

Analysis of the Level of Resilience of Urban Communities in the Face of Flood Disasters in Bendungan Hilir Village

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Abstract

Floods are hydrometeorological disasters that often occur in urban areas and have an impact on social, economic, environmental, and public health aspects. Bendungan Hilir Village, Central Jakarta, is an area that still faces flood risk due to population density, regional characteristics, and limited infiltration areas. This study aims to analyze the level of community resilience to floods using the Sustainable Livelihood Framework (SLF) approach which includes human capital, natural capital, financial capital, physical capital, and social capital. The study used a quantitative approach with a survey method of 50 respondents selected by purposive sampling. Data was collected through questionnaires, interviews, observations, documentation, and spatial analysis using InaRISK BNPB's data processed with ArcGIS. The results of the study show that the community has good resilience in terms of drainage conditions, environmental cleanliness, waste management, house conditions, and road access. However, weaknesses are still found in disaster training, community skills, green open spaces, access to assistance, emergency funds, clean water, and income diversification, so that capacity building, green infrastructure, economic empowerment, and disaster institutions are needed.

Keywords

flood disasters; community resilience; livelihood capital; Sustainable Livelihood Framework; urban areas.



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1. INTRODUCTION

Floods are the most frequent hydrometeorological disasters in Indonesia and have a wide impact on people's lives. Based on data from the National Disaster Management Agency (BNPB), floods have consistently become disasters with the highest frequency of occurrences in the last decade (BNPB, 2024). The high incidence of flooding is influenced by a combination of natural factors, such as high rainfall, topographic conditions, and climate change, as well as anthropogenic factors in the form of land conversion, uncontrolled urbanization, reduced water catchment areas, and poor urban drainage systems (Marfai et al., 2015). This condition causes urban areas, including DKI Jakarta, to have a high level of flood vulnerability.

Floods in DKI Jakarta not only cause physical damage, but also have an impact on social, economic, environmental, and health aspects. Community activities, education, and transportation are often disrupted, while damage to household assets, infrastructure, and loss of income causes significant economic losses (Ward et al., 2013; Ristiani et al., 2017). In addition, long-term inundation can pollute the environment, reduce water quality, and increase the risk of diseases such as diarrhea, leptospirosis, skin diseases, aris, and mental health disorders (Alderman et al., 2012). One of the areas that still faces this threat is Bendungan Hilir Village, Tanah Abang District, Central Jakarta, which has a high population density, dominated by settlements, offices, trade, and services, and is located along the Krukut River flow so that it still experiences inundation during high-intensity rain despite various flood control efforts that have been carried out by the government.

Facing these conditions, disaster risk reduction cannot only rely on infrastructure development, but also requires strengthening *community resilience*. According to Norris et al. (2008), community resilience is the ability of communities to anticipate, adapt, and recover from the impact of disasters through the use of their resources. This resilience is influenced by various capitals, namely human capital, financial capital, social capital, natural capital, and physical capital that interact with each other in forming the capacity of the community to face disasters. Bendungan Hilir Village is one of the villages in Tanah Abang District, Central Jakarta Administrative City, Jakarta Special Region. This area has an area of about 1.58 km² and is known as an urban area dominated by settlements, offices, trade, and services. Its strategic location around the corridors of Jalan Jenderal Sudirman, Jalan Gatot Subroto, and the Semanggi area makes Bendungan Hilir one of the centers of economic activity and community mobility in Jakarta.

Hydrologically, Bendungan Hilir Village is located in a floodplain area affected by the Krukut River which empties into the West Canal Flood. During times of high rainfall, the increased discharge of the Krukut River can cause the river to overflow, causing inundation in residential areas and main roads. In addition to being influenced by hydrological factors, high building density, reduced water catchment areas, and changes in land use also increase the vulnerability of areas to flooding. The government has made various flood control efforts, such as normalizing the Krukut River, increasing drainage capacity, and managing the flood control system in the Ciliwung-Cisadane River Area. Hydraulic modeling research shows that normalization of the Krukut River is able to significantly reduce the level of flood hazard, although the risk of flooding in the Downstream Dam still exists due to the high intensity of rainfall and the characteristics of dense urban areas. Therefore, in addition to infrastructure development, it is necessary to increase community capacity and resilience as part of disaster risk reduction efforts.

Community resilience is the ability of individuals, households, and communities to anticipate,

absorb, adapt, and recover from the impact of disasters without losing the basic functions of life. According to Norris et al. (2008), community resilience is built through adaptive capacity that includes economic resources, social capital, information and communication systems, and community competence. The stronger the adaptive capacity has, the higher the community's ability to face and recover from flood disasters. In the context of communities living along rivers or flood-prone areas, resilience is influenced by various factors, such as the physical condition of settlements, access to early warning information, household economic capacity, environmental quality, and community participation in disaster risk reduction activities. Communities with disaster knowledge, strong social networks, stable sources of income, and access to basic infrastructure tend to have higher levels of resilience than communities with limited capacity (Cutter et al., 2008; Aldrich & Meyer, 2015).

One of the widely used approaches to analyze community resilience is the Sustainable Livelihood Framework (SLF) developed by the Department for International Development (DFID). This framework explains that community resilience is formed by five livelihood assets, namely human capital, natural capital, financial capital, physical capital, and social capital (DFID, 1999). The five capitals interact with each other in determining the community's ability to reduce vulnerability, adapt to change, and accelerate the recovery process after a flood.

In people living on the banks of rivers, natural capital is related to environmental conditions such as the quality of drainage, green open spaces, and proximity to flood sources. Physical capital includes the quality of houses, road access, evacuation facilities, and the availability of clean water. Human capital includes knowledge, education, health, and skills, while financial capital deals with income, savings, social assistance, and alternative sources of income. Meanwhile, social capital includes mutual cooperation, community networks, access to information, and disaster institutions. The strengthening of these five capital is an important strategy in building a flood-resilient society and supporting sustainable disaster risk reduction (DFID, 1999; Cutter et al., 2008; Aldrich & Meyer, 2015).

Previous research generally still examines the resilience of communities to floods partially, while the concept of resilience is multidimensional and influenced by the interaction of various social, economic, physical, and environmental factors (Cutter et al., 2008). Research by Ma'dika et al. (2026) in Ulujami Village using the *Sustainable Livelihood Framework* (SLF) approach shows that five livelihood capitals have different contributions in shaping community resilience. However, the difference in regional characteristics and the level of flood vulnerability make the results of the study unable to describe the condition of Bendungan Hilir Village. This study aims to measure the level of community resilience to floods in Bendungan Hilir Village based on five resilience capitals, so that it is expected to provide a comprehensive picture as the basis for the preparation of disaster risk reduction strategies and sustainable improvement of urban community resilience.

2. RESEARCH METHODS

This study applies a quantitative approach with a survey method to assess the level of community resilience to flood disasters based on the five dimensions of livelihood assets according to DFID (1999), which include; human capital, natural capital, financial capital, physical capital, and social capital. Primary data was obtained through the distribution of questionnaires to people domiciled in RT/RW Bendungan Hilir Village, Tanah Abang District, Central Jakarta. The survey method was chosen because it was able to provide a systematic overview of the condition of community resilience after experiencing a flood disaster, especially in terms of capacity to face, adapt, and recover after a disaster.

This study utilizes spatial analysis through the preparation of flood hazard maps in Bendungan Hilir Village. The map was compiled using data from InaRISK BNPB which was then reprocessed using ArcGIS software. The processing stages include the re-mapping process, adjustment of spatial data, and digitization of administrative boundaries to the RW and RT levels, so as to produce a more detailed flood hazard map as a basis for interpreting the conditions of the research area. The research was carried out for two months, namely in May and June 2026. Primary data collection was carried out through structured interviews and using questionnaire instruments, while secondary data was obtained through documentation studies of various sources, such as official reports, statistical data, government archives, and other documents related to regional characteristics and disasters. The research respondents were selected using the purposive sampling technique, which is the determination of the sample based on certain criteria that are adjusted to the research objectives.

The research variables consist of five dimensions of community resilience, namely human capital, natural capital, financial capital, physical capital, and social capital. Each variable was measured using five indicators. Human capital includes knowledge of the causes and signs of flooding, participation in disaster training or simulation, family health conditions during the rainy season, education level of the head of the family, and skills possessed. Natural capital includes the condition of drainage channels, the availability of green open space (RTH) or infiltration areas, the proximity of the house to flood sources, environmental cleanliness conditions, and the habit of disposing of garbage. Financial capital is measured based on household income, access to assistance from the Jakarta Provincial Government, access to social assistance during floods, ownership of savings or emergency funds, and alternative sources of income. Physical capital consists of the category of houses against the threat of flooding, structural mitigation efforts, the availability of evacuation facilities, road access conditions during floods, and access to clean water. Meanwhile, social capital includes mutual cooperation activities, membership in flood preparedness groups, access to disaster information, solidarity between citizens, and community networks.

Yes	Variable	Indicator
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1	Human Capital	1. Community knowledge
		2. Training/simulation participation
		3. Health Conditions
		4. Education Level
		5. Skill ownership
2	Natural Capital	1. Waterways/drainage
		2. Availability of RTH / Source of infiltration / biopore per house
		3. Proximity of the house to the flood source
		4. Environmental Cleanliness
		5. Habit of Making Garbage
3	Financial Capital	1. Main Income Head of family
		2. Access to Provincial Assistance
		3. Access to Social Assistance
		4. Disaster Emergency Fund
		5. Alternative income during floods
4	Physical Capital	1. Categories of Houses Against Flood Threat
		2. Structural Mitigation to Flooding
		3. Evacuation post facilities
		4. Road access during flooding
		5. Access to clean water
5	Social Capital	1. Mutual cooperation to clean the environment
		2. Flood alert group membership
		3. Access to flood information
		4. Solidarity between residents during floods
		5. Citizen Community Network

Sources: DFID, 1999; Rahman et al., 2023; Ma'dika et al., 2026

3. FINDINGS AND DISCUSSION

Bendungan Hilir Village is one of the villages in Tanah Abang District, Central Jakarta Administrative City, Jakarta Special Region. This area is dominated by residential, trade, service, and office areas and is crossed by the Krukut River which empties into the West Canal Flood, so it is vulnerable to inundation and flooding during high-intensity rains (Central Jakarta Administrative City Government, n.d.; BBWS Ciliwung–Cisadane, 2022). In addition to being located in a lowland with an elevation of about 6-8 meters above sea level, the Hilir Dam is also a strategic corridor that connects the areas of Jalan Jenderal Sudirman, Semanggi, and Jalan Jenderal Gatot Subroto. These conditions cause the impact of floods not only to be felt by the local community, but also to disrupt mobility and economic activities in the central area of Jakarta (DKI Jakarta Provincial Government, 2023).

Based on the results of the spatial analysis presented on the map, the vulnerability characteristics of the Bendungan Hilir Village area are dominated by the high danger zone (red zone) with an area coverage of 119.53 hectares. The area far exceeds the medium danger class (yellow zone) which is only 15.92 hectares and the low danger class (green zone) which covers an area of 13.88 hectares. The absolute dominance of the high hazard zone that covers most of the functional space of this village indicates that the research area is in a condition of environmental biophysical vulnerability that is very critical to the threat of surface water overflow.

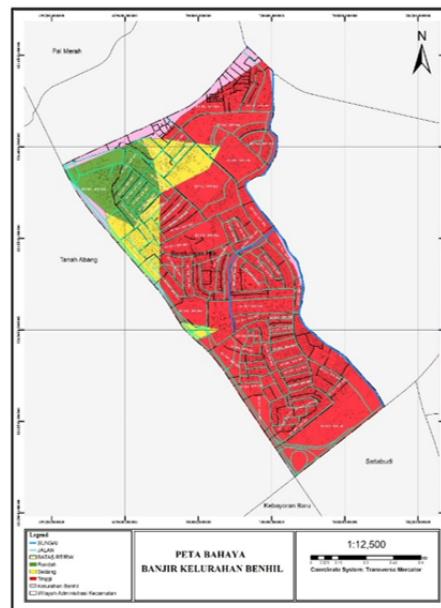


Figure 1. Flood Hazard Map

The high area of exposure to these hazards is directly proportional to the large potential risk of material loss in the built element, especially the residential and infrastructure sectors. Referring to *Google Open Building data*, the number of buildings per hazard class has a very drastic spike in building concentration in the high-hazard class, which reached 6,997 units of affected buildings, while in the low and medium classes there are only 790 and 1,086 building units, respectively. The density of thousands of buildings exposed to extreme risks in the red zone indicates that flood disasters in this region have the potential to cause a multiplier impact that can massively paralyze the socio-economic functions of the community.

Empirically, the flood phenomenon in Bendungan Hilir Village has the most significant impact on two vital areas, namely the Bendungan Hilir Highway corridor and settlements along the banks of the Krukut River. The waterlogging on the Bendungan Hilir Highway as the lifeblood of the local economy not only cuts off transportation accessibility, but also paralyzes commercial activities due to limited macro drainage capacity in accommodating surface runoff. Meanwhile, the Krukut River bank area is the most vulnerable point because it experiences anthropogenic pressure in the form of land conversion into dense settlements, so that the narrowing of the river trough and low topographic elevation cause the overflow of water to quickly inundate thousands of residents' residences with a longer duration of recede.

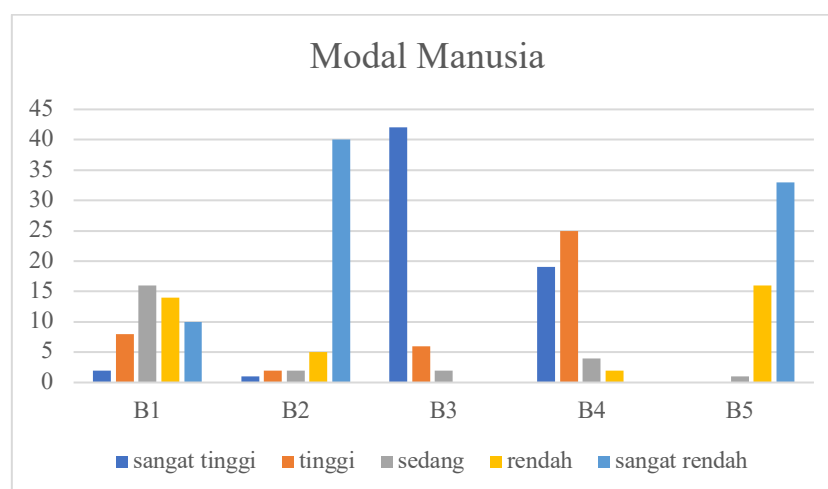
Community resilience is analyzed using the Sustainable Livelihood Framework (SLF) approach which includes five capitals, namely human capital, natural capital, financial capital, physical capital, and social capital (Department for International Development [DFID], 1999). Each capital is measured through five indicators that describe the community's ability to face, adapt, and recover from the impact of floods. The results of the measurement of 50 respondents showed that the level of community

resilience varied in each capital and indicator.

Several indicators show good conditions, such as family health, waste management behavior, access to flood information, road access conditions, and the quality of houses against flood threats. However, there are still weaknesses in participation in disaster training, ownership of emergency funds, access to social assistance, availability of green open spaces or biopores, access to clean water during floods, and membership in flood preparedness groups. These findings show that institutional strengthening, increased preparedness, economic empowerment, and the development of basic infrastructure and services are still needed to increase community resilience to flood disasters in a sustainable manner (DFID, 1999).

3.1. Human Capital

Human capital describes the capacity of individuals and households in dealing with flood disasters. This variable is measured through five indicators, namely **B1** the level of knowledge about the causes and signs of flooding, **B2** participation in disaster training or simulation, **B3** the health condition of the family during the rainy season, **B4** the level of education of the head of the family, and **B5** the skills possessed.



B1 level of knowledge about the causes and signs of flooding
B2 participation in disaster training or simulation
B3 family health conditions during the rainy season
B4 level of education of the head of the family
B5 skills possessed.

Figure 2. Human Capital Achievement

Level of Knowledge about Causes and Signs of Flooding (B1). The majority of respondents were in the medium category (32%), but as many as 48% were still in the low and very low categories. This condition shows that the public's understanding of the causes and signs of flooding has not been optimal, so it is necessary to increase disaster education and socialization. Participation in Disaster Training/Simulation (B2). Most of the respondents were in the very low category (80%), indicating the

lack of community participation in training and disaster simulation. Although the Downstream Dam has the status of a Disaster Preparedness Village (KSB), the implementation of the capacity building program has not reached the entire community, so training and simulations need to be carried out more regularly and evenly.

Family Health Conditions during the Rainy Season (B3). As many as 84% of respondents were in the very high category, which indicates the relative good health condition of families during the rainy season. However, people living on the banks of the Krukut River are still at risk of experiencing health problems due to flooding and poor sanitation conditions. Head of Family Education Level (B4). Most of the respondents were in the high and very high category (88%). A good level of education is an important capital in improving people's ability to understand information, make decisions, and adapt to flood risks. Skills/Skills Possessed (B5). The majority of respondents were in the very low (66%) and low (32%) categories, indicating that the community's additional skills are still limited. This condition can hinder the ability to adapt and recover after disasters, so a program to improve skills and empower the community's economy is needed.

3.2 Natural Capital

Natural capital describes environmental conditions that affect the level of vulnerability of people to floods. This variable is measured through five indicators, namely **C1** environmental waterway conditions, **C2** the availability of green open spaces (RTH) or infiltration areas, **C3** the proximity of the house to flood sums, **C4** environmental cleanliness conditions, and **C5** waste disposal habits.

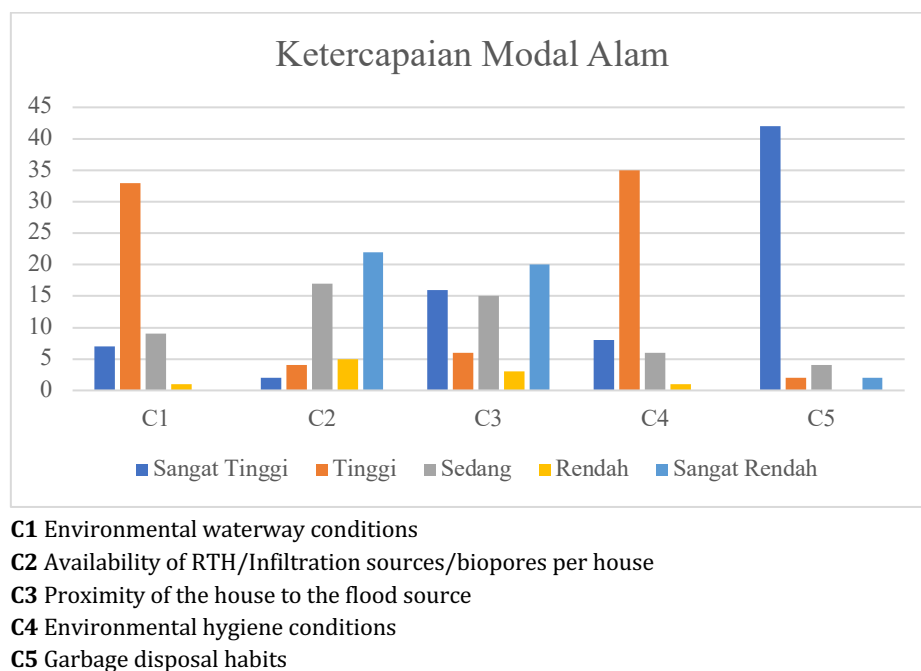


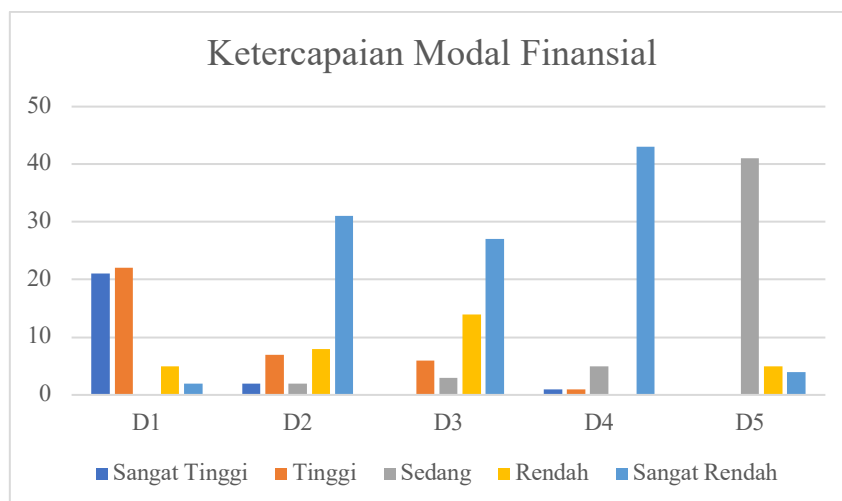
Figure 3. Achievement of Natural Capital

Environmental Waterway Conditions (C1). The majority of respondents were in the high (66%) and very high (14%) categories, indicating that the condition of the waterways in the research environment was relatively good. A well-functioning drainage system contributes to smoothing the flow of rainwater so that it can reduce the potential for inundation and flooding. Availability of Green Open Space (RTH)/Infiltration Source/Biopore (C2). Most of the respondents were in the very low (44%) and medium (34%) categories, which showed the limitations of green open spaces, infiltration wells, and biopores in residential environments. The catchment area is still concentrated in public green open spaces such as Singkarak Lake Park and Buyan and Dampelas Lake Parks, so it is necessary to add green infrastructure to increase rainwater infiltration capacity. Proximity of the House to the Flood Source (C3). The results showed variations in the level of vulnerability based on the location of residence. As many as 40% of respondents were in the very low category, indicating that there are still many houses that are close to the source of the flood, especially around the banks of the Krukut River, while some others live in relatively safer locations.

Environmental Hygiene Conditions (C4). As many as 86% of respondents were in the high and very high categories, indicating that the community has good concern for environmental cleanliness. In addition to maintaining cleanliness directly, some residents also use the JAKI application to report environmental problems such as clogged drains, garbage, and inundation so as to support flood risk reduction. Garbage Disposal Habits (C5). The majority of respondents were in the very high category (84%), which shows that the habit of throwing garbage is quite good. However, a small number of people on the banks of the Krukut River have not made optimal use of waste transportation services, so it is necessary to increase socialization and supervision of waste management to prevent negative impacts on the environment and flood risks.

3.3 Financial Capital

Financial capital describes the economic ability of households to cope with and recover from the impact of floods. This variable is measured through five indicators, namely D1 the main income of the head of the family, D2 access to assistance from the DKI Jakarta Provincial Government, D3 access to social assistance during floods, D4 ownership of savings or emergency funds, and D5 alternative sources of income during floods.



D1 Main income of the head of the family

D2 Access to Jakarta Provincial Government Assistance

D3 Access to social assistance during floods

D4 Savings or emergency funds for disasters

D5 Alternative sources of income during floods

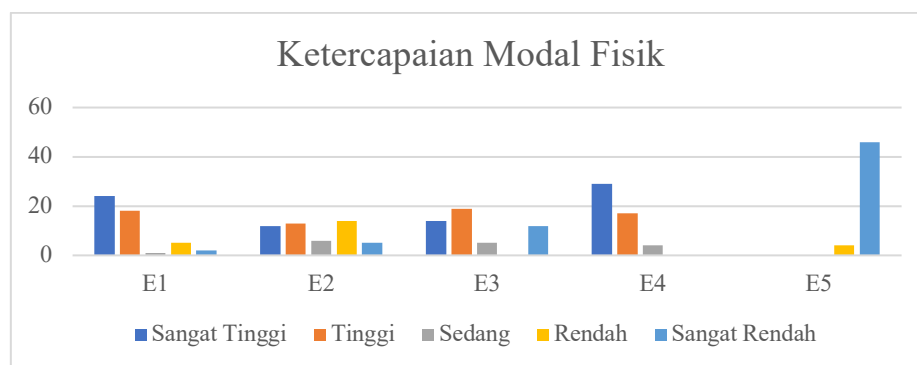
Figure 4. Achievement of Financial Capital

Main Income of the Head of Family (D1). The majority of respondents were in the high (44%) and very high (42%) categories, indicating that most heads of families have a relatively stable source of income. This condition supports the ability of households to meet basic needs and increase capacity to face the economic impact of floods. Access to DKI Jakarta Provincial Government Assistance (D2). Most respondents were in the very low category (62%), indicating that access to government assistance programs is still limited. Although a small number of people have received the benefits of programs such as the Jakarta Superior Student Card (KJMU), increased socialization, data collection, and expanded access are needed so that assistance can reach people who meet the criteria. Access to Social Assistance during Floods (D3). The majority of respondents were in the very low (54%) and low (28%) categories, indicating that the distribution of social assistance during floods was not optimal. Some affected residents admitted that they had never received logistical assistance, so it was necessary to improve coordination and the mechanism for distributing aid to be more on target.

Savings or Emergency Fund for Disasters (D4). As many as 86% of respondents were in the very low category, which indicates that most people do not have adequate savings or emergency funds. This condition increases the economic vulnerability of households when floods occur. Alternative Sources of Income during Floods (D5). Most respondents were in the medium category (82%), which suggests that diversification of income sources is still limited. The community, especially those living on the banks of the Krukut River, generally depends on trading activities so that they lose income when floods occur. Therefore, economic empowerment is needed through skills training, entrepreneurship, and the development of alternative sources of income.

3.4 Physical Capital

Physical capital describes the availability of facilities, infrastructure, and infrastructure that support community resilience to flooding. This variable is measured through five indicators, namely E1 housing category against flood threats, E2 structural mitigation efforts, E3 availability of evacuation facilities, E4 road access conditions during floods, and E5 access to clean water during floods.



E1 Category of houses against flood threat
E2 Structural mitigation efforts against flooding
E3 Nearby evacuation facilities
E4 Road access conditions around the house during flooding
E5 Access to clean water during floods

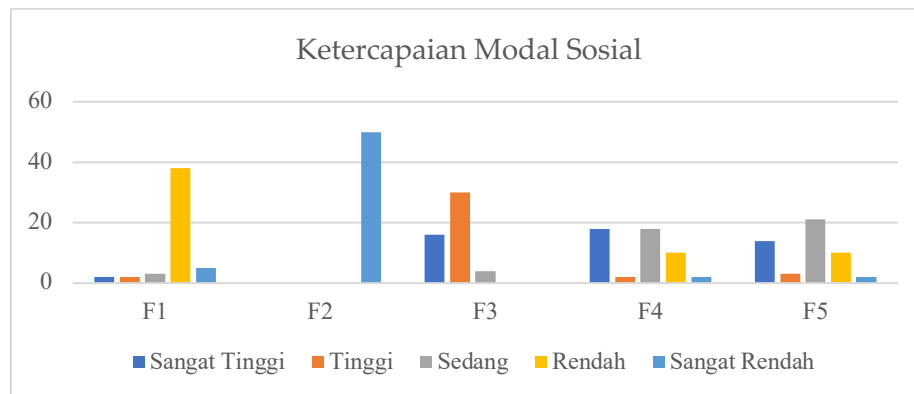
Figure 5. Physical Capital Achievement

Category of Houses against Flood Threat (E1). The majority of respondents were in the high (36%) and very high (48%) categories, indicating that the general condition of the house was able to reduce the impact of flooding. However, there are still semi-permanent houses on the banks of the Krukut River that are more susceptible to inundation, so it is necessary to improve the quality of housing and arrange flood-prone areas. Structural Mitigation Efforts for Floods (E2). The implementation of structural mitigation at the household level still varies. As many as 50% of respondents were in the high and very high categories, while 38% were still in the low and very low categories. Several public facilities, such as the Darussalam Mosque, the Catholic Church of Christ the King Pejompongan Parish, and the Central Jakarta Pejompongan Post Office, have implemented building elevation increases as a form of adaptation to flooding. However, the implementation of structural mitigation in residential houses still needs to be improved.

Nearest Evacuation Facility (E3). As many as 66% of respondents were in the high and very high categories, indicating that most people have good access to evacuation sites. The Darussalam Mosque is one of the temporary evacuation locations for residents on Jalan Danau Buyan because it has a higher elevation. However, there are still people who have limited access to evacuation facilities. Road Access Conditions Around Houses during Floods (E4). The majority of respondents were in the high (34%) and very high (58%) categories, indicating that main road access is generally still passable during floods. However, residential alleys on the banks of the Krukut River are often flooded, hindering mobility,

evacuation, and distribution of aid. Access to Clean Water during Floods (E5). Most respondents were in the very low category (92%), which indicates that access to clean water is the weakest aspect of physical capital. The community's dependence on PDAM services causes the need for clean water to be often disrupted during floods, so it is necessary to provide clean water reserves and develop alternative water supply systems.

3.5 Social Capital



F1 Mutual cooperation to clean up channels and environment

F2 Membership in flood/environmental preparedness groups

F3 Access to flood information (RT/sub-district group, BMKG, etc.)

F4 Solidarity between residents during floods

F5 Access to clean water during flooding

Figure 6. Achievement of Social Capital

Mutual Cooperation to Clean Channels and the Environment (F1). The majority of respondents were in the low (76%) and very low (10%) categories, indicating that community participation in mutual cooperation activities is still low. This condition has the potential to increase the risk of blockage of drainage channels due to suboptimal environmental maintenance. Membership in the Flood/Environmental Preparedness Group (F2). All respondents (100%) were in the very low category, which indicates that none of the respondents were members of flood preparedness groups or environmental groups. These findings indicate that even though Bendungan Hilir Village has the status of a Disaster Preparedness Village (KSB), community involvement in disaster institutions is still very low, so it is necessary to strengthen the organization and actively engage the community.

Access to Flood Information (F3). As many as 92% of respondents were in the high and very high categories, indicating that the community has good access to flood information. Information was obtained through various media, such as citizen WhatsApp groups, social media, as well as official accounts of the DKI Jakarta Provincial Government and the DKI Jakarta BPBD, thereby supporting community preparedness. Solidarity Between Residents during Floods (F4). The level of community solidarity is quite good, with the majority of respondents in the medium to very high category.

However, the results of the interviews show that the provision of assistance still tends to be influenced by the closeness of social relationships, so that the equitable distribution of assistance to all affected communities still needs to be improved. Citizen Community Network (F5). The majority of respondents were in the medium category (42%), indicating that the community network is quite good, but not evenly distributed. Strengthening community networks is needed to improve coordination, information dissemination, and support in post-disaster preparedness and recovery.

3.6 Hazard Class Validation

The results of field validation of the InaRISK flood hazard map show that there is a discrepancy between the results of the spatial modeling and the existing conditions in the research area.

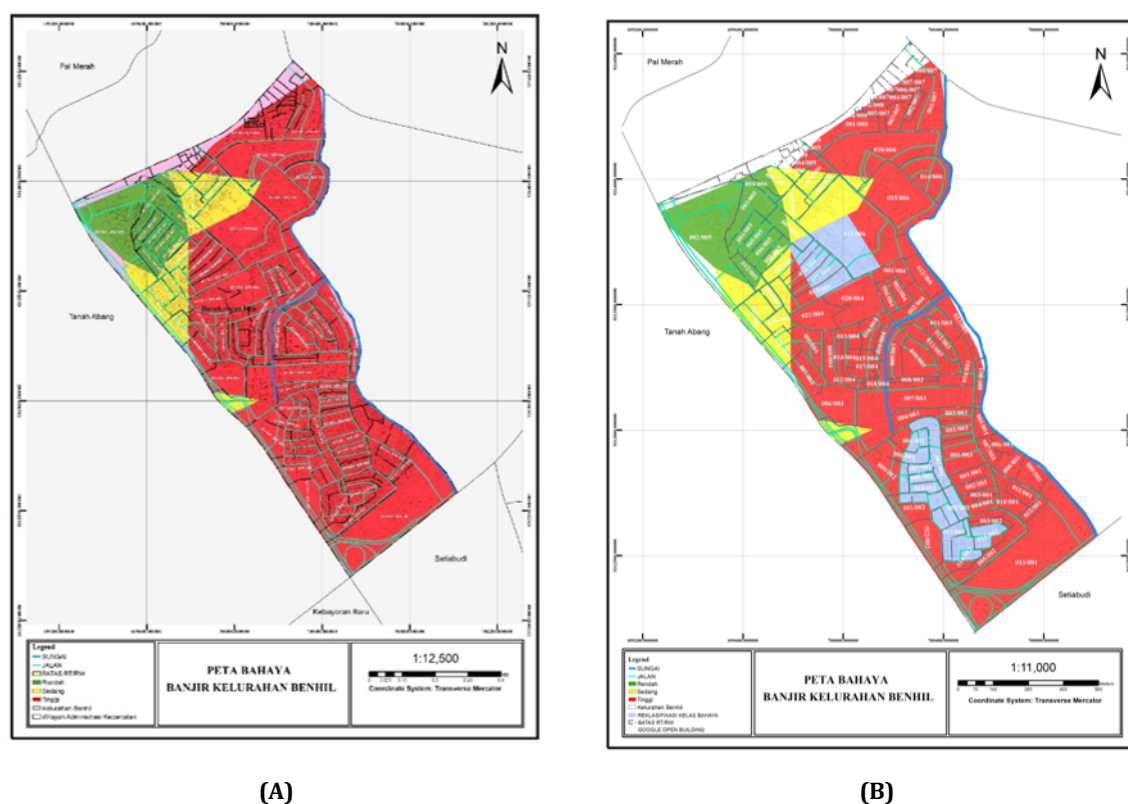


Figure 7. (A) Hazard Map according to Inarisk, (B) Map of Flood Field Validation Results

Based on the InaRISK map, the area is classified as an area with a high level of flood danger. However, the results of observations and measurements in the field show that the area has an elevation ranging from 6-8 meters above sea level (masl), so topographically it has a lower inundation potential than the surrounding area. This condition is different from locations that often experience flooding, such as the Jalan Bendungan Hilir area which has an elevation of around 2.60 meters above sea level. Based on the validation process, corrections were made to the high-hazard classification area with an area of 16.30 hectares or around 13.64% of the total area previously categorized as high flood danger of 119.53 hectares. These findings show the importance of field validation in improving the accuracy of flood

hazard maps so that the information generated can better represent actual conditions and support more targeted disaster mitigation planning.

RECOMMENDATIONS

Based on the results of the research, it is necessary to increase training programs and disaster simulations periodically so that the community has adequate knowledge and skills in dealing with floods. The status of Bendungan Hilir Village as a Disaster Preparedness Village needs to be optimized through the formation of an active standby group, the implementation of routine simulations, and the dissemination of disaster information to all residents. In the environmental aspect, it is necessary to improve green infrastructure through the addition of green open space, the construction of infiltration wells and biopores, and the arrangement of the Krukut River bank area to reduce surface runoff and the risk of inundation. Waste management also needs to be strengthened through increased community participation, supervision, and sustainable use of environmental reporting applications.

In the economic aspect, the government needs to expand public access to social assistance and disaster assistance programs, improve the mechanism for collecting data on beneficiaries, and encourage financial literacy so that people have emergency funds. In addition, entrepreneurship training and job skills development need to be improved to create alternative sources of income that can support the household economy during floods. Furthermore, improving the quality of basic infrastructure such as the provision of clean water, evacuation facilities, and the maintenance of drainage systems must be a priority to strengthen the physical capacity of the area. For further research, it is recommended to conduct a study with a larger number of respondents, compare several urban areas, and integrate spatial analysis and flood risk modeling so as to produce more comprehensive policy recommendations in support of disaster-resilient urban development.



Figure 8. (a) in the house of Mrs. RT (b) with the Church Security Guard (c) Evacuation Route

4. CONCLUSION

This study shows that the resilience of the community of Bendungan Hilir Village in facing flood disasters is at a fairly good level, but it is not evenly distributed in all dimensions of resilience. Human capital still faces challenges in the form of low knowledge of practical disasters, lack of participation in training and simulations, and limited community skills. In natural capital, drainage conditions, environmental cleanliness, and waste management behavior have supported flood risk reduction, but limited green open spaces, biopores, and catchment areas are still factors that increase the potential for inundation. In terms of financial capital, although most people have relatively stable primary incomes, the ability to cope with the economic impact of floods is still low due to limited access to aid, lack of emergency funds, and lack of alternative sources of income. Meanwhile, physical capital shows relatively good conditions through the quality of houses and road access, but there is still a need to increase access to clean water and supporting facilities during floods. Overall, increasing community resilience needs to be carried out in an integrated manner through strengthening community capacity, economic empowerment, green infrastructure development, and increasing coordination between the government, communities, and other stakeholders in an effort to reduce the risk of flood disasters.

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