



THE PREBENTION AND MANAGEMENT OF COMMUNITY BASED NATURAL DISASTERS THROUGH THE “KAMPUNG TANGGUH” CONCEPT IN SIDOREJO VILLAGE, KRIAN DISTRICT, SIDOARJO REGENCY

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ABSTRACT

The "Kampung Tangguh" concept, originally conceived as a response to the COVID-19 pandemic, has evolved into a multidimensional resilience model encompassing social, economic, and environmental aspects in Sidorejo Village. Therefore, this study focuses on how this community-based initiative can be modified and strengthened to mitigate natural disasters. The research methodology employed a qualitative approach with a case study in Semampir Hamlet, Sidorejo Village, Krian District, Sidoarjo Regency. Data were collected through in-depth interviews with community leaders, village officials, volunteers, and residents, as well as through participant observation and document review. The results show that the “Kampung Tangguh” success in handling the pandemic, such as the formation of volunteer teams, the establishment of command posts, and an effective information system, has also increased economic value through agricultural and fisheries practices, particularly pomfret and paddy cultivation. These aquaculture and agriculture provide a strong foundation for adaptation to natural disasters. Active community participation in community service, preparedness training, and the utilization of local resources are key factors. However, challenges remain, such as a lack of formal funding and the need for more specific technical training. In conclusion, the "Kampung Tangguh" concept in Sidorejo Village, Krian District, Sidoarjo Regency, demonstrates that social capital and active community participation are key to building sustainable disaster resilience. This model serves not only as an emergency response mechanism but also as an education and empowerment platform that enhances community capacity to face future threats. This study recommends closer collaboration between the village government, relevant agencies, and the community to strengthen the technical capacity and sustainability of this program.

Keywords: *Kampung Tangguh*, Community Resilience, Natural Disaster Mitigation, Community Participation, Sidorejo Village, Social Capital, Community Empowerment, Disaster Preparedness

INTRODUCTION

Countries around the world are facing an unprecedented public health situation, the COVID-19 pandemic, which emerged in early 2020. This virus is caused by a novel coronavirus that has never been identified in humans, causing everything from the common cold to Middle East Respiratory Syndrome (SARS). Nearly every country has implemented lockdowns, resulting in various health impacts and even paralysis in the social, economic, cultural, educational, security, and government sectors. Due to the limited human mobility, efforts to reduce the spread of the virus have been made. In March 2020, Indonesia became one of the many countries affected. This emergency situation forced the government to implement effective mitigation measures. Meanwhile, Indonesia's location on the Ring of Fire, which is vulnerable to earthquakes, volcanic eruptions, and floods, has created an urgent need for community resilience that not only faces the threat of natural disasters but is also able to respond to pandemics. (Yovanka & Indah 2020)

Indonesia's location on the Ring of Fire essentially gives it its own unique disaster mitigation strategies. Disaster management strategies have been passed down from generation to generation. Collective community memories shape people's perspectives on past disasters, which can shape their perceptions of risk, disaster mitigation preparedness, and how they respond. Local wisdom in disaster management in Indonesia is believed to be a community belief system that serves as social capital in disaster risk reduction. (Saputra, 2025). During the pandemic, activities began to be restricted due to the changing conditions. The government urged the public to practice physical distancing and work from home, while implementing quarantine policies. This differed from other countries that implemented lockdown policies. (Singkawijaya et al., 2020)

The food security sector is a frequently overlooked issue, yet it has a significant impact during a crisis like this. The issue of food security is multidisciplinary, requiring multiple perspectives to analyze the problems. The halt in economic mobility, resulting from this crisis, poses a challenge for every region, and the question of how each region can address it through this program is raised. In addition to disrupted health and hunger, the food crisis can also lead to widespread individual or group violence due to the economic crisis, which impacts socio-economic aspects. Based on this issue, it turns out that the food crisis affects not only individuals but also society at large. In the Indonesian context, this crisis occurred not only during the pandemic, but even before it. It is even exacerbated by the numerous job closures and layoffs caused by the COVID-19 pandemic. An optimistic step that can be taken is to focus on the agricultural sector, even in rural areas, as this is crucial because agricultural resources are abundant in Indonesia. (Adhila Amalia et al., 2022)

In the context of this research, East Java Province is the Secondly-largest contributor to Indonesia's economy. The three business sectors supporting East Java's GRDP are manufacturing (29.03%), trade (18.18%), and agriculture (12.08%). Economic growth, especially in Indonesia, is dependent on diplomatic relations and globalization. Furthermore, the presence of COVID-19 has also affected economic growth, according to data from the East Java Statistics Agency (BPS). COVID-19 has caused a drastic decline in economic growth to minus 2.39%. Thus, there has been a shift in the economic structure in East Java from before the pandemic to the current situation. (Assidikiyah et al., 2021)

The spread of COVID-19 in East Java, a red zone, has contributed to the spread of the virus in Indonesia, with 5,621 cases as of July 18, 2022. According to BPD data, Sidoarjo Regency recorded 25,243 confirmed cases and 966 deaths in 2021. In response to this crisis, the East Java provincial government launched the "Kampung Tangguh" program, a community-based resilience development concept, as an adaptive response and bottom-up initiative. The program aims to mobilize local resources and foster a spirit of mutual cooperation during the COVID-19 pandemic, with three main focuses: collective health discipline, food security, and socio-economic stability. This program aims to create a responsive internal volunteer team at the neighborhood association (RW) level and foster social capital and trust in the face of uncertainty.(Aulia, 2024)

In addition to efforts to break the chain of COVID-19, the "Kampung Tangguh" program also aims to foster community policing within local communities, grounded in problem-solving. This program establishes East Java as a role model for the "Kampung Tangguh" program, in line with the implementation of the Semeru Benteng "Kampung Tangguh" in Mayangan District, Probolinggo City, which has become the best "Kampung Tangguh" in East Java. (Rahmawati et al., 2022). The success of the "Kampung Tangguh" program in East Java has a clear rationale effort to help communities recover from adversity caused by economic, social, and cultural weaknesses, including food security, education, and governance. The "Kampung Tangguh" program has become a community-based problem-solving solution in every village and even hamlet.

This study selected Semampir Hamlet in Sidorejo Village, Krian District, Sidoarjo Regency as a relevant instrumental location. This hamlet is a pilot project for the "Kampung Tangguh" program, implemented since 2021 and demonstrating tangible success in transitioning to pandemic management, particularly in the food sector. The hamlet has successfully transformed its disaster mitigation program into sustainable resilience activities, encompassing the local socio-economic and institutional framework.

Based on the context of this research, the mitigation of the COVID-19 disaster and community resilience in an effort to recover from the economic, educational, health, and cultural downturn. Therefore, this study aims to analyze in depth and formulate how the community-based initiative "Kampung Tangguh" which has proven effective in overcoming the health crisis can be modified and strengthened as a sustainable natural

disaster mitigation model. The main focus of the research is how the implementation efforts of the "Kampung Tangguh" program in Sidorejo Village, Krian District, Sidoarjo Regency can run and the sustainability of the program after the pandemic based on the resilience of the local community of the village community. Specifically, in Semampir Hamlet. It is the Firstly and only hamlet in Sidorejo Village to implement this program.

METHOD

This research uses a qualitative approach with a case study. This approach was chosen because the focus of the research is to delve deeply into the social phenomenon of the implementation of "Kampung Tangguh" in Semampir Hamlet, Sidorejo Village, Krian District, Sidoarjo Regency. It serves as a model of community resilience in the face of natural disasters. Qualitative research is suitable for researchers who want to understand the meaning, experience, and social interactions that cannot be reduced to mere numbers. Case studies were chosen because they provide space to explore the context comprehensively by involving various sources. The case of "Kampung Tangguh" Sidorejo is considered because it transformed from a pandemic resilience program into a community-based disaster mitigation model.(Assyakurrohim et al., 2022)

The research was conducted in Semampir Hamlet, Sidorejo Village, Krian District, Sidoarjo Regency, East Java Province. This location was chosen because of its long history of developing "Kampung Tangguh" since 2021 and has served as a pilot project in Sidoarjo Regency. Furthermore, Sidorejo Village faces vulnerability to flooding, seasonal fluctuations, extreme weather, and the impacts of industrial development, making its context relevant to disaster mitigation studies.

The research subjects and informants used purposive sampling techniques to select informants who were considered to have the best understanding of the phenomenon being studied, namely Mr. Sutrisno as the initiator of "Kampung Tangguh" as well as the head of the hamlet, Semampir hamlet. Then, the data collection technique used in-depth face-to-face interviews and focused questions on the history of the formation of Kampung Tangguh, resilience strategies, community participation as well as challenges faced and hopes for the future. Documentation studies were collected from local news, and direct observation and documentation from related social media.(Maharani & Bernard, 2018)

Data analysis followed the Miles and Huberman model, which includes three stages: Firstly, data reduction, which involves selecting, focusing, and simplifying information from interviews, observations, and documentation. Secondly, data presentation presents information in narrative form, tables, and direct quotations from informants. Finally, conclusions are drawn.(Qomaruddin, 2024)

LITERATURE REVIEW

This research uses two main theories, namely: Community Resilience Theory as a macro framework and Social Capital Theory as a micro framework that can explain the internal mechanisms of community success.

Community Resilience Theory

Community resilience is the ability of social groups to anticipate, respond to and recover from disasters by utilizing existing resources collectively. (Na Shalma et al., 2023). In the context of this research, theory is used to measure the extent to which the "Kampung Tangguh" program has built these four resilience capacities as a foundation for natural disaster mitigation. The four key capacities that can build and support community resilience are: Firstly, Strengthening the Local Economy: availability and diversity of resources that guarantee post-disaster survival. Secondly, Social Network and Trust: the existence of bonds, norms of reciprocity and trust that facilitate cooperation and support. Thirdly, Communication Systems and Information Dissemination: effective mechanisms for disseminating important information and collective decision making. Fourthly, Collective Decision-Making Capacity: the ability of communities to organize and act together in responding to emergency situations.

Social Capital Theory

Social capital is a network of relationships, norms, and trust that facilitates coordination and cooperation for mutual benefit. According to Robert, social capital is defined as features of social organization such as networks, norms, and social trust that facilitate action and coordination for mutual benefit. In the context of a disaster, social capital takes the form of non-material assets that enable communities to mobilize resources and act collectively in response to a crisis. (Tjachja Nugraha et al., 2024). The theory is used to explain previous theories, particularly those related to social networks and trust. The "Kampung Tangguh" activities, including mutual cooperation, the formation of volunteer teams, and independent funding, are manifestations of high social capital, driving all activities.

The types of social capital include: Firstly, Bonding Social Capital: strong ties between homogeneous groups, for example, among hamlet residents. Secondly, Bridging Social Capital: relationships that cross different groups, for example, residents with other communities. Thirdly, Linking Social Capital: vertical relationships with formal institutions, for example, residents with the village government or the Regional Disaster Management Agency (BPBD).

RESULTS

"Kampung Tangguh" is located in Semampir Hamlet, Sidorejo Village, Krian District, Sidorejo Regency, East Java, and was started to be built and formed in 2021 by the Head of Semampir Hamlet, Mr. Sutrisno. youth organizations and other devices. The

background to the formation of "Kampung Tangguh" based on the Covid-19 pandemic inspired by the East Java governor's program stated that there was a need for the formation of "Kampung Tangguh" in several villages. "Kampung Tangguh" of Semampir hamlet collaborates with the Sidoarjo military command and military command to focus on the development aspect of "Kampung Tangguh" whose vision is how to make the community truly capable in the aspect of resilience. "Kampung Tangguh" of Semampir hamlet has achieved the achievement of being a role model throughout the district and has achieved the title of "Kampung Pancasila".

The four prospects for the "Kampung Tangguh" in Semampir Hamlet are: Firstly, how the community can maintain food security, especially during the unstable economic times of the COVID-19 pandemic. Independent food security facilitates the community's ability to meet these needs. Secondly, regarding health, how the community can independently address COVID-19 prevention.

Because if we rely on that assistance for too long, then how will the SOP for caring for it be carried out independently by the community?

Thirdly, the economy is about empowering the "UMKM" in Semampir Hamlet itself, where resilience is needed to fight for an economy that doesn't have to rely on government assistance but relies solely on the village's own capabilities. Fourthly, resilience in education, which at that time was still being conducted online. This resilience was demonstrated even though students were attending school online, but still adhered to the provisions of responsibility.

At that time, children couldn't attend school and had to attend online. So, the resilience they practiced, even though it was online, wasn't out of control. In other words, they didn't misbehave even though they weren't in school.

Post-pandemic, the Semampir hamlet community and staff agreed to maintain the "Kampung Tangguh" until its completion. However, the function of the "Kampung Tangguh" has shifted, no longer focused on handling COVID-19. Its role has shifted to self-sufficient food security, no longer relying on government assistance.

Residents take advantage of the food security that exists here, for example, by growing their own rice and then planting vegetables; these are the two aspects that we emphasize more.

The four resilience aspects implemented by residents during the COVID-19 pandemic were then continued post-pandemic as a form of sustainability of the "Kampung Tangguh" program in Semampir Hamlet. In the health sector, the focus is on empowering PKK mothers through integrated health service posts (Posyandu), handling stunting prevention which is carried out once a month, and socialization of early marriage prevention and socialization of the dangers of drugs. Furthermore, "Kampung Tangguh" also holds Komduk counseling, which is a socialization and education activity for the community regarding the understanding and role of supporting components (Komduk). These three counseling sessions are held once every three months. In the economic sector, "UMKM" are also continuously empowered, namely opening rambak crackers

businesses, “gumacer” herbal medicine, and opening catering businesses by the mothers of Semampir Hamlet.

I really emphasize efforts to prevent early marriage, encouraging residents to refrain from engaging in early marriage, as it constitutes underage marriage. I also emphasize public awareness of the dangers of drugs, so that young people here do not engage in illegal activities.

The main program carried out was the cultivation of 5 hectares of land for the rice crop resilience program. Then, in the aspect of education for young people in Semampir Hamlet, volleyball and “pencak silat” competitions were held in the educational park, which was formerly a “punden” and then renovated into an educational garden. In the educational park, there is also the empowerment of recycling plastic waste such as bottles which are processed into children's toys. In this Education sector, the cadres come from the “kartar” of Semampir Hamlet. Empowerment of pomfret fish cultivation is also carried out through borrowing land borrowed from the Company without rent fees. The pomfret fish pond is divided into 5 pools, the cultivation management costs are sourced from the cash. One pool is allocated for orphans as a relevance to the sustainability of the youth program in Semampir Hamlet, namely “*setetes keringatku happy berbagi*” The purpose of this program is for residents who are able to provide donations or their own funds to orphans, who then give the harvest to the orphans.

This “punden” used to be just an empty landfill and was often left unattended. So I mobilized the residents to build an educational park for the village's youth to use as an educational platform.

Empowerment of pomfret cultivation is also carried out through land borrowed from the Company without rent. The pomfret pond is divided into five ponds, and the cultivation costs are funded from the cash flow. One pond is allocated for orphans as a continuation of the youth program in Semampir Hamlet, namely “*setetes keringatku happy berbagi*” The purpose of this program is for residents who are able to donate their donations or cash to orphans, who then give the harvest to the orphans. In addition, “Kampung Tangguh” has a river revitalization program supported by community self-help funds.

The main challenge faced by the head of Semampir hamlet in implementing the “Kampung Tangguh” program is the community's mindset, as there are agreements and disagreements in understanding the community's mindset. However, in the process, he remains steadfast in his village's vision of never giving up, meaning as long as he has good intentions and ethics in accordance with morals as an example to the public. He is confident that the community will participate in our efforts, ultimately the hamlet community itself will feel the impact. Initially, socialization about the “Kampung Tangguh” was carried out from one house to another, as well as conveying its objectives. The Secondly challenge experienced was the budget, because the village government did not allocate any budget, only assistance in the form of support and road repairs in Semampir hamlet. The entire budget came from the assistance of the hamlet residents themselves through the community's cash.

DISCUSSION

Analyzing how the concept of “Kampung Tangguh” in Semampir Hamlet transformed from a pandemic response mechanism into a sustainable disaster mitigation model measured based on a community resilience framework driven by social capital.

Social Capital as the Foundation of Resilience The success of “Kampung Tangguh” begins with the high social capital of the community, which is reflected in three aspects, namely: Firstly, Bonding and Bridging Social Capital: The formation of volunteer teams, command posts, and community mobilizers (support components) is evidence of strong social ties and trust among residents. The norm of mutual cooperation is an invisible asset that enables the community to act collectively without waiting for formal direction from outside. Secondly, Self-funding: all program funding is acknowledged to come from hamlet funds and community self-funds, without any specific allocation from the village government. The ability to self-manage this funding demonstrates a strong norm of reciprocity and the capacity to mobilize financial resources internally, which is an indicator of effective social capital.

Programs that directly enhance the four resilience capacities through strong social capital community programs are then used to enhance resilience capacities: Strengthening the Local Economy: Food and economic security programs support the post-disaster economy in two ways. Initiatives such as cultivating five hectares of rice paddies and cultivating pompano fish generate diverse and independent food and economic resources. The proceeds are donated to orphans. Furthermore, empowering “UMKM” by PKK women, such as catering, “jamu gumacer”, and “rambak” crackers, increases household economic resilience. This resource diversification analytically improves the community's shock-absorbing capacity by reducing dependence on external supply chains, which are highly vulnerable to disruption during disasters.

Social networks, communication and collective decision-making of the “Kampung Tangguh” initiative show that information systems and social networks are closely related to each other: Firstly, Effective Information Systems: Initially, outreach is conducted door-to-door, or from one house to another, to convey objectives and address differences of opinion within the community. This direct communication method ensures that messages are conveyed accurately and builds trust (social capital), which in turn encourages participation. Secondly, Decision-Making: The community's ability to assess needs and make collective decisions beyond disasters is demonstrated by education such as stunting prevention, early marriage prevention, and regular community service education. These activities build a long-term adaptive foundation.

Despite the strong foundation of social capital relationships in Semampir Hamlet, challenges and analytical directions for sustainability exist. There are challenges arising from the limitations of these social capital relationships. Firstly, Limited official village government funding indicates the need to strengthen vertical relationships. Secondly, The importance of collaborating with the Regional Disaster Management Agency (BPBD) and

related institutions highlights the lack of specific technical training for disaster mitigation beyond that resulting from the pandemic response. Analytically, a “Kampung Tangguh” can only achieve sustainable resilience if the Bonding Social Capital it has built can be transformed into Linking Social Capital through policy support and external resource allocation. This model demonstrates that local capacity, not just external assistance, is the key to resilience.

CONCLUSION

This study found that the "Kampung Tangguh" initiative in Semampir Hamlet, Sidorejo Village, Krian, Sidoarjo, has evolved from a COVID-19 emergency response to a sustainable community-based disaster mitigation model. Two key findings support this transformation: Firstly, the Key Role of Social Capital: Community social capital, particularly trust, networks, and norms of mutual cooperation, is the primary foundation enabling internal resource mobilization and collective participation. High levels of social capital enable collective action such as self-funding and the formation of volunteer teams. Secondly, Achieving Multidimensional Resilience: The "Kampung Tangguh" program fulfills three dimensions of Community Resilience: (1) Strengthening the Local Economy (through food diversification, such as rice cultivation, catfish cultivation, and “UMKM”), (2) Networking and Communication (through village committee meetings and door-to-door outreach), and (3) Collective Capacity (through program self-management and funding).

However, limited formal funding and the need for more specialized technical training in disaster mitigation hinder the program's sustainability. This study recommends closer collaboration between the village government, the Regional Disaster Management Agency (BPBD), and the private sector (CSR) to ensure long-term sustainability and increase technical capacity. To strengthen Linking Social Capital and establish “Kampung Tangguh” Sidorejo as a model for community-based disaster management that can be replicated in the future, formal policy support and funding allocation are needed.

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