (Asrofi et al., 2017). Meanwhile, other research discusses the efforts of the Nurul Jadid Islamic Boarding School, Paiton, Probolinggo in educating students to be people who care and who have an environmental culture based on the independence of Islamic boarding schools. Considering there are many human behaviors that show a lack of concern for the environment, this is the background for conducting the research (Suryanto, 2019).

This research has differences and similarities in comparison to previous research. This research examines the efforts of the Roudhlotus Sholihin Islamic Boarding School in Loireng Village, Sayung sub-district, Demak Regency in dealing with tidal floods. This research aims to reveal the concrete efforts that Islamic boarding schools in Loireng have taken in dealing with tidal floods in Sayung, with a focus on the prevention and mitigation strategies they have implemented. The difference with previous research, apart from the research object, is that this research focuses more on the efforts and role of Islamic educational institutions in the midst of the tidal flood disaster in Loireng Village. However, there are similarities between this research and previous research, i.e. that they both study tidal floods and the Islamic boarding school environment.

Through an in-depth understanding of the steps taken by this Islamic boarding school, we can gain valuable insight into how educational institutions in coastal areas deal with natural threats that often come suddenly (Ardianto, 2020). This study also provides guidance for Islamic boarding schools and similar institutions facing similar situations in maintaining the safety of students, staffs, and the continuity of the educational process. Thus, this research makes an important contribution to our understanding of how educational institutions in coastal areas are able to survive and continue to develop in facing the challenges of tidal flooding in Sayung.

2. Materials and Method

This research uses a descriptive qualitative method by collecting data through observation and interviews. Descriptive qualitative research is conducted by analyzing, describing a phenomenon or object being studied (Abubakar, 2021). This research is a type of field research where researchers go to the research location, observe, and conduct direct interviews with related parties (Nur Khaqiqi & Syamsudin, 2021). This method allows researchers to gain a deep understanding of the observed phenomena, as well as describe the actual situation in the field. Research was conducted at the Roudhlotus Sholihin Islamic Boarding School in Loireng Village, Sayung sub-district, Demak Regency. The Islamic boarding school as a research has been done regarding the efforts of Islamic educational institutions in dealing with the tidal flood disaster (Nugrahani, 2014). The subjects of this research consisted of the administrators of the Roudhlotus Sholihin Islamic Boarding School, Loireng

Village, Sayung sub-district, Demak Regency. The involvement of this research subject allows researchers to gain in-depth insight into the efforts of all elements of the Loireng Village community in dealing with the tidal flood disaster, especially from the Roudhlotus Sholihin Islamic Boarding School (Mubarok & Rohman, 2021).

Data was collected by observation, interviews, and documentation techniques (Abubakar, 2021). Observations were carried out to identify the condition of the Roudhlotus Sholihin Islamic Boarding School in Loireng Village and the surrounding environment while. interviews were used to obtain in-depth information from the research subjects, and documentation was used to collect written data related to the research (Siyoto & Sodik, 2015). This research was conducted by participants collecting data from a manager or Ustad at the Roudhlotus Sholihin Islamic Boarding School in Loireng Village. This research also involves documentation in the Islamic boarding school area. Data analysis was carried out through data reduction, data presentation, and drawing conclusions (Nugrahani, 2014).

Apart from data sources obtained through direct interaction, research also explores data from literature or bibliography. Library research aims to collect data and information from various sources including books, manuscripts, journals, magazines and other documents (Kartono, 1996). In exploring relevant literature, it was focused regarding the best strategies and implementation to deal with tidal floods as well as other approaches as comparison. This comparison to other practices aims to find the similarities and differences of the efforts of Islamic boarding schools with practices carried out by similar institutions in other coastal areas. This enables an in-depth understanding of the challenges they face and the concrete efforts they have undertaken.

3. Result and Discussion

Demak Regency, especially the northern coastal area of Java, faces a high risk of sea level rise and tidal flooding, due to its flat topography. Sayung sub-district is an area with low topography, which often experiences tidal floods and is the most vulnerable to environmental crises (Rifan & Rijanta, 2017). Several villages in Sayung sub-district have even been inundated by sea water, resulting in some residents being forced to move, while others remain in their homes surrounded by sea water (Kusuma, et al., 2016). Almost all villages in Sayung sub-district, such as Timbulsloko, Morosari, Sriwulan, Bedono and Loireng, often experience tidal floods. These are some of the villages which worst affected by the tidal flood.

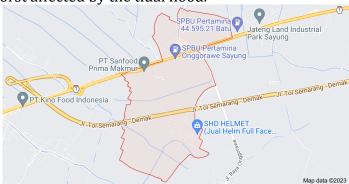


Figure 1. Map of Loireng Village, Sayung sub-district

Islamic boarding school is an institution that has a significant impact in the world of education, both in physical, spiritual and intellectual aspects, because Islamic boarding schools have a foundation of religious values and norms which are the frame

of reference and thoughts and attitudes expected from the students (Suryanto, 2019). One example of an Islamic boarding school in Demak Regency, namely the Roudhlotus Sholihin Islamic Boarding School, not only focuses on learning science and skills, but also emphasizes instilling and forming values in students. For example, they carry out initiatives to form students' awareness and concern for the surrounding environment. This is very positive, especially because the location of this Islamic boarding school is in an area that is facing an environmental crisis.

On an interview with Gus Qodir as the manager of the Roudhlotuh Sholihin Islamic Boarding School, regarding the tidal flood and the Islamic boarding school's efforts in dealing with this disaster, the authors learned several important things from the tidal floods in Sayung, especially in Loireng Village. Some of those are the conversion of green land into residential areas, industrial areas, ponds that do not produce optimal results, and public facilities such as the Semarang-Demak toll road.

In reality, the toll road which is expected to increase the economy and become a coastal belt to reduce tidal floods actually potential to bring a negative impact on the residents around the toll road. Gus Qodir added that the construction of the toll road actually reduces the function of the soil in absorbing water. Therefore, when rainfall is high, water cannot be absorbed into the land used to fill the toll road construction. Are there no drainage channels around the toll road, but according to Gus Qodir, some of the drainage sluice gates cannot function because they are covered by soil left behind by the toll road.

Apart from that, the impact of the development of the National Strategic Project (PSN) in Demak Regency has not paid attention to the sustainability of environmental effects. For example, the construction of the Semarang–Demak toll road apparently indicates a weak AMDAL (Environmental Impact Assessment) planning (Gustaf, 2022). This resulted in loss and damage to drainage flows in villages that crossed the toll road project, causing major flooding in early 2023.



Figure 2. Sayung-Demak Toll Road in Loireng Village

Changes in land use in coastal areas have had a significant impact on the lives of people in the Sayung area. These impacts include tidal floods which cause waterlogging in residential areas, agricultural land, ponds, and public infrastructure such as roads (Rifan & Rijanta, 2017), in Loireng Village, especially around the Roudhlotus Sholihin Islamic Boarding School. According to Gus Qodir, the tidal flood that occurred was no worse than the tidal flood that occurred in the villages of Timbulsloko, Bedono, Morosari and Sriwulan. Because the tidal flood here is not too

high and is just passing by. However, flooding can be made worse by high rainfall but the water cannot be absorbed by the ground or channeled into drainage channels. In December 2022, there was a major flood in Loireng due to the high intensity of rain and high tides, which submerged several houses of Loireng residents, including the Roudhlotus Sholihin Islamic Boarding School. The flood certainly had an impact on community activities but did not disrupt learning activities at the Islamic boarding school because the female students were on holiday and returned to their respective homes.

The Loireng Village Government has tried to anticipate tidal floods by raising village roads. However, the problem is, if only the roads are raised then the roads will be higher than the foundations of people's houses. Logically, if flood water passes through higher roads, the water will come down and attack people's houses. This will be very detrimental to the affected residents, because not all residents are economically able to raise the foundation of their house to the same level or higher than the road itself. Gus Qodir also refused to raise the road, and he had an opinion that tidal flooding in his village could be handled by water pumps. More water pumps must be used when tidal floods occur by moving flood water into rivers. However, problems occur when the river, which is the target for storing water, becomes shallow due to sedimentation while there are no active sewers in residents' homes. Therefore, what can be done to overcome tidal flooding is by using a water pump drainage system and normalizing rivers and ditches.



Figure 3. Roudhlotus Sholihin Islamic Boarding School, Loireng

The Roudhlotus Sholihin Islamic Boarding School is one of the Islamic religious-based educational institutions in Demak Regency which includes environmental knowledge in its student development. The Islamic boarding school has also made efforts to deal with tidal flooding in the Islamic boarding school environment. Of course, this is a step forward to get out of the disaster threat zone in this coastal area. The following are some of the efforts made by the Roudhlotus Sholihin Islamic Boarding School in dealing with tidal floods.

1. Environmental-Based Education

Environmental-based education is an effective strategy in providing understanding about the importance of preserving the earth. In Islamic teachings, there is a concept

of environmental jurisprudence education (Fiqh Al-Bi'ah) which aims to explain the regulations that apply to humans regarding the environment around them, in accordance with Islamic law and the guidelines contained in the Al-Quran (Amin et al., 2019). Environmental jurisprudence can also be interpreted as a science that regulates human interaction with nature or the environment, based on texts from the Koran and Hadith. The second stage in the Islamic boarding school's efforts to realize environmental awareness and environmental culture rooted in the concept of independence is to increase awareness of environmental issues (Suryanto, 2019). At the Roudhlotus Sholihin Loireng Islamic Boarding School, they integrate learning the values of caring for the surrounding environmental education can raise awareness in the hearts and minds of students regarding their responsibilities as caliphs and citizens to implement these values by protecting and managing the surrounding environment wisely, for the sake of the continuity of life in this world and the afterlife. This can be known as ecological sustainability in environmental Fiqh education.

2. Real Action to Care for the Environment

The concern of the Roudhlotus Sholihin Islamic Boarding School is not just a concept. All elements of the Islamic boarding school community take part in real actions to implement the values of awareness and care for the surrounding environment. In real action, this can start with simple things first, such as students having to throw away rubbish in its place, students carrying out routine pickets to clean the Islamic boarding school environment, and cleaning gutters or waterways around the boarding school. Gus Qodir stated that teaching about environmental awareness is also applied when students are being punished for violations. They are required to clean the gutters in Islamic boarding schools in an effort to normalize the drainage channels. Apart from that, Islamic boarding school students have also carried out several beach clean-up actions, such as Tirang Beach. Some time ago, students cleaned the beach in the hope of helping to preserve the beach, especially since the current environmental crisis threatens the safety of coastal areas.

3. Counseling to the Surrounding Community

The author realizes that currently, many religious communities, including Muslims, do not seem to pay enough attention to environmental issues (Fiqh Al-Bi'ah). This begs the question, why most Muslims do not show interest in carrying out activities such as reforestation, maintaining cleanliness, waste management, and other efforts related to caring for the environment. In fact, Islam does not only contain orders for dhikr, recitation, and the like. Further insight is needed to know that in the Al-Quran, it is no less important than recitation, namely preserving nature. QS. Ar-rum verse 41

ظَهَرَ الْفَسَادُ فِي الْبَرِّ وَالْبَحْرِ بِمَا كَسَبَتْ آيْدِي النَّاسِ لِيُذِيْقَهُمْ بَعْضَ الَّذِيْ عَمِلُوا لَعَلَّهُمْ بَرْجِعُوْنَ

[It has been seen that damage on land and at sea is caused by the actions of human hands; Allah wants them to feel some of the (consequences of) their actions, so that they return (to the right path)].

From this verse of the Koran, it is natural for a Muslim to follow the teachings or commands of his God. A Muslim should understand how important it is to protect the

environment that God mentions it in the Book. The environment should not be placed as an object of exploitation. If nature is always dominated, subdued, exploited then nature can respond to human cruelty against itself with cruelty too. However, it needs to be realized that the emergence of every natural disaster is no longer a "test from God"; it is rather a form of nature's revenge on humans who control it cruelly.

It is important for Fiqh scholars to make breakthroughs in Islamic understanding based on authoritative Islamic texts such as the Koran and Hadith. Ideas and counseling regarding Fiqh need to be taken seriously and seriously supported, both through education and religious preaching (Dyatmika, 2020). The public must be guided to believe that trivial actions such as disposing of rubbish properly or keeping the streets clean are forms of worship. They also need to understand that selling on the sidewalk can rob pedestrians of their rights, which is contrary to religious teachings (Ghufron, 2010). In the Islamic context, the discourse or knowledge of environmental jurisprudence is still relatively minimal. Therefore, Muslims need to study more deeply in developing environmental jurisprudence and then socialize it to the wider community.

In terms of socialization or counseling, the role of clerics and other religious figures is needed. Gus Qodir, as a religious figure, said that he took part in outreach or counseling to the local community. At the Roudhlotus Sholihin Islamic Boarding School there are regular recitations for the local community, this is a point for socializing media to the public about environmental awareness. Gus Qodir added that this outreach is very important, because the role of the community is also very important in protecting the surrounding environment, especially housewives, who are the main pillar in the household to manage their home environment. The important role of housewives in managing their environment, such as whether domestic waste is disposed of through a sorting process first or not, whether their house yard is beautifully planted with trees, whether they throw household waste carelessly or not, how women manage organic and inorganic waste, how women sort out the materials that produce wastes which are safe for the environment or not, and so on. Therefore, in Gus Oodir's preaching, the theme of concerning to the environment cannot be separated, because Loireng Village is an environmental crisis area where flooding often occurs. He carries out outreach to the public to be more sensitive and respectful toward nature by preserving the nature. One of them is by not destroying mangrove forests, not carrying out large-scale land conversions, and normalizing sewers around houses. Living a life that is beneficial to the environment starts with yourself.

3.1. Environmental Mitigation in the Rob Flood Disaster in Loireng Village

Disaster mitigation efforts are an important action in efforts to reduce disaster risk, both through efforts to build physical infrastructure and through other means. increase awareness and ability to face disaster threats. Meanwhile, environmental mitigation is steps taken to prevent or overcome negative impacts on the environment that may arise because of planning or implementing an activity (Ulya, et al., 2023). Based on research and the views of the people of Loireng Village, it can be concluded that mitigation efforts for the tidal flood disaster are necessary.

1. Socialization to the community

Based on literature research in the village tidal flood disaster mitigation journal in Loireng, information was obtained that most residents did not understand the water

cycle when the rainy season arrived so when flooding occurred due to overflowing rivers, people did not know what needed to be saved first. People during major floods, when the water had started to rise, did not have small medical equipment and seemed to panic. Therefore, there needs to be outreach from the government authorities, religious leaders, and students.

2. Normalization of Drainage Channels

Loireng Village is one of the villages crossed by the Semarang-Demak toll road construction project. Therefore, several drainage channels and water gates were damaged and lost. Therefore, the government needs to review the construction of the toll road. And responsible actions from the authorities to normalize the drainage channels. The impact of flooding will be even more widespread if there are no drainage channels, because this coastal area with low topography is very prone to flooding and will take a very long time to recede if there is no good drainage system.

3. Water Pumping System

When flood water is difficult to recede because the drainage flow is damaged, a water pump system is needed to reduce the tidal flood discharge which submerges residential areas. However, according to Gus Qodir, there is only one pump in the village, so it is less effective. An assistance from the government is needed to establish a water pump system, where the flood water will be pumped and channeled into the river. In the event of a tidal flood disaster like this which seems difficult to control, the affected communities, especially in Loireng, are forced by the current natural conditions to make peace and adapt. Peace does not mean being passive as if waiting for a flood to completely submerge the entire area, but peace in the sense that people's activities are now in line with the natural conditions that occur.

After a tidal flood occurs with erratic ebbs and flows, post-disaster management is also needed. Roudhlotus Sholihin Islamic Boarding School has also carried out posttidal recovery or due to the impact of tidal floods, namely by raising the foundation of the boarding school building and cleaning up the remaining mud carried by the flood. There is one of the boarding school buildings' foundations that has not been raised. and hence the condition of the corresponding foundation is higher than the road. However, the flooding that occurred at the Roudhlotus Sholihin Islamic boarding school was not as severe as in Timbulsloko village, where the tidal flood period could last up to 6-8 hours. The occurrence of a tidal wave does not interfere with students' learning activities, because the tidal wave is not serious, and flooding could possibly be more severe if the rainfall is high. Unfortunately, around the Islamic boarding school there is not much drainage that flows smoothly. The drainage channels in the villages around the Islamic boarding school are not smoothly flowing and when there is a high intensity rain, the water will rise from the sea and downstream, causing high flooding. This Islamic boarding school is considered quite open in the concept of learning. It does not restrict itself to another sect because students are taught to respect each other and to be able to implement the values of the teachings of the Koran. Abdul Oodir's hope as the manager of the Rodhotus Sholihin Islamic boarding school is to provide more water pumps in the flood-affected areas and immediately repair all drainage. Also, there is a need for pro-environmental government policies. "A thousand religious clerics advice will be disappeared by a signature."



Figure 4. Loireng village sluice gate

4. Conclusions

This research highlights the importance of strategies or efforts to deal with tidal flood disasters in Loireng Village, Sayung sub-district, Demak Regency. The Loireng Village, Sayung sub-district, Demak Regency is one of the coastal areas affected by the tidal water disaster. This tidal flood phenomenon has had an impact on several sectors of life in this coastal area. The Roudhlotus Sholihin Islamic Boarding School in Loireng Village is an example of an educational institution that was affected by tidal flooding, which affected the activities within it. Mitigation efforts have been carried out by the community and local government by improving roads, environmental education, and strengthening building foundations. Field observations that have been carried out have found several causes that worsen tidal flooding, namely poor drainage around the construction of the Sayung-Demak Road, ditches in residential areas that are not running smoothly, and the conversion of green land to industry. The Roudhlotus Sholihin Islamic Boarding School has taken proactive steps in dealing with this situation, the people in Loireng have also adapted to natural conditions. This Islamic boarding school has taken various actions to prevent tidal flood mitigation. These efforts involve several aspects, including physical infrastructure, environmental education, and post-flood recovery. Although challenges remain, this initiative is a positive step in protecting Islamic boarding school learning environments and the safety of students and staff. Furthermore, collaboration with the government and surrounding communities can help improve tidal flood mitigation in this area. From all this research, it confirms that concrete and real efforts and strategies need to be made in developing tidal flood disasters in coastal areas. Cooperation among all elements of society and the government in protecting the surrounding nature and trying to prevent further bad things caused by tidal floods is required. Education regarding awareness of the surrounding environment is very important, both in educational institutions and in the surrounding community.

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