

Ecological Justice for Timbulsloko: A Disaster Jurisprudence Approach

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Abstract

Ecological justice is a concept that emerged in the field of disaster fiqh which emphasizes the importance of fair and equitable treatment of the environment. This article will explain how to apply disaster fiqh to understand and overcome ecological justice issues. The sinking of Timbulsloko is a real consequence of global climate change, often affecting the most vulnerable communities with literature and field observation methods. This article will also discuss the importance of the role of local communities in driving actions that support ecological justice. This includes raising awareness about climate change, mobilizing community support, and working with government and non-government to find sustainable solutions. In Timbulsloko Village, the main causes of land subsidence are geographical factors and continuous coastal erosion. Damage to infrastructure, infiltration of seawater into inland areas, and decreased agricultural productivity are impacts that have been felt today. In addition, this phenomenon has a significant impact on local economies, social welfare, and environmental sustainability. To understand the impact of land subsidence on residents' daily lives, the study included field surveys, analysis of geological data, and conducting interviews with local communities. Land subsidence in Timbulsloko Village is a complex challenge that requires special attention. With this research, readers can increase their understanding of the source of the problem and effective solutions.

Keywords: *abrasion; climate change; ecological solution; environmental benefit; sociology of environment.*

INTRODUCTION

Ecological justice refers to the fair distribution of environmental benefits and burdens, while disaster jurisprudence is concerned with the legal and ethical implications of disasters. These two concepts intersect and how a disaster jurisprudence approach can be used to promote ecological justice after a disaster occurs.

Disasters often have a disproportionate impact on marginalized communities and how a disaster jurisprudence approach can help ensure that these communities are not further marginalized in the recovery process. In addition, there are several main principles of the disaster jurisprudence approach, such as the need for participatory decision-making and recognition of the link between human rights and environmental rights (Maldonado & Peterson, 2021; Preston, 2023)

Timbulsloko village is a settlement on the coast of Demak with stunning natural beauty, where many residents depend on natural resources for their lives. The village, however, has faced many problems in recent years, potentially threatening the village's stability and survival. Timbulsloko area is an area on the North Coast of Central Java Province that experiences the impact of erosion and abrasion (Astuti et al., 2016). Land subsidence is the main problem faced by Timbulsloko Village.

The Disaster Fiqh Approach in Land Subsidence in Timbulsloko Village includes three aspects, namely values, principles, and norms. There are things that need to be considered with the perspective of disaster fiqh. i.e. Before a disaster occurs, when a disaster occurs, and after a disaster. Like verse:

ظَهَرَ الْفَسَادُ فِي الْبَرِّ وَالْبَحْرِ بِمَا كَسَبَتْ أَيْدِي النَّاسِ لِيُذِيقَهُمْ بَعْضَ الَّذِي عَمِلُوا لَعَلَّهُمْ يَرْجِعُونَ
(QS. Ar-Rum:41)

"It has been seen that corruption on land and at sea is caused by the works of human hands, so that Allah feels to them a part of their deeds, so that they may return (to the right path)".

Land subsidence is a geological phenomenon that occurs when the land surface or subsoil gradually drops down. There needs to be further research monitoring of the occurrence of groundwater level subsidence. A variety of things can cause this land subsidence, including excessive groundwater extraction and ongoing abrasion. Land subsidence in Timbulsloko Village is a problem that will continue to occur until an undetermined time.

The daily lives of Timbulsloko villagers are greatly affected by land subsidence. One of the most striking effects is the damage to infrastructure, such as houses and roads, which are cracked and damaged due to uneven changes in land levels. In addition, land subsidence can also cause drainage problems, increase the risk of tidal flooding, and disrupt agricultural activities, which were the main source of income for most villagers before this land subsidence. Many ponds were lost and damaged buildings caused by tidal floods submerged villages (Sukamdi, 2019).

To protect and sustain the living environment of Timbulsloko Village, it is important to understand the causes and effects of land subsidence. Therefore, proper research and action need to be done to address these issues and maintain quality of life. Populated areas in coastal areas affected by tidal floods usually have low land elevation, especially areas near river banks (Ilhami et al., 2014).

METHODOLOGY

The method used in publishing this article is the method of field observation and literature review. Field observation is an approach in research or survey that involves direct and systematic observation of phenomena that occur in the location or place that is the object of research. This method is used to collect data visually or sensorily through direct observation without utilizing sophisticated measurement tools (Mustari & Rahman, 2012). The primary purpose of field observation methods is to observe, identify, and record various events, behaviors, or characteristics that can be a valuable source of data in research. Literature review involves collecting literature data, reading, recording, and processing research materials. Some characteristics that must be considered by the author when using the literature review method, include: First, the author has no direct knowledge of the field; Instead, they come face to face with text or numerical data. Third, library data is generally a secondary source, meaning researchers don't need to go into the field. Fourth, the condition of library data is not limited by time or space. Thus, several books, journals, and printed and electronic documents, as well as other data sources deemed relevant, are used to collect data for research. The journal is the main data source for this research article. Books are second only to journals, and the relevant web is the last source (Kusuma & Rahman, 2018).

RESULTS AND DISCUSSION

Timbulsloko Village is one of the areas affected by erosion and abrasion on the north coast of Central Java province (Astuti et al., 2016). Places in coastal areas are very vulnerable to abrasion due to waves and

currents (Pranoto & Atmodjo, 2016). Timbulsloko Village is located in Sayung District, Demak Regency. The area of Timbulsloko Village itself is around 451 ha or about 5.85% of the total area of Sayung District. Timbulsloko Village is divided into 4 hamlets consisting of Timbulsloko Hamlet, Wonorejo Hamlet, Karanggeneng Hamlet, and Bogorame Hamlet. All hamlets were affected by the rob that hit the village. The state of one problem can trigger the emergence of other problems, and that is what is happening in this area. Most of the area used to be rice fields and crop gardens. The residents also work as farmers and pond businesses. The worst tidal flood occurred in Timbulsloko village and residents not only suffered from the situation, but also lost ponds as their main source of income (Hawati et al., 2017). In terms of employment, tidal floods affect changes in the type of work of local residents (Ahmad, 2017). Based on the testimony of one of the residents of Bogorame Hamlet, the coastline in Timbulsloko Village began to experience erosion that began severe from 2004 to 2006. In the past, opposite his house was a field and also a rice field, but now only water. Robin floods come in the morning and evening, when some residents leave and return from work (Qonita, 2023). Every morning in Bogorame Hamlet, the tide closes the road even into the house. Cleaning the house from tidal water is now a routine for the residents of the hamlet.

Picture 1, House without yard due to land subsidence disaster in Timbulsloko Village



Source: Personal Documentation 2023

Shift to Timbulsloko Hamlet which is the worst affected area by Rob. To get to Timbulsloko Hamlet, it takes a distance of approximately 1 kilometer from the main road of the village. This road has a width of about 2 meters which is held with an embankment that is approximately 15cm thick dividing the ocean. There are several damages such as potholes which certainly endanger road users, the road is still in the form of dirt which if wet will become mud. If it is flooded, the road will be flooded so that residents will find it difficult to access and prefer canoes or small boats. Then in the hamlet of Timbulsloko, the wooden bridge which is about 1 meter wide becomes the main road as a link between one house to another. If there is no serious enough effort to deal with this problem, the tidal flood will get worse and losses will continue to increase. In Timbulsloko hamlet, most houses use towering bamboo and concrete as the foundation of the house. Some houses there have roofs in the form of Joglo houses, like typical Central Javanese traditional houses. The difference is that the floor surface of the houses in Timbulsloko hamlet has changed. There is no floor surface with a roof of 3 meters, even at the entrance of the house there are residents who are forced to bow to enter the house. The continuous decline in land level makes residents raise the floor level of the house so that sea water does not enter. Communities are required to adapt from robs and other problems such as land subsidence caused by environmental and climate changes (Wirawan, 2023).

Picture 2. Main road access to Timbulsloko Hamlet, Timbulsloko Village



Source: Personal Documentation 2023

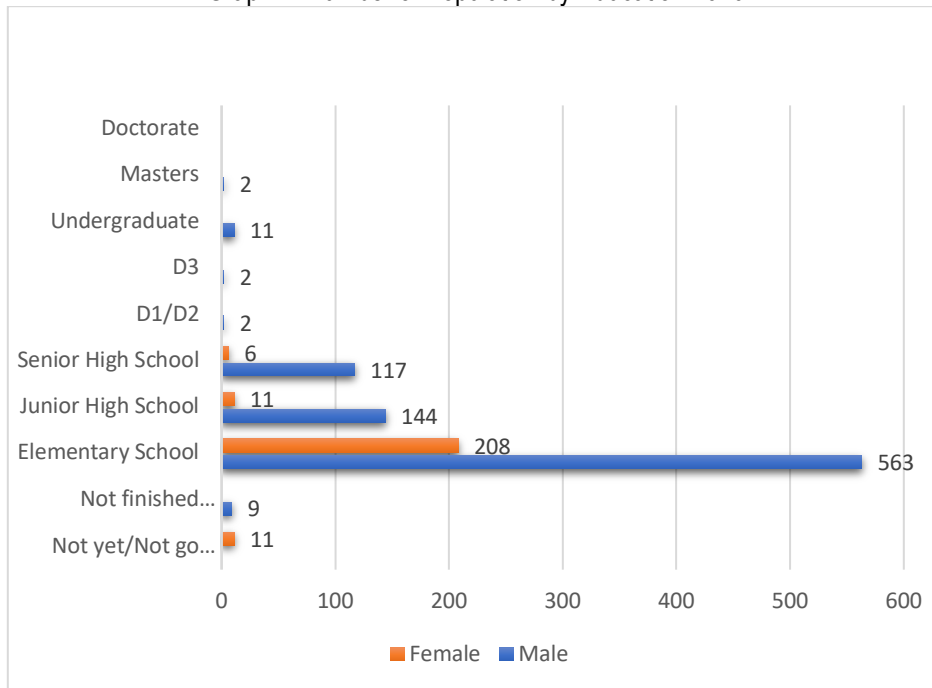
Picture 3. The condition of the houses of residents in Timbulsloko Hamlet, Timbulsloko Village



Source: Personal Documentation 2023

During a visit to Timbulsloko Village, we asked some questions to the local Village Head. "For the problem that there is no livelihood, people who have ponds will find it difficult to get jobs because they usually get income from ponds. After tidal flooding occurs, people who have ponds are confused about where to work, and want to work outside the area of the embossment is hindered by age. There is no work experience outside and the last education is limited to elementary school, so residents choose to become land and sea fishermen," said Mr. Nadhiri the head of Timbulsloko Village. From his words, we caught that the work problems in Timbulsloko Village lead to internal factors. Residents find it difficult to find work because they are used to having their livelihood so when tidal floods occur, residents become confused about where to work and if they go out of town, on average they have an elementary school education or not school, so they are less competitive with others. From here residents make fishermen as livelihoods. Submerged pond land causes loss of livelihood of residents (Sukamdi, 2019). An important role in disaster management and risk reduction is to strengthen the response and adaptive capabilities of the community (Purnaweni et al., 2018)

Graph 1. Number of Population by Education 2020

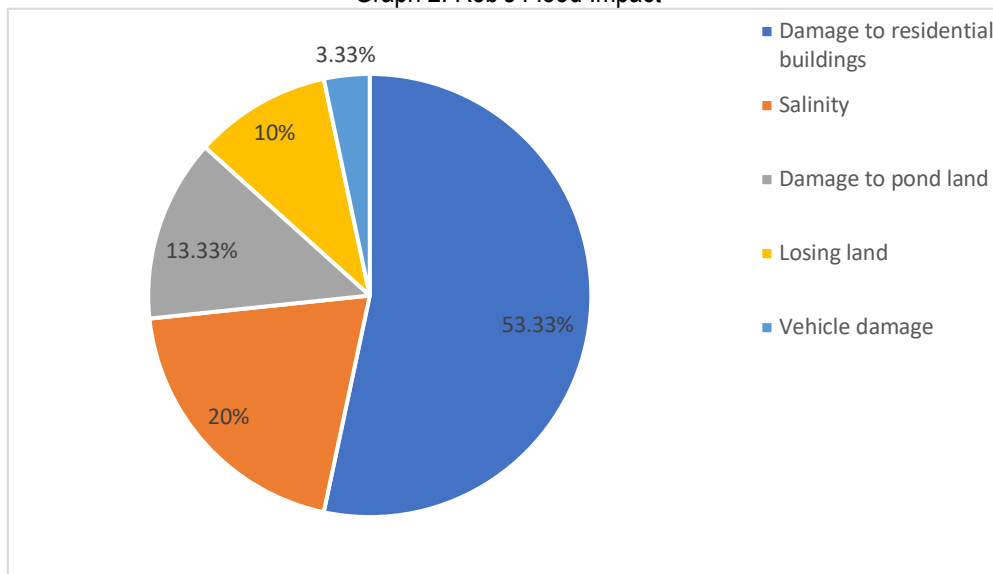


Source: SIDesa Population Data of Timbulsloko Village

Not all residents of Timbulsloko Village experience work problems. Many of the young people there became Factory Workers and residents around Pantura Street had their creativity. They can adjust by utilizing the natural products in Timbulsloko Village. Turning mangrove plants into sustenance fields is the creativity of Timbulsloko residents. The community's economy is influenced by the existence and utilization of mangrove ecosystems, both directly and indirectly (Mayasari et al., 2021). Residents can turn mangroves into food such as mangrove chips and mangrove syrup and then sell them to several places around to meet economic needs.

The land subsidence in Timbulsloko Village also resulted in severe infrastructure damage. Houses around the coast experience cracks every year. Damage to residential buildings in addition to land subsidence is also caused by tidal floods that hit almost every day. This corrosive tidal flood causes rust to appear on the foundation. Not only buildings are victims of this disaster, but like pond land, vehicles also participate in the impact of this rob.

Graph 2. Rob's Flood Impact



Picture 4. The condition of the damage to one of the residential buildings



Source: Personal Documentation 2023

Timbulsloko village has a population of 3,386 people/km² with a percentage of 3.2%. Timbulsloko Hamlet has a population of 440 people/km² with 135 families (Qonita, 2023). In the last 2 years, there have been around 40 families who moved. The main reason many residents decide to move is because of this land subsidence. Some residents have permanent houses, Family information is still in Timbulsloko Village. Then some of them still live and do not move due to economic factors. These settled residents are used to robs that usually occur in the morning. When we came there we saw the surface of the soil that was still moist, after asking one of the residents it turned out that in the morning there was a rob or tide. Rob is quite disturbing to residents' activities and the need for clean water. With the occurrence of rob, of course, meeting the need for clean water becomes difficult. To meet the need for clean water, wells were drilled to a depth of 120m to meet the needs of residents. From the drilled water, it is flowed through pipes to residents' homes. There are pros and cons related to this borehole water source. Considering that groundwater exploitation is one of the main factors in land subsidence in Timbulsloko Village. There is a need for groundwater management that is carried out intelligently by considering legal and technical aspects (Hendrayana, 2002). On the other hand, people also need clean water to support their lives.

Table 1. Population by gender in 2020

No.	Sex	Amount/Soul	Percentage
1.	Male	1.642	50,7%
2.	Female	1.597	49,3%
TOTAL		3.239	100%

Source: SIDesa Population Data of Timbulsloko Village

Exploitation of groundwater is a trigger for rob in the area. Land subsidence is a real impact that has occurred from the exploitation of groundwater (Kurniawan, 2020). Land subsidence can occur due to a heavy load on it so that the soil below experiences compaction (Yuwono, 2013). The Rob disaster can be said to occur because of the actions of human hands themselves. Rob that happens is inevitable and can only minimize the impact that occurs. As humans who live side by side with nature, we should be able to take care of nature itself. However, the people of Timbulsloko must coexist with nature that takes them home. Solutions are needed to improve environmental conditions in Timbulsloko Village and reduce the adverse effects caused by erosion (Sugianto et al., 2022). Disaster fiqh emphasizes the concept of shared responsibility in dealing with disasters. This means governments, communities, and individuals should participate in disaster prevention, mitigation, and response efforts. It also includes the responsibility of safeguarding the environment so as not to cause further damage that could exacerbate tidal flooding. The occurrence of disasters due to human intervention cannot be separated from improper environmental management, so there is an attachment between disaster fiqh and the environment

(Imayanti, 2017). From this, it can be seen how the community's efforts to make Timbulsloko nature not a more damaged area by planting mangroves. Mangrove plants have an important role to resist erosion and protect settlements (Ismail et al., 2012). Growth and expansion of mangrove forests in Timbulsloko Village are expected to increase the resilience of the area (Perdana et al., 2018). Currently, the area has been overgrown with mangroves. Mangroves can help reduce climate change because of their ability to store carbon (Lestariningsih et al., 2018). With mangroves, people began to think about using mangroves to produce something. People who lost their jobs used mangroves to make mangrove syrup and mangrove chips which could then be marketed. In the end, residents still have to make peace with nature like that. For lighting, residents use solar energy. This is a very good use amid the rob problems they face.

CONCLUSION

Groundwater exploitation and coastal change have led to significant environmental impacts, including severe coastal erosion and abrasion. Despite the difficult situation, some communities have found creative solutions to meet their needs, such as utilizing mangroves to produce products such as mangrove syrup and chips. The principle of shared responsibility in dealing with disasters is applied in communities, with governments, communities, and individuals having an obligation to participate in disaster prevention, mitigation, and response. People use solar energy for lighting, showing efforts to make peace with nature and protect the surrounding environment.

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