
The Impact of Floods on the Socio-Economic Conditions of Communities in Sungai Tabuk

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Abstrak

Curah hujan yang tinggi mengakibatkan banjir di wilayah Sungai Tabuk. Banjir memberikan dampak yang kompleks terhadap kondisi sosial ekonomi masyarakat. Analisis dampak banjir diperlukan untuk merancang strategi pengembangan masyarakat pasca bencana. Tujuan dari penelitian ini adalah untuk mendeskripsikan dampak sosial dan ekonomi banjir di Sungai Tabuk. Metode penelitian yang digunakan adalah kualitatif dengan teknik pengumpulan data melalui observasi, wawancara, dan dokumentasi. Hasil penelitian menunjukkan bahwa dampak banjir terhadap kondisi sosial antara lain: 1) kondisi demografi penduduk yang mengalami perubahan struktur sosial, 2) menurunnya kondisi kesehatan, 3) menurunnya kualitas pendidikan, 4) rusaknya tempat tinggal, sedangkan dampak banjir terhadap kondisi ekonomi antara lain: 1) kehilangan mata pencaharian, 2) penurunan pendapatan, 3) kerusakan tanaman dan kehilangan dokumen berharga.

Kata Kunci: Bencana; Banjir; Sosio-Ekonomi

Abstract

High rainfall resulted in flooding in the Sungai Tabuk area. Floods have had a complex impact on the socio-economic conditions of the community. Analysis of the impact of floods is needed to design post-disaster community development strategies. The purpose of this research is to describe the social and economic impacts of floods in Sungai Tabuk. The research method used is qualitative with data collection techniques through observation, interviews, and documentation. The results showed that the impact of flooding on social conditions included: 1) demographic conditions of the population who experienced changes in social structure, 2) decreased health conditions, 3) decreased quality of education, 4) damage to housing, while the impact of flooding on economic conditions included: 1) loss of livelihood, 2) decrease in income, 3) damage to crops and loss of valuable documents.

Keywords: Disaster; Flood; Socio-Economic

PRELIMINARY

Every year major floods occur in many lowland areas in Asia (FAO & CIFOR, 2005). This is also the case with floods in Indonesia. Floods are the most common type of disaster based on the Indonesian Disaster Information Data (DIBI) and have tended to increase in recent years. Disasters are a series of events that threaten and disrupt people's lives and livelihoods

caused by natural and/or non-natural factors and human factors resulting in human casualties, environmental damage, property losses and psychological impacts. A flood disaster is defined as an event when water overflows from a body of water and inundates land (Wisner et al., 2004).

Floods can be caused by 2 factors, namely: 1). Natural factors such as rainfall, erosion and sedimentation, river topography and geophysics, inadequate river and drainage capacity, land subsidence, damage to flood control structures, etc.; 2). Human factors such as land use change, garbage disposal, slum areas along the river, improper flood control system planning, and so on (Razikin et al., 2017). Floods cause damage and losses in the form of human and property casualties that disrupt and even paralyze the socio-economic activities of the population. Floods have also caused a lot of environmental damage, both to the natural environment (cliff erosion, sedimentation, river siltation), and the artificial environment (damage/loss to the agricultural sector, settlements, public facilities).

Analyzing the impact of floods is a crucial step in designing post-disaster development strategies (Lubis, A. F., 2024). An in-depth understanding of the scale of infrastructure damage, economic losses, and social impacts caused by floods is needed to formulate targeted development policies and programs. Thus, post-disaster development efforts can be directed at reducing the risk of future disasters, increasing community resilience, and accelerating economic recovery. Analyzing the impact of floods is the first step in rebuilding a more resilient and sustainable region. A comprehensive understanding of the impact of floods makes it possible to design development strategies that focus not only on physical recovery, but also on reducing the risk of future floods.

One of the areas that often experiences annual flooding is Sungai Tabuk sub-district. Sungai Tabuk sub-district has a flat topography and is located near a major river, which makes it prone to inundation. Heavy rainfall, especially during the rainy season, often causes rivers to overflow and inundate settlements, agricultural land and public infrastructure. Flooding has an impact on the socio-economic conditions of the community in Sungai Tabuk sub-district. Based on the above background, the author is interested in analyzing the impact of flooding on the social and economic conditions of the community in Sungai Tabuk Sub-district.

METHOD

The method in this research uses a qualitative research approach, namely by analyzing and understanding the meaning in the problem of the impact of flooding on the social and economic conditions of the community (Creswell, 2009). This study's data sources were

obtained from several research informants, including the community in Sungai Tabuk Village, youth groups, and village officials. The secondary data were obtained from several literature studies and information relevant to the research. Data collection is done through interviews, observation, and documentation. In-depth interviews were conducted with research informants to obtain relevant data. The data analysis technique follows the pattern of Miles and Huberman, which begins with data reduction, data presentation, then verification. Data analysis is done by selecting relevant data for the research focus. Then the data is presented in a narrative form to get a conclusion from the data obtained. In analyzing data up to the verification stage, researchers also continue to test the validity of the data. Extension of observations and triangulation of sources, techniques, and time are used to test the validity of the data obtained in the research activities.

RESULTS AND DISCUSSION

Floods are a serious threat that often hit various regions in Indonesia, including Kecamatan Sungai Tabuk. This event not only causes physical damage to infrastructure and the environment, but also has a significant impact on the social and economic conditions of the community. Flooding is not only a natural disaster, but also a trigger for various complex problems that can hinder development and community welfare.

Sungai Tabuk sub-district is geographically located along the river. High rainfall is a factor that can increase the risk of flooding in this area. In addition, the community's dependence on the agriculture and fisheries sectors, which are highly vulnerable to the impact of flooding, further exacerbates the socio-economic conditions of the community. The socioeconomic impacts of disasters cover various aspects of community life, including health, education and livelihoods (Lindell & Prater, 2003).

According to Zunaidi (2013), socioeconomic conditions are everything related to the welfare of the community to see socioeconomic conditions. Melly G. Tan states that socioeconomic conditions can be seen from employment, education, health, and fulfillment of life in the household. According to Sastropradja (2000) in Basrowi and Juariyah (2010), socioeconomic conditions are the state or position of a person in society. The characteristics of socio-economic conditions are: 1) education, 2) Has a social status characterized by family, health, work, income and recognition of the environment, 3) Has a greater level of upward mobility. 4) Has a large field. 5) More specific jobs. The impact of flooding on the socio-economic conditions of the community in Sungai Tabuk is as follows:

A. Impact of flooding on social conditions

According to Dalyono, (in Muttalib, A., 2019) social conditions are all people or other humans who influence us. The social environment also affects the achievement of children's education. Social conditions affect individuals in two ways, namely directly and indirectly. Direct influences such as family, social environment, work environment, organization and so on. The social conditions of the population are studied through four variables, namely demographic conditions, health, education, and housing conditions (Soekanto, Soerjono, 1982). The social impacts felt by the Sungai Tabuk sub-district community include:

1) Demographics

The United Nations in Sri Moertiningsih defines demography as a scientific study of population problems related to the number, structure, and growth (Sri Moertiningsih., 2011). Demographic conditions or population of Sungai Tabuk sub-district based on BPS data from the 2022 population census results, the population of Sungai Tabuk sub-district is 60,762. the population did not experience a reduction caused by flooding, because there were no casualties. However, due to the floods, some people who live in flood-prone areas undertake seasonal migration to avoid the impact of flooding. When a major flood occurs, a large proportion of the population loses their homes and is forced to flee to higher ground. This can lead to changes in the composition of the population in the area, with an increase in the number of poor people and changes in the social structure.

2) Health

According to the Law of the Republic of Indonesia No. 23 of 1992 concerning Health, states that health is a state of well-being of body, soul and social that enables a person to live a socially and economically productive life. In terms of health due to flooding, there was a decrease in health, especially the emergence of diseases such as skin filth, diarrhea, fever. Medicines given are in the form of canceled medicine, water lice medicine, paracetamol medicine, and other medicines. This shows the importance of health care during disasters. The rapid response of the out-of-village health team in distributing free medicines reflects the importance of health system coordination and preparedness in the face of disasters, as recommended by WHO in its disaster management guidelines (WHO, 2022).

3) Education

According to Law of the Republic of Indonesia No. 20 of 2003 on the National Education System, education is a conscious and planned effort to create a learning atmosphere and learning process so that students actively develop their potential to have

religious spiritual strength, self-control, personality, intelligence, noble character, and skills needed by themselves, society, nation and state. Floods can disrupt teaching and learning activities, especially if schools are submerged or damaged. The impact on children's education and can worsen the level of education in Sungai Tabuk. Flooded schools often have to be closed, resulting in disruptions in the teaching and learning process. This potentially lowers the quality of education and affects the future of affected children. In addition, many parents have lost their livelihoods due to the damage caused by the floods, leaving them unable to pay for their children's education after the floods. This limited access to education can exacerbate social and economic inequalities in the community. The closure of schools and their conversion into shelters and soup kitchens demonstrates the flexibility in the use of public infrastructure during disasters. However, it also underscores the potential for long-term disruption to education, which needs to be addressed with emergency education strategies as suggested by UNICEF (2019) in its guidelines for education in emergency situations.

UNICEF (2019) suggests several emergency education strategies to minimize the long-term impact of disasters on education. These strategies focus on rapid access to education, flexible curriculum, fun learning, community engagement, child protection, psycho-social recovery and cross-sectoral cooperation. The main objectives of the strategy are to ensure children can continue to learn, reduce trauma and accelerate post-disaster recovery. With a holistic approach, UNICEF wants to ensure that education remains a priority even in emergency situations.

4) Housing Conditions

Housing is a basic need in addition to clothing and food. A good house is one that meets health requirements (Gilarso, 1994). The majority of community housing in Sungai Tabuk is made of wood, resulting in many houses being damaged by flooding. The most damaged parts of the house are the floor and walls of the house, while the sticks of the house are made of ulin wood so that they are resistant when submerged in floods. According to the Indonesian timber list, ulin wood is included in strength class I-II, which has the property that the more submerged in water, the stronger it will be (Hidayat, T., 2019). Only a small part of the community owns a house with a whole ulin wood building material this is due to its high price. Most of the others have houses made from non-Ulin planks or kalsiboard, which are easily damaged when submerged in water.

Overall, flooding in Sungai Tabuk Sub-district has caused complex and ongoing social impacts. Demographic changes, health problems, education disruptions and housing damage have shaken the fabric of community life. Recovery from this disaster requires a concerted effort from various parties to address the long-term impacts and rebuild a more resilient community. The flood disaster in Sungai Tabuk sub-district has been an important reminder of the vulnerability of communities to natural disasters. The wide-ranging social impacts, ranging from health problems to education disruptions, show how important disaster preparedness and mitigation efforts are to reduce risks and impacts.

The government and communities in Sungai Tabuk sub-district need to work together to address the social impacts of flooding. Restoration of infrastructure, provision of health and education services, and psychological support for disaster victims are important steps in rebuilding a more resilient community. In addition, long-term disaster mitigation efforts also need to be made to prevent similar disasters from occurring in the future.

B. Impact of flooding on economic conditions

The economic impact of this disaster can be felt directly and indirectly, affecting various sectors of people's lives. In the context of Indonesia, which frequently experiences flooding due to heavy rainfall, poor water management and climate change, the economic impact of flooding is a very important issue to analyze. Floods not only cause significant material losses, but also disrupt economic activities, affect people's livelihoods, and exacerbate pre-existing socioeconomic conditions. Floods are one of the most frequently occurring natural phenomena that have a significant impact on human life, especially in the economic aspect. As an event that involves the overflow of water onto normally dry land, floods not only threaten life safety, but also result in substantial material losses.

The economic condition of the population is a condition that describes human life that has economic value. Economic conditions are assessed through three variables, namely livelihoods, income, and ownership of valuables (Soediyono, 1992). The impacts of economic conditions felt by the people of Sungai Tabuk sub-district include:

1) Livelihood

Livelihood is the activity of doing work with the aim of obtaining income or profit to meet the needs of his life which is carried out successively and uninterruptedly including family workers without being paid who help in economic activities and can fulfill his welfare (Andi, A., & Hurriati, L., 2020). The economic impact of flooding on people's livelihoods can be seen in a decrease in work productivity. The majority of residents in Sungai Tabuk have livelihoods as farmers and traders, so that during floods

the community's agriculture is submerged, causing crop failure. The community cannot carry out agricultural activities during floods. In addition, food security became a critical issue during the floods with communities relying on food aid and soup kitchens. Although relief distributions of rice and ready-to-eat meals help meet immediate needs. The agricultural sector, which is often the main victim of flooding, experiences very significant economic impacts. The loss of crops not only hurts farmers directly but can also cause food prices to rise, impacting inflation and national food security. This situation points to the importance of developing stronger local food security systems, as advocated by Tendall et al. (2015) in their study on food system resilience.

Communities that have lost their livelihoods due to these disasters often have to rely on social assistance or loans to survive, which can add to the economic burden on families and worsen their financial condition. Many public kitchens were set up to help people cook. Public kitchens were instrumental in helping the community to provide ready-to-eat meals for residents who could not cook for themselves due to the condition of their homes and some foodstuffs such as rice were flooded. But foodstuffs during floods are still sufficient because there is a lot of assistance from the government in the form of instant noodles, cooking oil, salted fish, rice, chicken, drinking water, and raw food to cook. Livelihood is a source of effort by an individual to meet needs (Setiadi, 2013). So when a flood disaster occurs, it can have a significant socio-economic impact. If livelihoods are hampered, it will have an impact on meeting needs. (Nopianti, R., Melinda, T., & Harahap, J., 2018).

Oktorie's (2017) theory mentions how natural disasters such as floods can reduce the work productivity of local communities, especially in the agricultural and small trade sectors. The economic impact of floods at the micro level, especially for households and Small and Medium Enterprises (SMEs), is significant and often destructive. SMEs, which are the main pillars of the local economy, face serious threats of bankruptcy due to physical damage to assets such as inventory, equipment, and even business premises. Supply chain disruptions are also a thorny issue, hampering the smooth production and distribution of goods or services. This condition not only affects business owners who have to bear huge financial losses, but also employees who risk losing their jobs and main source of income. As a result, the local unemployment rate tends to rise, and people's purchasing power drops dramatically, worsening the overall economic condition. In addition, households who are the main consumers of SME products are also affected. Damage to their homes and possessions from the floods

forced them to allocate a large portion of their budget to recovery, reducing their purchasing power for SME products.

Changes in consumption patterns are also a significant economic impact of flooding. This is in line with Marfai's (2017) opinion that changes in consumption patterns as a community's economic adaptation strategy in the face of recurrent flood impacts. Affected communities often have to divert their spending on immediate needs, such as food and shelter, thus reducing spending on other needs, including education and health. This can result in long-term impacts on people's quality of life, especially for children who may lose access to proper education due to financial limitations. As a result of the economic losses incurred, many families fall into poverty. Loss of livelihoods and sources of income can worsen the economic conditions of communities in affected areas. The recovery process after a disaster is costly. Communities and governments must spend funds on rehabilitation and reconstruction, which can strain local budgets and divert resources from other needs.

2) Revenue

According to Soediyo, income is the amount of income received by members of society at a certain period of time as a reward for the factors of production they contribute⁸, while Mulyanto states that income is all receipts in the form of money or goods, either from other parties or from their own results valued in money on the basis of prices at that time (Soediyono, 1992). Floods disrupt economic activities such as agriculture and trade. Damage to agricultural land and loss of access to markets can lead to decreased income for farmers and traders. Losses in the agricultural sector, especially damage to rice yields, illustrate the vulnerability of rural economies to natural disasters. Although the rice harvest was done before the flood, some of the crops that could not be saved were flooded and suffered losses. However, the rice assistance received was sufficient to meet the daily food needs of residents during the flood. This finding reinforces FAO's (2021) argument on the importance of developing climate-resilient agricultural systems and diversifying rural economies to increase resilience to disasters.

3) Loss of valuables

The flash floods that hit Sungai Tabuk sub-district have resulted in significant disruptions to people's living systems, especially in terms of mobility and asset security. Widespread inundation has submerged settlements and road infrastructure, severely limiting accessibility. The community's reliance on water transportation such as boats

or kelotok as the only mode of transportation that still functions, worsens the situation for those who do not have one. This limited mobility has had a direct impact on the agricultural sector, one of the backbones of the community's economy. The rice harvest, which is the main commodity, could not be evacuated to safer places on a large scale due to transportation constraints. As a result, most of the crops have been damaged by water or even lost to theft. Traditional practices such as storing crops on higher ground, such as on top of fire pits, proved ineffective in the face of floods with high intensity and long duration.

Floods also caused significant non-material losses. Many residents lost important documents such as land certificates and diplomas due to being submerged in water or lost during evacuation. Losing these documents can lead to various problems in the future, such as difficulties in managing administration and obtaining public services. This condition further exacerbates the social and economic impacts caused by floods, and can hamper post-disaster recovery efforts.

Overall, the floods in Sungai Tabuk Subdistrict have had complex and long-lasting social and economic impacts. The loss of livelihoods, decreased income, and damaged infrastructure have hindered the community's economic recovery. This aligns with Kumalawati's (2015) research, which found that disasters tend to affect culture, livelihoods, and reasoning at a local scale in socio-economic terms. Economic losses caused by floods can be directly observed in the damage and destruction of housing and businesses, resulting not only in lost output but also potentially leading to poverty as a consequence of changes in the community's structural conditions. To rebuild the community's welfare, an integrated effort from various parties, including the government, non-governmental organizations and the private sector, is required. A comprehensive economic recovery program should include livelihood diversification, development of disaster-resilient infrastructure, as well as improving community access to financial resources. In addition, it is important to establish an effective early warning system to reduce the risk of future disasters.

The flood disaster in Sungai Tabuk sub-district served as an important reminder of the community's vulnerability to natural disaster risks. The economic losses incurred by the floods show how important it is to invest in disaster mitigation efforts. Through the development of early warning systems, infrastructure improvements and increased community awareness, we can reduce the negative impacts of future floods and build more resilient communities. In addition, it is important to strengthen regional spatial planning and sustainable natural resource management to prevent similar disasters from occurring.

The government and community in Sungai Tabuk sub-district have a very important role in post-disaster recovery efforts. The government needs to provide social assistance, job training programs and financial support for affected communities. The community should also be actively involved in the recovery process, such as participating in gotong royong activities and rebuilding damaged infrastructure. With good cooperation, the Sungai Tabuk community can bounce back from the disaster and build a brighter future. In addition, it is important to involve all stakeholders in recovery efforts, including the private sector, academia and civil society.

CONCLUSION

The flood disaster in Sungai Tabuk District has caused complex social and economic impacts. The results of the study indicate that the impact of flooding on social conditions includes: 1) demographic conditions of the population experiencing changes in social structure, 2) declining health conditions, 3) declining quality of education, 4) damage to housing, while the impact of flooding on economic conditions includes: 1) loss of livelihoods, 2) decreased income, 3) damage to crops and loss of valuable documents. The flood in Sungai Tabuk District is an important reminder of the vulnerability of communities to natural disasters that are increasingly occurring due to climate change. The economic losses caused by flooding show how important it is to invest in mitigation and adaptation efforts. The development of an early warning system, infrastructure improvements, and increasing public awareness of disaster risks are crucial steps to reduce the negative impacts of flooding in the future. In addition, diversification of livelihoods and sustainable economic development can also increase community resilience to disasters. Close cooperation between the government, communities, and various stakeholders is essential in post-disaster recovery efforts.

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