International Conference on Social Science and Humanity
Homepage : https://proceedings.antispublisher.org/index.php/icossh
Email : admin@antispublisher.com

e-ISSN : 3063-9611
ICOSSH, Vol. 2, No. 2, 2025
Page 1036-1052

Implementation of the Disaster Resilient Village Program through the Hexahelix Approach in Bungurasih Village, Waru District

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DOI : https://doi.org/10.61796/icossh.v2i2.346

Sections Info

Article history:
Submitted: April 15, 2025
Final Revised: May 01, 2025
Accepted: May 11, 2025
Published: May 24, 2025

Keywords:
Destana
Bungurasih
Hexahelix
disaster mitigation
policy implementation

ABSTRACT

Objective: *This study aims to analyze the implementation of the Disaster Resilient Village (Destana) program in Bungurasih Village, Waru District, Sidoarjo Regency, focusing on efforts to build community capacity in disaster mitigation through a collaborative framework.* ***Method:*** *A descriptive qualitative approach was employed, utilizing triangulation techniques of interviews, observations, and documentation, with analysis guided by the Hexahelix collaboration model and Edward III's policy implementation dimensions of communication, resources, disposition, and bureaucratic structure.* ***Results:*** *The findings indicate that although Bungurasih Village has not been formally integrated into the BPBD Destana system, disaster management activities have been implemented collaboratively and participatively. The village government actively fosters partnerships with MSMEs through Bumdes and leverages social media for information dissemination. Community participation is evident in evacuation and logistics, yet engagement from academics, the business sector, and formal mass media remains limited. Key obstacles include inadequate emergency communication systems, limited resources, and bureaucratic delays in logistics.* ***Novelty:*** *This study highlights the application of the Hexahelix approach as a practical and adaptive model for strengthening disaster resilience at the village level, offering new insights into the integration of local governance, community participation, and cross-sector collaboration in disaster risk reduction.*

INTRODUCTION

Indonesia has geographical, geological, hydrological, and demographic conditions that are very likely to cause disasters, both those caused by natural factors, non-natural factors and human factors. These disasters can cause human casualties, environmental damage, property losses, and psychological impacts on humans [1].

Therefore, Disaster Risk Reduction (DRR) efforts are needed to minimize the impact of disasters. The central government through the National Disaster Management Agency (BNPB) has developed systems and strategies through policies so that DRR efforts are community-based. The strategy is to establish Disaster Resilient Villages (Destana), which is written in the Head of the National Disaster Management Agency Regulation Number 1 of 2012 [2].

Quoted from the Head of BNPB Regulation Number 1 of 2012, what is meant by a Disaster Resilient Village/Kelurahan is a village/kelurahan that has an independent ability to adapt to and face the threat of disasters, as well as to recover immediately from the adverse effects of disasters, if affected by a disaster[2]. This emphasizes the importance of structured disaster mitigation strategies that actively involve the community. Based on the Head of BNPB Regulation No. 1/2012, the objectives of the establishment of Destana are as follows: (1) Protecting communities in hazard-prone

areas from the adverse impacts of disasters; (2) Increasing community participation, especially vulnerable groups, in resource management to reduce disaster risk; (3) Increasing community institutional capacity in resource management and maintenance of local wisdom for DRR; (4) Increasing government capacity in providing resource and technical support for DRR; (5) Increasing cooperation between stakeholders in DRR, local government parties, business institutions, universities, Non-Governmental Organizations (NGOs), community organizations, and other concerned groups.

According to Law of the Republic of Indonesia Number 24 of 2007, a disaster is an event or series of events that can threaten and disrupt people's lives and livelihoods caused by natural and or non-natural factors or human factors and result in human casualties, damage to the environment, losses in the form of property, and psychological impacts. Natural disasters are one of the natural phenomena and are difficult to avoid by humans anywhere and anytime. Natural disasters can occur in developed and developing countries such as Indonesia [3].

Based on data from the National Disaster Management Agency (BNPB) through Indonesian disaster data in 2023 for the period June 1-12, 2023, the total number of disasters that occurred in Indonesia was 1,741. The disaster caused many impacts such as casualties, injuries, missing, displaced and damaged houses and public facilities. The highest data shows that the 3 most frequent disasters are floods, which amounted to 653 events, then extreme weather 595 events and landslides 319 events [4] .

Sidoarjo Regency is one of the regions in Indonesia that has a high risk of disaster. Until 2024, Sidoarjo Regency experienced various natural disasters that had a significant impact on the community and regional infrastructure. One of the most frequent disasters is flooding and inundation, especially in sub-districts such as Waru, Tanggulangin and Jabon. The main factor causing these events is high rainfall, while inadequate drainage systems cause water to overflow and inundate residential areas. In addition, Sidoarjo district also faced the threat of strong winds that occurred between 2023 and 2024. This phenomenon hit four sub-districts and caused significant damage to dozens of houses and public infrastructure. The impact of this disaster is not only limited to physical damage, but also has the potential to disrupt the economic and social activities of affected communities. Therefore, more effective mitigation efforts are needed to reduce the risk and impact of these disasters in the future (sigap.sidoarjokab.go.id).

Waru Sub-district, which is part of Sidoarjo District, has a strategic function as an urban residential area with the highest level of urban development (city order-1) and is one of the economic growth centers of the region. Based on Local Regulation No. 6/2009 on the Regional Spatial Plan (RT/RW) of Sidoarjo District 2010-2030, this area is classified as a flood-prone area, mainly because it is crossed by the Buntung River [5]. The Buntung River itself is a tributary of the upper Brantas River that flows from Krian sub-district to Taman and Waru sub-districts and empties into the Madura Strait, reaching a length of approximately 34 km [6]. This river flows through almost all villages in Waru Sub-district, including Bungurasih, Kedungrejo, Waru, Medaeng, Janti, Ngingas, Kureksari, Berbek, Wedoro, and Tambak Sumur. Despite its vital role as a primary drainage channel,

the function of Buntung River is currently disrupted due to the behavior of residents who still throw garbage into the river. This condition is exacerbated by the lack of waste management facilities in the area, making the river prone to clogging and increasing the risk of flooding that recurs every rainy season [7].

Flooding is a chronic problem that has been experienced by residents of Bungurasih Village over the past few decades. This problem is not solely caused by natural factors, but is also exacerbated by human activities, such as the siltation of river channels and the accumulation of household waste that hinders optimal drainage functions. When heavy rainfall hits, water often inundates settlements for several days, triggering social unrest and increasing the risk of environmentally-based diseases. The geographical condition of certain areas in the village that are lower than the highway level further increases the vulnerability to flooding, making this phenomenon an annual problem that has not been resolved[8]. The following data shows the location, distribution of affected areas, and the height of inundation recorded by the BPBD of Sidoarjo Regency in the flood event that hit Bungurasih Village, Waru Subdistrict, Sidoarjo Regency, in early February 2024 as follows.

Table 1. Data on the Distribution of Flood Inundation Locations and Water Levels in Bungurasih Village, Waru Subdistrict, Sidoarjo Regency on February 5-7, 2024

Date of Event	Update Time	Location	Coordinates	Affected Area	Inundation Height
Februari, 5 2024	February, 7 2024	Bungurasih Village, Waru Subdistrict, Sidoarjo	-7.3481154, 112.7092497	RT 08 RW 01 (Bungurasih Timur)	±30–40 cm
				RT 12 RW 01 (Bungurasih Timur)	±30–40 cm
				RT 09 RW 02 (Bungurasih Barat)	±3–8 cm

Source: [9]. https://sigap.sidoarjokab.go.id/artikel-1200.html

Table 1 shows that the flooding that occurred on February 5, 2024 in Bungurasih Village was not only geographically extensive, but also significant in terms of water levels. Two areas in Bungurasih Timur, namely RT 08 and RT 12 RW 01, experienced water inundation with a height of 30 to 40 cm. Meanwhile, in Bungurasih Barat, precisely in RT 09 RW 02, the inundation height ranged from 3 to 8 cm. This difference in height reflects the variation in vulnerability between areas within the same village, which is most likely influenced by topographic conditions, the effectiveness of the drainage system, and the level of settlement density. These conditions indicate that flood management cannot rely solely on momentary technical responses, but requires a

collaborative approach involving various stakeholders in a structured and sustainable manner.

According to David, public policy is not only an active decision taken by the government, but also includes the decision not to act (policy inaction) [10]. This emphasizes that every policy, whether implemented or ignored, has consequences for the social structure and distribution of values in society. Therefore, in policy analysis, it is important to consider how a decision (or its absence) can affect social balance and governance dynamics. In the context of research related to the implementation of the Disaster Resilient Village (Destana) Program, this approach can be used to analyze how the village government's decision to adopt or not adopt the Hexahelix approach affects the success of the program.

The Hexahelix approach was developed from the Triple Helix (university, government, industry) and Quadruple Helix (plus community) models, which were then expanded to six actors. This approach was chosen because it is able to answer the complexity of disaster issues that cannot be handled by one actor alone. Hexahelix adds media elements and affected communities as important actors in realizing participatory and sustainable policies. In the context of Disaster Risk Reduction (DRR), collaboration between elements is the foundation in creating a resilient system. The roles of actors include: the government as a regulator and facilitator; academia as a provider of scientific data and education; the business world as a provider of resources and technology; the community as the main actor of local-based mitigation; the media as a driver of public information and advocacy; and affected communities as participatory partners who represent the needs and direct experience in the field [11].

To understand how collaboration between these elements is implemented in local policies, Edward III's policy implementation approach is used. This model emphasizes four important variables, namely communication, resources, disposition, and bureaucratic structure, which interact with each other in determining policy success. The integration between the Hexahelix approach and the Edward III model allows researchers to comprehensively map both structural and relational dimensions in disaster management policies.

Several previous studies have evaluated Destana, but not many have focused on the dynamics of collaboration between Hexahelix actors in the local context. The first research by Samsuddin et al., entitled "Evaluation of the Implementation of the Disaster Resilient Village Program Policy in a Hexahelix Perspective in Kepuhkiriman Village, Waru District, Sidoarjo Regency" This study assesses the effectiveness of BNPB's Destana Program in disaster preparedness [12]. Although volunteers are adequate, the main obstacles include communication between stakeholders and risk education that has not been optimized. The evaluation shows the benefits of the program in building community resilience, but there are still shortcomings in facilities. Recommendations include improved coordination, community participation and more effective policies. The program still requires refinement to increase engagement and disaster mitigation.

The second research by Julius entitled "Implementation of the Disaster Resilient Village Program in Gunung Geulis Village, Sukaraja, Bogor" This research highlights the importance of government roles, community participation, and stakeholder collaboration in building resilient villages [13]. Key strategies include participatory policies, infrastructure strengthening, and early warning systems. However, limited resources and coordination remain a challenge. The success of the Resilient Village program depends on education, technology, multisectoral synergy, as well as sustainable policies and adequate funding.

The third research conducted by Kurniawan et al., entitled "Community Empowerment through the Disaster Resilient Village Program (DESTANA) in Tamanan and Lirboyo Villages, Mojoroto District, Kediri City" The results showed that this program succeeded in increasing the community's understanding of disaster mitigation, which was reflected in the increase in participants' pre-test and post-test scores [4]. The disaster risk map that has been prepared is a guide for the community and government in developing evacuation routes and more systematic disaster management planning. The Destana program has proven effective in building community resilience to disasters, but further support is still needed in strengthening policies, funding, and program sustainability.

The fourth research was conducted by Oktaviani et al., entitled "Community Empowerment through the Disaster Resilient Village Program (DESTANA) as a Rob Flood Mitigation Effort in Cirebon Regency" [14]. The results show that community members are very enthusiastic about this program, this is evidenced by the formation of a working group (POKJA) which is fully responsible for all pre-disaster, disaster and post-disaster activities. The program that has been carried out by the POKJA is participating in socialization related to DESTANA and making disaster mitigation maps and participating in coastal clean up activities.

The fifth research was conducted by Nugroho et al., entitled "CHAPTER V. MANAGEMENT AND REDUCTION OF DISASTER RISK THROUGH DESA TANGGUH BENCANA (DESTANA) DEVELOPMENT" with the result of expanding the understanding of Destana by reviewing disaster risk management in a cross-sector collaborative scheme [15]. The study found that the role of communities, village officials, health workers, and academics who are members of volunteer teams and local coordination structures can improve the effectiveness of response and preparedness. In addition, the development of contingency plans and mapping of disaster risk areas showed that data-driven planning strengthened village institutional capacity. Both confirm that community empowerment and a multi-actor approach are essential in building regional resilience to disasters.

This research lies in an effort to analyze the implementation of the Destana program in Bungurasih Village using the Hexahelix approach. Unlike some previous studies that tend to focus on the technical aspects of implementation or program evaluation in general, this study highlights the dynamics of collaboration between actors in the Hexahelix model and how the synergy affects the effectiveness of the Destana

program at the local level. This study also identifies the supporting and inhibiting factors in program implementation, and develops an adaptive collaboration model according to the local characteristics of Bungurasih Village. By integrating Edward III's policy implementation model and the Hexahelix collaborative approach, this research offers theoretical and practical contributions in strengthening multi-actor collaboration for village capacity building in disaster mitigation. This is a gap in the previous literature, where the integration of these two approaches has rarely been studied empirically in the context of disaster-prone villages in Indonesia.

RESEARCH METHOD

This research applies a descriptive qualitative method with a Hexahelix approach with a focus on Implementation of the Disaster Resilient Village Program through the Hexahelix Approach in Bungurasih Village, Waru District. This method is based on the philosophy of postpositivism, as explained by Sugiyono which emphasizes objective conditions with researchers as the main instrument in data collection and analysis [16]. Cresswell also states that qualitative research aims to explore and understand the meaning given by individuals or groups to a social or human phenomenon [17]. The main focus of this research is to evaluate the effectiveness of Destana implementation in Bungurasih Village using Edwards III model, which includes four main aspects: communication, resources, disposition, and bureaucratic structure [18]. In this context, the research adopts the Hexahelix perspective, which involves the government, academics, private sector, community, media, and affected communities in assessing the factors that contribute to the success and obstacles of the Destana program. The research location is Bungurasih Village, Waru Subdistrict, which has been running the Destana program from the National Disaster Management Agency (BNPB).

Data validity was conducted through source and method triangulation, comparing the results of observations, in-depth interviews, and documentation to test data consistency. The selected informants included actors from six Hexahelix elements, namely village officials (government), local academics who assisted the program, representatives of local MSMEs (business world), volunteers and beneficiaries (community and affected communities), and local journalists (media). This technique aims to ensure that the data obtained has high validity and is able to represent cross-sector dynamics in the field.

Data analysis in this study used the Miles & Huberman model, which consists of four main stages: data collection, data reduction, data presentation, and conclusion drawing [19]. The first stage, data collection, was carried out by collecting relevant information. Next, data reduction was carried out, which is the process of selecting and simplifying information to filter out data that is most relevant to the research focus. Next is the data presentation stage, where the selected information is arranged systematically in the form of descriptive narratives or visualizations to facilitate analysis. The last stage is conclusion drawing, which aims to interpret the research results and answer the problems that have been formulated. This approach allows the researcher to gain a

comprehensive understanding of the phenomenon studied and provide recommendations based on empirical findings [20].

RESULTS AND DISCUSSION

Results

The implementation of the Disaster Resilient Village (Destana) Program in Bungurasih Village shows adaptive dynamics even though it has not been formally integrated into the BPBD structure in Sidoarjo Regency. Despite not yet having an official decree from the BPBD, the village continues to carry out disaster management activities independently and collaboratively, especially when facing annual floods. This reflects local initiative and participatory community capacity in dealing with disaster risk, in line with the principles in BNPB Head Regulation No. 1/2012.

Discussion

1. Communication

Communication in English "communication", from Latin "communicatus" which means sharing or belonging together, communication is defined as the process of sharing between the parties who carry out the communication activity [21].

Communication between stakeholders in Bungurasih Village in the context of disaster management can be categorized as quite effective, especially through informal channels such as WhatsApp groups that are actively used by village officials, RT/RW, and residents. However, this effectiveness is still situational and not yet supported by a structured communication system or disaster technology. The main obstacles arise from information overload and delays in delivery during critical situations, caused by the high workload of village officials and the lack of standardized emergency communication protocols. This shows that communication between stakeholders, although quite active informally, still faces challenges in times of crisis. To further understand how these communication dynamics play out in the field, the following is an excerpt from an interview with Mr. Rizki, one of the Bungurasih Village Government Staff:

"So for communication, we are after reports from residents, sometimes even before residents report, BPBD has also communicated to us. How is Bungurasih? There is flooding, and whether there are evacuees or not, but sometimes we also have not received information from the community or RT RW, so we answer the BPBD. We try to communicate again first to the RT RW who knows the area. We review the field, means we review the field. Finally, after we review the field and there are people displaced by BPBD, we immediately go to the village field." (Interview, July 17, 2025)

When viewed through the perspective of Edward III's model, communication has fulfilled the functional aspect, but has not been optimized systemically. The absence of structural barriers is an advantage, but the lack of alternative communication media such as village sirens, emergency loudspeakers, or early warning systems is a weakness that needs to be fixed immediately. In order for the communication system to be truly adaptive and disaster-responsive, more formal emergency communication procedures need to be developed and integrated with the district BPBD, as well as specialized

training for communication devices at the RT/RW level. Although there are no significant structural barriers to communication, human factors such as workload and time constraints are dominant. This is reflected in Mr. Rizki's statement describing their daily reality in managing disaster communication:

"There are no obstacles. Sometimes we are late with information because of work. The village community must be busy, just one or two things to take care of. There are no obstacles to communication. That was us because of our respective busy schedules, the busy schedules of these officials are different, so the information is just late. So it's not more, it's not an obstacle like miscommunication or what, but more to our own busyness, to our respective jobs." (Interview, July 17, 2025)

Based on the communication indicators in the Edward III model, communication between stakeholders in disaster management in Bungurasih Village is relatively active, especially through informal channels such as WhatsApp. Village officials, RT/RW, and residents utilize this media to convey initial reports and information, although the flow is still situational and not formally structured. Analysis using the Edward III model shows that communication has fulfilled functional and structural aspects. There is two-way coordination with BPBD and no bureaucratic barriers in accessing information. However, from a systemic perspective, communication is not optimal due to the absence of emergency protocols, the lack of supporting technology (such as EWS and loudspeakers), and the absence of procedural integration with the Regency BPBD. The high workload of village officials is also a cause of information delays, not because of miscommunication, but because of limited human resources.

2. Resources

Resources play an important role in policy implementation. Resources consist of human resources, infrastructure resources, and financial resources. Human resource indicators consist of the quality and quantity of the apparatus [22].

In terms of resources, Bungurasih Village shows sufficient basic readiness to deal with disasters, especially through the presence of 60 LINMAS volunteers who have received emergency response training from the BPBD. The training covers basic aspects of first aid, self-evacuation and logistics distribution. The readiness of human resources at the local level is also strengthened by the training that has been facilitated by BPBD. This was conveyed directly by Mr. Rizki Alfianto, Bungurasih Village Government Staff, in the following interview:

"The community resources are there, many, enough. Because yesterday LINMAS was Bungurasih Village LINMAS, we went to Trawas to attend disaster response training with BPBD resource persons. There were approximately 60 people who participated in the disaster response training." (Interview, July 17, 2025)

Another limitation was seen in human resources for public kitchen management. Most housewives who are flood victims are also breadwinners, so there is not enough time to be actively involved. To address this gap, the village government has partnered with local MSME players to provide ready-to-eat meals for the evacuees. In addition, the unavailability of equipment such as rubber boats and early warning systems is also a

major obstacle. Funding for emergency logistics is still partly dependent on BPBD and has not been fully allocated from the Village Fund. This condition reflects the need for sustainable synergy between sectors, in accordance with the principle of collaboration in the Hexahelix approach which encourages the active role of the business world and local communities. This condition confirms that the limited human resources in the management of public kitchens are not only caused by the number, but also by the dual roles undertaken by housewives of flood victims. This reality was conveyed by Mr. Rizki Alfianto in the following interview:

"There is no shortage. Because we all have, but sometimes these mothers also work if they are displaced. So if we are told to make a public kitchen, our human resources are also lacking. Because the evacuees are also sometimes men and women. One family, sometimes one family also has mothers who also work in factories or become ART in the homes of wealthy residents." (Interview, July 17, 2025)

Figure 1. Capacity building of LINMAS for disaster mitigation guidance and training.

Based on the resource indicators in the Edward III model, Bungurasih Village has shown sufficient initial readiness in facing disasters, especially through the existence of 60 LINMAS volunteers who have received training from BPBD. This shows that the technical human resources aspect has begun to be fulfilled. However, limitations remain, especially in the management of public kitchens. Many flood-affected housewives also work, making it difficult to be actively involved. In addition, supporting facilities such as inflatable boats and early warning systems are not yet available, indicating a lack of physical and technological resources. In terms of funding, logistics and emergency equipment still depend on BPBD, while the Village Fund has not been maximized. These conditions indicate that resource management in Bungurasih Village still needs to be strengthened, both in terms of social personnel, infrastructure and financing. For this reason, synergies between parties according to the Hexahelix approach need to be developed so that existing resources can be utilized more effectively and sustainably in disaster management.

3. Disposition

Policy implementation in order to achieve maximum success must be identified and the characteristics of implementing agents include bureaucratic structures, norms and patterns of relationships that occur in the bureaucracy, all of which will affect the implementation of a predetermined policy program [23].

The disposition or attitude of program implementers in Bungurasih Village in dealing with disasters shows a fairly strong and adaptive character. Based on the results of interviews with Mrs. Maria Ulfah as Kasun, village officials often go directly to the field without waiting for direction from BPBD when flooding begins to occur. These actions are not only administrative, but also operational, such as opening emergency posts, providing sleeping mats, and organizing the distribution of logistical assistance. This shows that personal awareness and responsibility are dominant factors in accelerating the initial response in the field. This proactive attitude can be seen from the active role of village officials and volunteers who did not wait for formal instructions, but immediately acted according to the needs in the field. This was further explained by Ibu Maria Ulfah in the following interview:

"Every time we have a disaster, we have communicated. We also help BPBD. So as long as BPBD has not gone to the field, we also go to the field. What does the community need? For example, refugees need mattresses or tarpaulins, mats or others. So we first give them what is in our office, we lend them what is in the warehouse here. Because those are our assets for people when there are flood disasters. After the flood, after the people go home, we put the assets back. So if something is needed we give it." (Interview, July 17, 2025)

A good disposition is also seen from volunteers who have participated in disaster training, where they claim to be more confident in performing first aid and developing evacuation procedures for the elderly and children. However, challenges remain, especially in maintaining long-term motivation. Ms. Maria Ulfah also mentioned that post-disaster support from outside parties is often slow, which can demoralize volunteers and tools. Therefore, even if individual dispositions are very positive, it is necessary to be supported by a reward system, regular training, and active involvement in policy planning in order to maintain and develop this commitment. This shows that disaster training not only improves technical capacity, but also provides a deeper understanding of the complexities of disaster management. The positive impact on changes in attitude and motivation was explained by one of the LINMAS, Mr. Kasman, as follows:

"For people's motivation, especially those in the field who participated in the disaster response program, the disaster response training, there are many motivations. Many people know that it is like LINMAS. Oh it turns out like this, taking care of floods or taking care of disaster people is a little difficult. All this time I can only blaspheme to the village, the village has no action, nothing else. But after the training, oh it turns out that responding or taking care of disasters is hard and difficult." (Interview, July 17, 2025)

Based on the disposition indicators in the Edward III model, the disposition or attitude of the program implementers in Bungurasih Village in dealing with disasters

shows a strong, proactive, and adaptive character. Village officials and volunteers did not just wait for instructions from higher parties such as BPBD, but independently took quick actions such as opening emergency posts, providing basic needs for refugees, and distributing logistical assistance. This responsive attitude shows that individual awareness and responsibility are the main factors in accelerating the initial response in the field. Institutional support, such as village assets that can be used immediately, also strengthens the quick action.

On the other hand, the disaster training that volunteers such as LINMAS have participated in not only improves their technical skills, but also influences their perspective on the complexity of disaster management. Volunteers have become more confident in conducting evacuations and first aid, and have a new understanding of the challenges faced by village governments. However, challenges remain, especially in maintaining long-term motivation due to slow post-disaster support from external parties. Therefore, while individual dispositions are very positive, the sustainability of the spirit needs to be supported by a reward system, continuous training and active involvement in the policy planning process in order for this disaster response attitude to be maintained and developed sustainably.

4. Bureaucratic Structure

Bureaucracy comes from the words "bureau" (desk) and "cratein" (power), meaning power exercised by those behind the desk. According to KBBI, bureaucracy is a government system run by employees with a hierarchical structure and rigid levels of positions, as well as slow and procedural work processes. In complex policy implementation, an unsupportive bureaucratic structure can hinder the effectiveness and smoothness of policy implementation [24].

The bureaucratic structure of disaster management in Bungurasih Village has generally been organized systematically. The coordination flow starts with residents reporting to the RT/RW, continued to village officials, and forwarded to the sub-district to the BPBD of Sidoarjo Regency. This process has been carried out based on standard operating procedures (SOPs), which is reflected in the division of tasks between village institutions when a disaster occurs. Although there are still administrative obstacles in the reporting process, the coordination flow has been structurally established and carried out according to procedures. This was confirmed by Mr. Rizki Alfianto in the following interview, who explained the sequence of reporting during a disaster:

"Our coordination flow is clear. So from the RT or from community members report to the RT, if there is knee-deep or waist-deep flooding, so the RT reports directly to the village. We from the village report to the sub-district and to BPBD. That means from residents to RT, to RW, to village, to sub-district, directly to BPBD." (Interview, July 17, 2025)

In addition, obstacles also occur in the process of procuring aid logistics, which is formalistic and requires tiered approval. When there is a major flood, the waiting time for assistance from BPBD can reach 2-3 days due to inventory constraints and a slow budget disbursement process. This shows that although the coordination structure is in

place, the procurement mechanism still faces significant procedural obstacles. Uncertainty in the process and lack of transparency from related parties also slowed down the distribution of aid in the field. This was conveyed by Mr. Rizki Alfianto in the following interview:

"From this procedure, sometimes we don't know what the procedure is in BPBD. Sometimes we also ask for A, B, C, but at BPBD either the goods are empty or out of stock, in the end the procedure is also long." (Interview, July 17, 2025)

Figure 2. Direct Observation by the Regent of Sidoarjo, Mr. H. Subandi, S.H., M.Kn.,

Based on the bureaucratic structure indicators in the Edward III model, Bungurasih Village has a systematic and formalized disaster management coordination flow. The reporting line from residents to RT / RW, continued to village officials, sub-districts, to BPBD Sidoarjo Regency runs in accordance with applicable standard operating procedures (SOP). This structure is reflected in a clear division of tasks between village stakeholders, as well as institutional awareness to act according to their respective roles when a disaster occurs. This shows that the basic bureaucratic structure at the village level is in place and can be activated when a disaster occurs.

However, the existing bureaucratic structure is not yet fully adaptive and flexible to urgent field needs. Obstacles such as overly formal logistics procurement procedures, reliance on physical documents and tiered approvals, and the slow disbursement of aid from BPBD, indicate that the bureaucratic structure is not yet responsive to emergency conditions. This shows that, within the framework of the Edward III model, the bureaucratic structure in Bungurasih still tends to be rigid and less flexible in the face of disaster dynamics that require quick decisions. Therefore, it is necessary to reform the emergency response bureaucratic system that prioritizes the principle of urgency-based policy response, as well as digitizing reporting so that the effectiveness of the bureaucratic structure truly supports the speed and accuracy of action in the field.

5. The Role of Hexahelix Actors in Destana Implementation

The Bungurasih Village Government plays a central role in building partnerships with business actors and local communities. The strategy used to build partnerships is carried out informally through communication in the village WhatsApp group. In addition, the Village-Owned Enterprise (Bumdes) is the main link between the village government and MSME players. Bumdes acts as a bridge for coordination and execution in the field, especially in providing logistics such as ready-to-eat food for disaster-affected residents. This partnership pattern is built in a simple but effective way, by utilizing the existing organizational structure in the village. The explanation of this partnership strategy was conveyed directly by Mr. Nasir Salasah as the Head of Bumdes in the following interview:

"When building partnerships, we also communicate in the WA group. So in our own village, there is Bumdes, a village-owned enterprise. The Bumdes also exists, within the Bumdes there are also UMKMs. So we communicate or build relationships through Bumdes. So Bumdes is the one who goes down to MSME partners." (Interview, July 17, 2025)

The role of academics in disaster issues in Bungurasih Village is still limited. The most relevant activity came from the University of Dr. Soetomo (Unitomo) Surabaya, through its Kuliah Kerja Nyata (KKN) program that included the construction of rainwater tanks and disaster responsiveness training. This involved collaboration with BPBD and village communities. However, until now there has been no continuation of the program from Unitomo. This is in line with information from the village that the involvement of academics in disaster issues is still very limited and so far only comes from one institution. An explanation of the contribution of academics was provided by Ibu Maria Ulfah as Kasun, as follows:

"From the academic programs that have entered Bungurasih Village, from the campus academic program that entered related to disasters, namely Dr. Soetomo University Surabaya, making rainwater reservoirs. That is KKN children and then the same disaster response is with the district and BPBD. The only one that entered was only UNITOMO related to disasters, if other campuses such as MSMEs and greening." (Interview, July 17, 2025)

The involvement of the business world in supporting disaster logistics in Bungurasih is incidental and not through a formal mechanism. Assistance usually comes from local businesses or residents who voluntarily donate basic necessities such as mineral water for refugees. There is no official partnership scheme between the village and companies in supporting the disaster logistics system, but the solidarity of local residents and businesses was quite helpful in the initial emergency response phase. This form of support, although not yet formally organized, still has a direct impact on meeting urgent needs when a disaster occurs. This was explained by Mr. Nasir Salasah as the Head of Bumdes in the following interview:

"Back to the previous one. For logistics, sometimes there are also residents who provide bottled mineral water or something for the displaced residents." (Interview, July 17, 2025)

Community involvement is quite active, especially in the evacuation stage and the provision of urgent needs when a disaster occurs. The village government provides flexibility to residents, such as providing funds to buy food and cook it themselves for the evacuees. On the other hand, mass disaster training has not been evenly distributed. So far, only around 60 volunteers from LINMAS have attended formal training. However, simulation training involving the wider community was held with Unitomo and attended by thousands of residents. An explanation of the community involvement in this training was provided by Ms. Maria Ulfa in the following interview:

"So far, there are only 60 people from LINMAS. But from the village to the community there is. With UNITOMO, there was also training with the community, simulation training. This involved almost several thousand people from Bungurasih Village." (Interview, July 17, 2025)

The village government utilizes social media such as Facebook and Instagram as a means to disseminate disaster information. The community also actively participates by tagging village and BPBD social media accounts when a disaster occurs. Hashtags and posts from the community are then forwarded by village officials to relevant agencies such as BPBD and the local government. The utilization of social media is part of a participatory and responsive communication strategy, where residents and village governments are connected in real time in emergency situations. This was further explained by Mr. Rizki in the following interview:

"We have a lot of social media, often sharing disasters. Sometimes residents also tag our social media to Facebook, to IG. And that's also IG. In the end, the community tags our social media, as well as tags the social media of BPBD, the Regency, and so on. Automatically, the hashtag also goes to us. We forward it again too. We tag to PEMDA, to BPBD." (Interview, July 17, 2025)

Meanwhile, the role of both formal and informal media is still more dominant in the form of social media such as WhatsApp and BPBD's Instagram account. However, there is no active involvement of local media such as community radio, local TV, or village news portals in supporting systemic disaster education and socialization. In fact, the role of the media is crucial in disseminating information quickly and accurately during a disaster. It is necessary to optimize the role of formal media in expanding the reach of disaster education and building public awareness in a sustainable manner. Collaboration with mass media can also be directed to support risk literacy campaigns and strengthen community response.

Disaster management efforts in Bungurasih Village through the Hexahelix approach have involved various strategic actors, with the village government as the main driver actively building partnerships through Bumdes and utilizing social media for emergency communication. Community participation is also high, especially in evacuation and logistics, although disaster training is still limited. However, the

involvement of other actors such as academics, formal businesses and local mass media is still minimal and incidental. Therefore, a more integrated and sustainable collaboration between Hexahelix elements is needed to strengthen village resilience to disasters.

Based on the statements and data that have been analyzed in the research on the implementation of the Hexahelix approach in the Desa Tangguh Bencana (Destana) program in Bungurasih Village, it is known that although the elements of strategic actors have been involved, the implementation is still partial. The village government has shown strong initiative by establishing partnerships through Bumdes, activating the community in emergency logistics, and utilizing social media as an emergency response communication channel. This is in line with the theory of Edward III's policy implementation model, which emphasizes the importance of bureaucratic structure, resources, disposition, and communication. When juxtaposed with previous research by Samsuddin et al., in "Evaluation of the Policy Implementation of the Disaster Resilient Village Program from a Hexahelix Perspective in Kepuhkiriman Village, Waru Subdistrict, Sidoarjo Regency," it was found that although there was support from volunteers, the main obstacles were coordination between stakeholders and less than optimal risk education [12]. This is in contrast to the situation in Bungurasih Village, which has a clear reporting structure and high community participation, although the involvement of academics and formal media is still limited. Thus, the program in Bungurasih has shown a good direction in the application of the Hexahelix, although it still requires strengthening coordination between sectors to achieve overall disaster resilience.

CONCLUSION

Fundamental Finding : This study concludes that the implementation of the Disaster Resilient Village Program (Destana) in Bungurasih Village has been effectively carried out through independent, collaborative, and participatory initiatives, despite the absence of formal integration into the Sidoarjo District Disaster Management Agency (BPBD) policy structure. **Implication :** These findings highlight the need for formal institutional support and stronger engagement of Hexahelix actors—academics, the media, and the business sector—to transform existing practices into systematic and sustainable disaster resilience strategies. **Limitation :** However, the study is limited by its focus on a single village and the use of an exploratory qualitative design, which restricts the generalizability of the results. **Future Research :** To build a more comprehensive understanding, future studies should adopt comparative approaches across multiple regions and integrate policy evaluation frameworks to better assess the long-term effectiveness of cross-sectoral collaboration in strengthening community-based disaster resilience.

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