Volume: 10 Issues: 74 Special Issue [July, 2025] pp. 831- 841
Journal of Islamic, Social, Economics and Development (JISED)
eISSN: 0128-1755
Journal website: www.academicinspired.com/jised
DOI: 10.55573/JISED.107464

SOCIO-ECONOMIC IMPACT OF POST-FLOOD INFLUENCING IN TELUK KUANTAN CITY, KUANTAN TENGAH DISTRICT, KUANTAN SINGINGI REGENCY

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Article history
Received date : 9-6-2025
Revised date : 10-6-2025
Accepted date : 25-7-2025
Published date : 29-7-2025

To cite this document:
Hermawan, C., Suryanita, R., Mulyadi, A., & Firzal, Y. (2025). Socio-economic impact of post-flood influencing in Teluk Kuantan City, Kuantan Tengah District, Kuantan Singingi Regency. *Journal of Islamic, Social, Economics and Development (JISED),* 10 (74), 831 - 841.

Abstract: *This research aims to analyze the social and economic impacts caused by post-flood water inundation in Teluk Kuantan City, Kuantan Tengah District, Kuantan Singingi Regency. The floodwater inundation not only disrupts community activities such as access to education, employment, and transportation, but also causes material losses and poses health risks to the affected population. These problems are exacerbated by poor drainage systems and high rainfall intensity, which are the primary causes of water stagnation. The study applies a descriptive quantitative method with data collected through direct observation, semi-structured questionnaires, and field documentation. The research sample consists of 129 respondents from four affected areas: Koto Taluk, Beringin, Pasar Taluk, and Sungai Jering. The findings are expected to offer insight into both the short-term and long-term socioeconomic effects of flood-related inundation, and to serve as a reference for the government and community in developing effective strategies to mitigate similar risks in the future.*

Keywords: *Flood, Waterlogging, Socioeconomic Impact, Teluk Kuantan, Drainage*

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Introduction

Indonesia is classified as a disaster-prone country, the potential for disasters in Indonesia is triggered by various factors, such as climate change, Indonesia's geographical location, human activities and various other factors. Based on data and information on Indonesian disasters managed by the National Disaster Management Agency, it shows that floods are disasters with the highest intensity compared to other types of disasters, namely 40% of all disasters that occur in Indonesia.

Floods are defined as disasters that most often occur in a place due to overflowing water that exceeds capacity, can be in the form of puddles on land that is usually dry such as agricultural land, city center settlements that cause losses both from humanity and the economy (Ab. Gultom in Yunida 2017). Floods are caused by several factors, one of the main causes is high rainfall, which often exceeds the capacity of existing drainage. In various places there are some inadequate drainage, due to clogged channels. Generally, flooding is caused by high rainfall above normal, so that the water flow system consisting of rivers and tributaries and artificial flood drainage systems are unable to accommodate the accumulation of rainwater so that it overflows (Nurjanah, in Febri Yanti 2022). This flood and inundation hamper community activities, including breadwinners who will be hampered in their work, housewives who will have difficulty in organizing and taking care of their household needs, and students will have difficulty carrying out school activities because their learning access will be disrupted.

As a result, productivity that affects the economy will decrease, the fulfillment of family needs is unstable, and students are disrupted in pursuing knowledge for their future needs (lekatompessy 2023, Santri 2020). The inundation that forms after this flood also has an impact on the social and economic conditions of the community, especially on land transportation problems (irwan, asriadi, mierta dwangga, 2023). The economic impact after the flood caused drainage during the rainy season to disrupt economic activities for a moment, which could harm entrepreneurs in selling, traffic jams on the highway, and public facilities on the road were damaged and disrupted other community activities (Elzya Ainurrosyidah 2022). Kuantan Singingi Regency is one of the regencies that has the potential for flooding. Kuantan Singingi Regency consists of 15 sub-districts. Kuantan Singingi Regency is an area that is prone to flooding. This flood disaster is the highest compared to other disasters that have ever occurred in Kuantan Singingi Regency, one of which occurred in Kuantan Tengah District.

There are several sub-districts located on the banks of the river, so that when the rainfall is high, the water discharge will increase and cause the Kuantan River to overflow over the riverbank when a flood will occur. Floods also do not only occur when the Kuantan River overflows past the riverbank, but floods can also occur in urban areas due to other factors such as high rainfall and poor drainage systems, when heavy rain falls, water channels that are unable to accommodate the volume of water cause puddles to form on roads and settlements, this can disrupt community activities, one of which is in Teluk Kuantan City (Febri Yanti 2022).

Socio-economic activities in Teluk Kuantan City consist of trade and services, settlements, transportation routes, educational facilities, health facilities, and government. Teluk Kuantan City is the capital of Kuantan Singingi Regency which was formed in 1999 and previously had the status of a sub-district capital. In Teluk Kuantan City there are several flood points caused by high rainfall factors, flooding and puddles are formed because the water channels are unable to accommodate the volume of water. The following is a brief description of the flood and puddle points in Teluk Kuantan City, Kuantan Tengah District.

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Table 1: Flood Inundation Points

No	Sub-district/Village	Affected (KK)
1.	Koto Taluk	50
2.	Beringin	50
3.	Pasar Taluk	41
4.	Sungai Jering	50
	Total	191

Source: Regional Disaster Management Agency, Kuansing Regency 2024

Water puddles from drainage will flood the road when there is heavy rain so that it looks like a river current (Ihsan Harish Febrian, Hani Burhanudin, 2023) Flood puddles have social and economic impacts where this greatly affects the daily lives of the community. This flood puddle is also caused by a poor drainage system, this is related to the site planning course in the regional and city planning department, and the consequences of the flood puddle also damage the existing infrastructure, this is also related to the regional infrastructure material which discusses the basic infrastructure needed to support the function of a region. Infrastructure damaged by flood puddles can hinder mobility and accessibility, and have a negative impact on the local economy.

This study focuses mainly on seeing how much impact this post-flood puddle has on the socio-economic conditions of the community in Teluk Kuantan City and how the community and related governments can find solutions so that they can reduce the impact on the socio-economic activities of the community in Teluk Kuantan City. The impact on socio-economic conditions and the solutions in question are how the affected community can carry out their daily activities in carrying out all their socio-economic activities without having to experience losses, either time losses or material losses.

Literature Review

Floods and Inundation: General Context

Floods are hydrometeorological disasters that often occur in various regions of Indonesia, including in lowland areas such as Teluk Kuantan City. According to the National Disaster Management Agency (BNPB), floods not only cause physical damage but also cause long-term impacts in the form of waterlogging that disrupts community activities. Post-flood inundation is an important factor that worsens socio-economic impacts, especially in urban areas with suboptimal drainage systems (BNPB, 2021).

Social Impacts of Floods and Inundation

The social impacts of post-flood inundation include disruption of people's lives in terms of mobility, education, health, and a decline in overall quality of life. A study by Mulyadi (2018) showed that after the flood, many residents experienced psychological disorders, lost their homes, and limited access to basic services. Children were forced to miss school, and residents were unable to work as usual. In areas such as Central Kuantan, where the social structure of the community is highly dependent on mutual cooperation activities and community interactions, prolonged inundation also has the potential to damage social cohesion.

Economic Impacts of Post-Flood

From an economic perspective, post-flood inundation has a significant impact on people's livelihoods. Research by Rahmawati et al. (2019) found that economic losses due to flooding

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not only come from physical damage to property, but also from decreased income due to disruption of local economic activities, such as traditional markets, agriculture, and transportation. In the Kuantan Singingi area, the agricultural and small trade sectors are the backbone of the community's economy, so post-flood inundation can reduce purchasing power and slow down economic recovery.

Local Studies in Kuantan Singingi Regency

Several local studies (Syafri, 2020; Nasution, 2021) show that Teluk Kuantan City is highly vulnerable to seasonal flooding due to its position along the Kuantan River. However, the impact of post-flood inundation has not been studied in depth. In fact, the inundation left after the water recedes often persists for weeks, causing additional damage to infrastructure and exacerbating public health impacts such as the spread of skin diseases and diarrhea.

Theoretical Framework and Previous Studies

Socio-economic impact studies due to natural disasters often use the vulnerability and adaptive capacity approaches of the community (Wisner et al., 2004). In this context, the Teluk Kuantan community can be studied from two sides: how much risk they face due to inundation, and how ready or able they are to adapt. The study by Setiawan (2017) also emphasized the importance of community and local government involvement in post-flood mitigation to accelerate the recovery process.

Research Methods

This study uses a descriptive qualitative approach to deeply understand the social and economic impacts felt by the community due to post-flood inundation in Teluk Kuantan City, Kuantan Tengah District. This approach was chosen because it allows researchers to explore the perceptions, experiences, and real conditions of the community directly in the field.

Research Location and Subjects

The research location is focused on areas affected by severe inundation in Kuantan Tengah District, especially in residential areas around the banks of the Kuantan River. The location selection was carried out purposively based on the level of vulnerability to inundation and the frequency of flooding. The research subjects included affected communities, community leaders, small business actors, and local government officials such as RT/RW and regional BPBD officers. The number of informants was selected by snowball sampling, where researchers will develop a network of informants based on recommendations from previous informants until the data is considered saturated.

Data Collection Techniques

Data were collected through several main methods, namely:

1. In-depth interviews with affected residents, community leaders, and government officials to obtain information about their social and economic conditions before, during, and after post-flood inundation.
2. Direct observation in the field to record environmental conditions, disrupted economic activities, and community responses to inundation.
3. Documentation in the form of photos, area maps, and official reports from BPBD or related agencies regarding flood and inundation data in the area.

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Data Analysis Techniques

The data obtained will be analyzed using thematic analysis techniques, namely by identifying the main patterns or themes that emerge from the results of interviews and observations. The analysis process is carried out in stages, starting from data transcription, data reduction, data presentation, to drawing conclusions. Data validity is tested through triangulation of sources and techniques, namely by comparing information obtained from various sources and data collection methods to ensure consistency and accuracy of information.

With this approach, the research is expected to provide a comprehensive picture of the socio-economic impacts of post-flood inundation and become the basis for more effective mitigation and recovery efforts in the future.

Results And Discussion

The figure is a boxplot showing the distribution of data from eight different groups, labeled A to H on the horizontal axis (x-axis). This boxplot is used to illustrate the distribution of values, medians, and outliers in each group.

Elements visible in each boxplot:

1. Box: Shows the interquartile range (IQR), which is from the first quartile (Q1) to the third quartile (Q3). This is the middle 50% of the data.
2. Line inside the box (Median): The horizontal line inside the box shows the median value (Q2) of each group.
3. Line (Whisker): The vertical lines extending from the box up and down indicate the minimum and maximum values that are still within reasonable limits (excluding outliers).
4. Small circles (Outliers): The points outside the whisker are outliers, which are values that are significantly higher or lower than the other values in the group.

Initial Interpretation:

1. Group B has the widest range of values (high variability), with a higher median than the other groups.
2. Groups C and D have small IQRs and many outliers below the minimum, indicating a narrower distribution but with some extreme values.
3. Group A has a relatively low median, but has quite a few outliers below the minimum.
4. Groups F and G have fairly symmetric distributions, while group H shows a wide range of data and few outliers.
5. Group E shows a fairly balanced distribution with a median close to the middle of the IQR.

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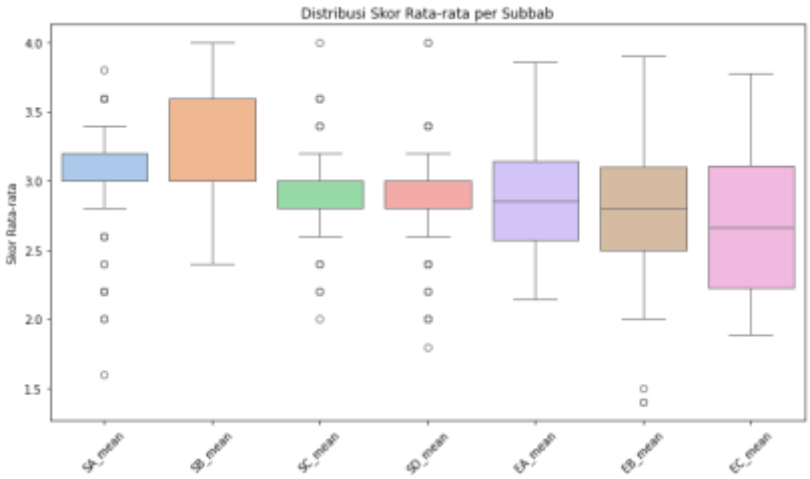

Figure 1: Boxplot

Social Impact:

A. Public Health Loss

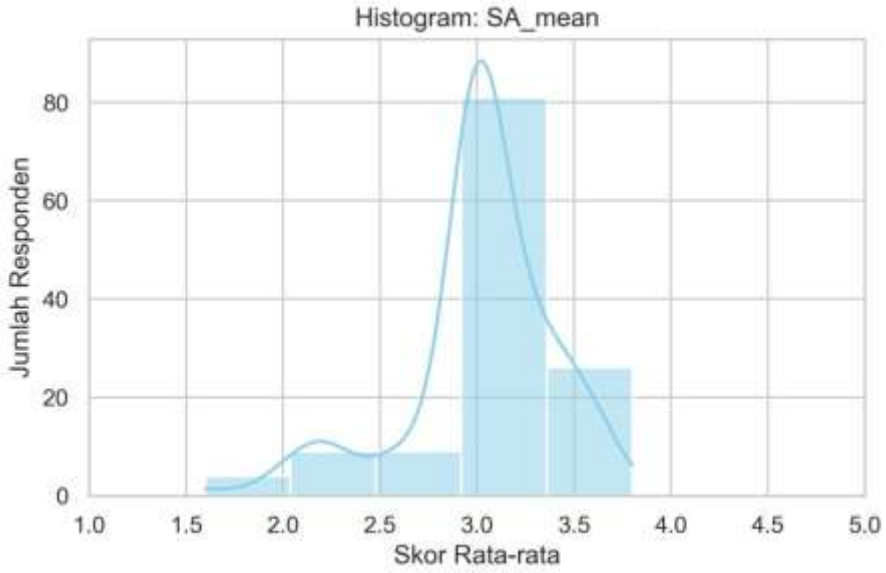

Figure 2: Public Health Loss

Average: 3.02

The average respondent's answer shows a distribution centered around the number three. It can be said that the community agrees that flooding causes harm to health.

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B. Disruption of daily activities

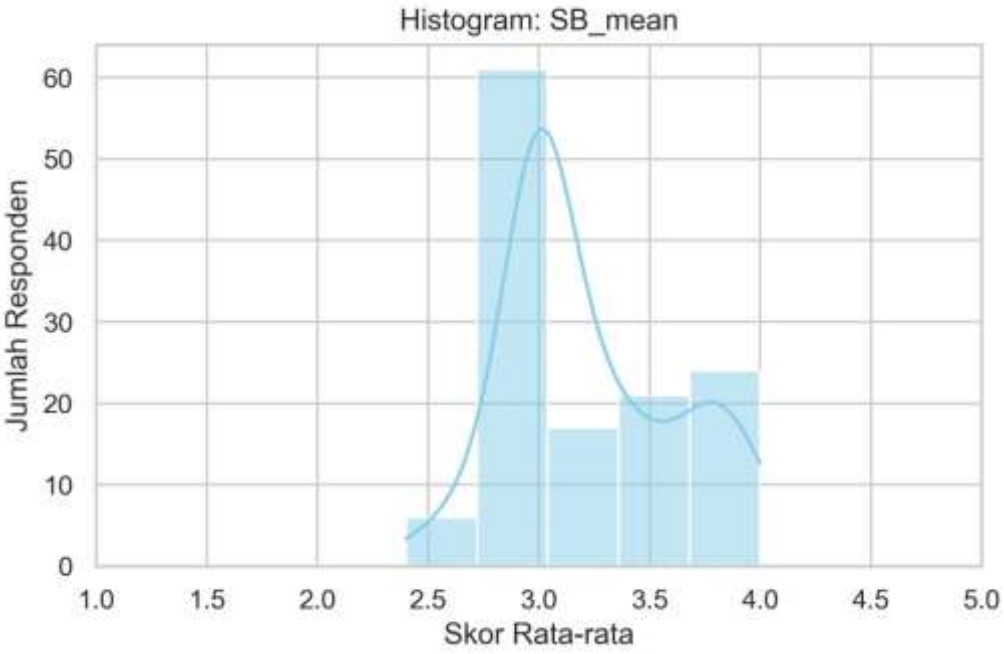

Figure 3: Disruption of daily activities

Average: 3.23

The average respondent's answer shows a distribution centered around the number three. It can be said that the community agrees that flooding disrupts daily activities and causes harm to health.

C. Community Adaptation

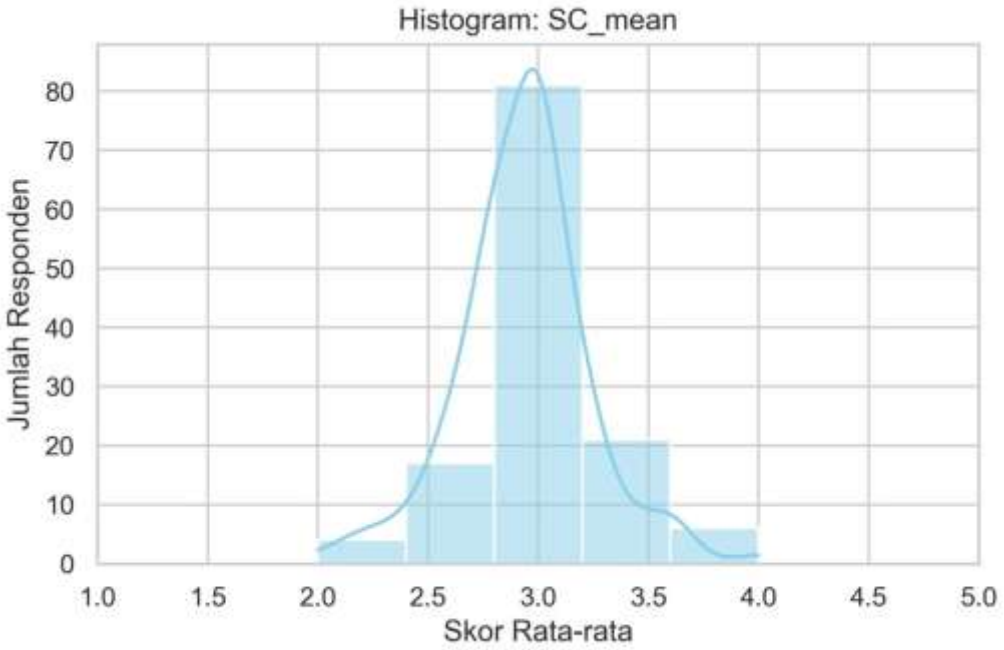

Figure 4: Community Adaptation

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Average: 2.93
The average respondent's answer shows a distribution centered around the number three. It can be said that the community agrees that there have been preventive efforts in dealing with flood disasters.

D. Survival

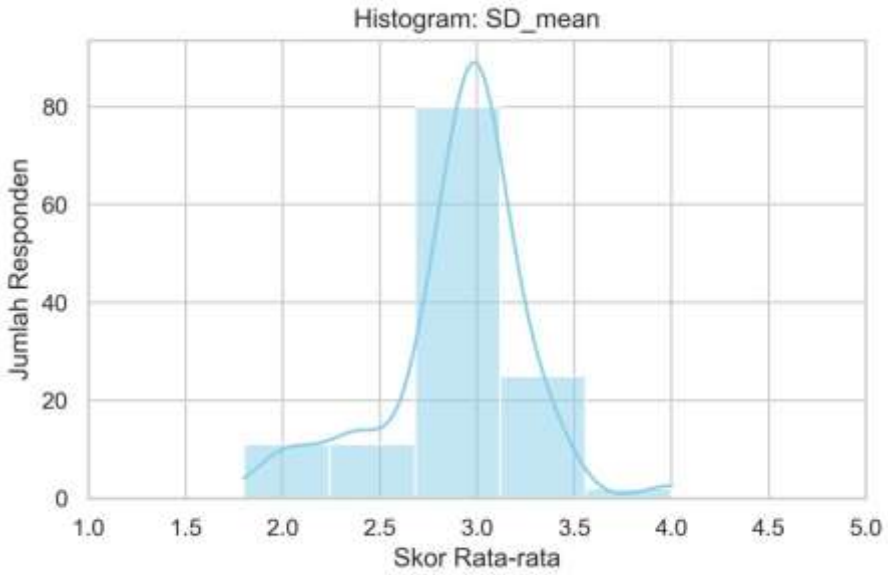

Figure 5: Survival

Average: 2.90
The average respondent's answer shows a distribution centered around the number three. It can be said that the community agrees that flooding disrupts the community's survival.

Economic Impact:

A. Damage to Houses and Buildings

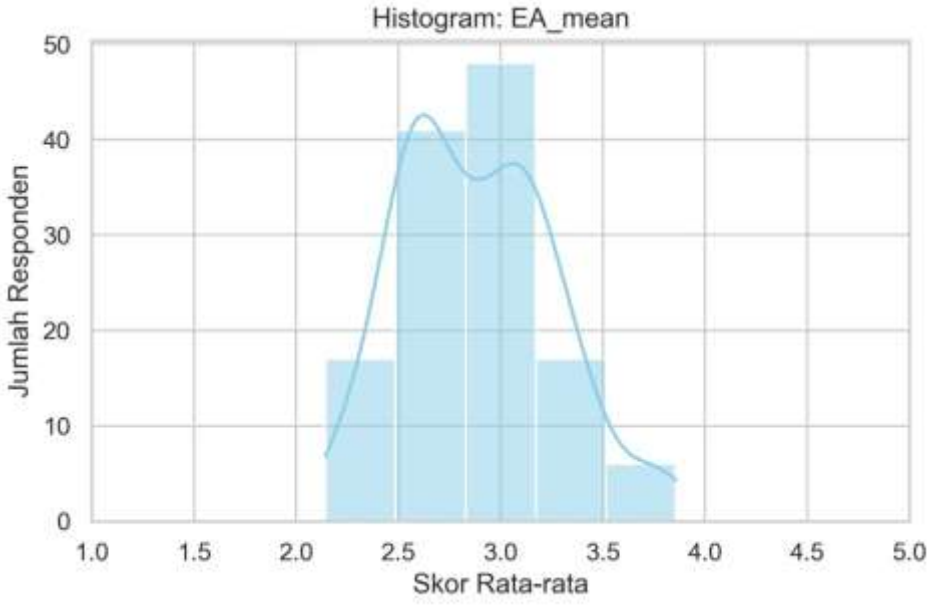

Figure 6: Damage to Houses and Buildings

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Average: 2.88
The average respondent's answer shows a distribution centered around the number three. It can be said that the community agrees that floods damage houses and buildings.

B. Losses and Disruption of Business Activities

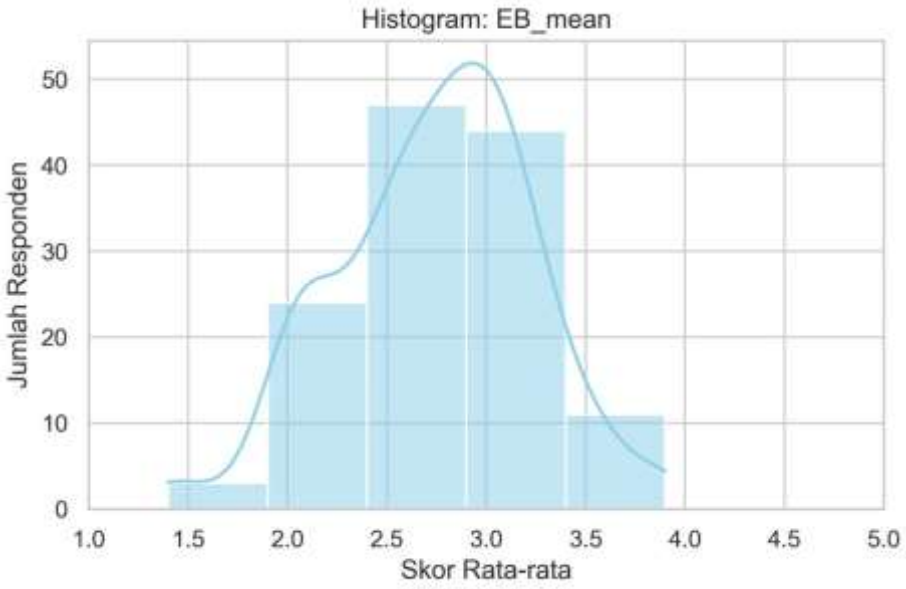

Figure 7: Losses and Disruption of Business Activities

Average: 2.75
The average respondent's answer shows a distribution centered around the number three. It can be said that the community agrees that flooding is detrimental and disrupts business activities.

C. Changes in Land Use

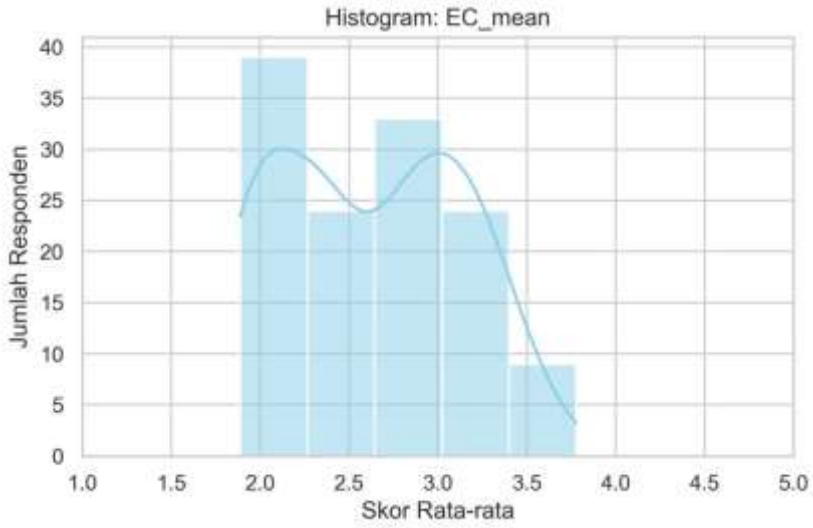

Figure 8: Changes in Land Use

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Average: 2.63
The average respondent's answers show a distribution centered around the numbers two and three. It can be said that the community does not agree that flooding is a result of changes in land use.

Conclusion

Based on the results of the research conducted, it can be concluded that post-flood inundation in Teluk Kuantan City, Kuantan Tengah District, Kuantan Singingi Regency, has a significant impact on the social and economic aspects of the community. From a social perspective, the community experiences disruptions in daily activities, decreased health, and challenges in maintaining survival and access to basic services. This impact is exacerbated by the poor drainage system and high rainfall which causes waterlogging to last longer. From an economic aspect, flooding causes damage to houses and buildings, disrupts community business activities, and affects the stability of residents' income. Although some communities have made adaptation and mitigation efforts, the impacts are still felt quite severe. Therefore, an active role is needed from the government and community in designing planned and sustainable solutions, such as improving drainage infrastructure, disaster education, and a more responsive flood management system, in order to reduce the same risks and losses in the future.

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