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Optimizing Enhancing Cooperative Governance to Reduce Flood Disasters in Bojonegoro Regency: Qualitative Approach and Cooperation Scheme

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Abstract: *This research investigates the role of collaborative governance in mitigating flood disasters in Bojonegoro Regency. Using qualitative methods, we comprehensively examine social processes related to flood mitigation. Our study focuses on how the community, business sector, and government can reduce the impact of flooding. Through a case study approach, we find that collaborative governance implementation has not been fully optimized, with governance components often operating independently. To address this, we propose a collaboration system that includes joined-up government, issue response networks, communities of shared mission, and strategic alliances. By enhancing collaboration, we aim to improve flood disaster mitigation in Bojonegoro Regency, leveraging all available resources and expertise. Community involvement will contribute to building a more resilient ecosystem prepared for future disasters. Implementing these cooperative programs is envisaged to enhance flood catastrophe mitigation in Bojonegoro Regency. Effective collaboration between various elements of governance will ensure that all available resources and expertise can be optimally utilized. This study contributes to the field by emphasizing the importance of collaborative governance in disaster management and resilience.*

Keywords: *Collaborative governance; Flood disasters; Bojonegoro Regency; Social processes; Community involvement; Disaster mitigation.*

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Introduction

Due to the many features of catastrophes, disaster management is a development problem that no region in Indonesia can escape (Hapsari & Zenurianto, 2016; Ayuningtyas et al., 2021). Being an archipelagic nation sandwiched between three of the world's active tectonic plates, Indonesia frequently experiences many natural disasters, including floods, tsunamis, earthquakes, and volcanic eruptions. In light of this, every region needs a disaster management plan specific to the catastrophes that might strike there (Cummins et al., 2020). Every Indonesian area has unique traits, varied involvement strategies, and a wide range of catastrophe mitigation tactics. Earthquake-prone areas such as West Sumatra and Central Sulawesi may focus more on building earthquake-resistant infrastructure and evacuation training (Kurnio et al., 2021). Meanwhile, areas that frequently experience flooding, such as Jakarta and Semarang, may place more emphasis on drainage management and reforestation (Purnomo et al., 2024).

One of the concerns brought up in accomplishing the sustainable development goals (SDGs) is catastrophe management. Effective disaster management can reduce catastrophes' economic, social, and environmental damage. This is consistent with the Sustainable Development Goals (SDGs), particularly Goal 11 (Dzvimbo et al., 2022), which addresses the creation of inclusive, safe, resilient, and sustainable cities and settlements. Community involvement in disaster management is also crucial to enhancing catastrophe preparedness and response. Local communities frequently possess invaluable expertise and experience in handling emergencies. Accordingly, their involvement in the design and execution of disaster mitigation measures can improve the efficacy of disaster management initiatives (Räsänen et al., 2020).

In catastrophe management, cooperation between the public and private sectors, as well as the global society, is essential. The Indonesian government established a number of bodies, such as the Regional Disaster Management Agency (BPBD) and the National Disaster Management Agency (BNPB), to coordinate disaster management efforts at the national and regional levels. Moreover, Indonesia has become more adept at managing catastrophes thanks to aid from around the world (Achmad, 2023).

There are cities and regencies in the East Java Province with a high risk of natural disasters. Various natural calamities, including tidal waves, landslides, and floods, frequently strike this region. East Java has a high risk of disasters; thus, the local community and government must take appropriate precautions and mitigation measures (Avia et al., 2023).

Natural disasters cause significant losses, both directly and indirectly. These losses include fatalities, injuries, property loss, damages to infrastructure, damage to the environment, and psychological suffering for survivors. The impact of this disaster is very broad and affects various aspects of people's lives, from economic to social (Tanoue et al., 2020).

Natural disasters in East Java occur in various forms, such as floods, landslides, and tidal waves. According to data spanning from 2016 to 2020, flooding is East Java's most frequent natural disaster.

This flood not only destroys property and infrastructure but also results in a high death toll. Therefore, flood management is a top priority in disaster mitigation efforts in this region (Rustinsyah et al., 2021).

The losses caused by floods are very significant. In addition to physical damage, floods also disrupt economic and social activities in the community. Many houses, schools, and public facilities were damaged by floods, hampering daily activities. In addition, floods can cause diseases and other health problems, burdening communities (Walz et al., 2021). To reduce the impact of floods, cooperation is needed between the government, the community, and various related parties. The government must improve flood management infrastructure, such as building embankments and good drainage systems.

Additionally, via education and readiness training, the community must be included in efforts to mitigate the effects of disasters. Effective collaboration is hoped to reduce the effects of floods in East Java (Framesthi et al., 2023). Numerous parts of East Java are vulnerable to yearly floods because many sizable river basins traverse the Brantas River and the Bengawan Solo River. Overflow from these rivers is often the main cause of unavoidable flooding. Geographical conditions and high rainfall also contribute to the frequency of flooding in this area (Roestamy & Fulazzaky, 2022). In addition to natural factors, the increasing population in East Java also affects land use, which does not pay attention to environmental aspects. Rapid population growth has caused land conversion into residential and commercial areas, often ignoring the importance of green open spaces and water catchment areas. As a result, the soil's ability to absorb water decreases, increasing the risk of flooding (Noerhayati et al., 2024). Annual floods in East Java not only cause material losses but also have an impact on the social and economic lives of the community. Damage to infrastructure, such as roads, bridges, and public facilities, hampers daily activities and disrupts the local economy. In addition, floods can also cause health problems, such as waterborne diseases, which burden affected communities (Putiamini et al., 2022). The public, commercial, and community sectors must work together to find a solution to the flooding issue. The infrastructure for preventing flooding has to be improved by the government; this includes building embankments, installing efficient drainage systems, and managing watersheds sustainably. Furthermore, community education and training on environmental protection and flood preparedness are crucial (Avoyan & Meijerink, 2021).

The Bengawan Solo River, which separates East Java's western and northern regions, can be roughly classified into three areas: the rocky limestone mountains of the southern and northern regions, which are composed of lowlands with middling fertility; the moderately fertile lowlands of the central south; and the flood-prone bonorowo or Begawan njero of the center north. Bengawan Njero is a tributary of Bengawan Solo, which often overflows as the rainy season approaches, according to Widiyarta and Kriswibowo (2023). The Bojonegoro Regency, which is located next to Bengawan Njero, is in significant danger of flooding (Widyarta et al., 2022).

Human activity exacerbates flood disasters to the extent that the environment, society, and government are negatively impacted. Residents of Bojonegoro Regency are well aware of the constant threat of floods, which has the potential to destroy homes, ponds, rice

fields, and public buildings for days at a time. A dread of getting sick may plague those who remain in their homes while the water is still sinking. When there is flooding, most people decide to stay inside their homes out of fear that robbers may take advantage of them as they flee. In addition to impeding government operations, floods submerge highways and offices.

Additionally, floods destroy embankments, causing additional places to get drowned (Rustinsyah et al., 2021). The Regency Government of Bojonegoro Regency requires a disaster mitigation policy in order to manage the consequences of floods that occur there, according to the Rules for the Implementation of Emergency Management Plans, Regulation No. 4 of 2008 issued by the Head of the National Disaster Management Agency. The rule states that there are three primary steps in the disaster management process: pre-disaster, which refers to situations when a disaster is either not yet happening or might occur; emergency response, which is carried out when a disaster occurs; and post-disaster, which is carried out after a disaster (Arifin et al., 2021). In accordance with Bojonegoro Regency Disaster Management Regional Regulation No. 7 of 2012, during the pre-disaster phase, the Bojonegoro Regency Government implemented both active and passive mitigation measures. It was shown that in the absence of cooperation between policy actors, government institutions, the community, and the business sector, the risk of catastrophe during policy implementation has not greatly decreased (Subagyo et al., 2022). A clear direction and ongoing stakeholder participation are essential for the effectiveness of catastrophe mitigation. Community, business, and governmental cooperation are crucial to mitigating the flood calamity in the governance corridor.

Similarly, cooperation amongst stakeholders is required to lessen the impact of flood catastrophes in Bojonegoro Regency. This will enable the mitigation process to proceed according to a plan established using the collaborative governance concept (Widyarta et al., 2022). Given the context of the issue, it is unclear how effective collaborative governance is in reducing the risk of flooding disasters in Bojonegoro Regency and what kind of cooperation plan is necessary for collaboration to function at its best.

The primary goal of disaster mitigation is to lessen or minimize the effects of a disaster. In this sense, mitigation refers to actions taken to lessen potential risks and losses prior to the occurrence of a disaster. These mitigation measures are critical to ensuring that infrastructure and communities are better equipped to withstand catastrophes and lessen their detrimental effects (Pancasilawan et al., 2020). One of the main objectives of disaster mitigation is to reduce the population's risk of death and injury. This can be achieved through various means, such as building disaster-resistant infrastructure, providing early warning systems, and evacuation training for the community. With these steps, the community can be more prepared and responsive when a disaster occurs to minimize the risk of loss of life (Farahani et al., 2020). In addition, disaster mitigation also aims to reduce damage to infrastructure and the public sector. Infrastructure damaged by a disaster can hamper daily activities and disrupt the local economy. Therefore, building and maintaining disaster-resistant infrastructure, such as bridges, roads, and public buildings, is important. Thus,

economic and social losses due to infrastructure damage can be reduced (Pribadi et al., 2021).

Disaster mitigation also involves sustainable environmental management. Wise land use, reforestation, and good water resource management are some mitigation measures that can help reduce disaster risks. By preserving the ecosystem's equilibrium, we can lessen the likelihood of natural catastrophes like floods and landslides (Basuki et al., 2022).

Active community participation is very important in disaster mitigation efforts. The community must receive education and training on disaster preparedness to take appropriate action when a disaster occurs. In addition, cooperation between the government, private sector, and community is also needed to ensure that disaster mitigation efforts can run effectively and sustainably (Ryan et al., 2020).

There are two primary categories of disaster mitigation: structural and non-structural. Implementing specific technical alternatives or constructing new structures are two ways to mitigate structural damage. This mitigation is frequently described as an attempt by humans to manipulate nature. Structural mitigation measures include things like relocating, modifying building structures, following building code requirements, strengthening the resilience of building construction, and establishing victim shelters.

One example of structural mitigation is the construction of embankments and drainage systems to control flooding. In addition, implementing strict building codes can ensure buildings are resistant to earthquakes or strong winds. Another crucial component of structural mitigation is relocating people from disaster-prone areas to safer places. Therefore, structural mitigation aims to safeguard and improve the physical environment and infrastructure (Abdella & Mekuanent, 2021). On the other hand, non-structural mitigation aims to lower risk by modifying or adjusting human behavior instead of making structural alterations. The term "human efforts to adapt to nature" is frequently used to describe this mitigation. Non-structural mitigation activities include establishing regulations and disincentives for high-risk areas, controlling population density, regulating building utilization, public awareness and education programs, and behavioral change. The main objective of non-structural mitigation is to improve community preparedness and response to disasters (Vona, 2020).

A concrete example of non-structural mitigation is a community disaster preparedness education and training program. By increasing public awareness and knowledge about disaster risks, they can take appropriate action when a disaster occurs. In addition, establishing regulations that prohibit development in disaster-prone areas is also an important step in non-structural mitigation. Controlling population density in urban areas can reduce the risk of disasters such as floods and fires (Coutinho et al., 2020).

Structural and non-structural mitigation are necessary to lessen the effects of catastrophes. Non-structural mitigation concentrates on raising readiness and altering community behavior, whereas structural mitigation works to improve the physical environment and infrastructure. By combining these two strategies, we may build an environment that is more secure and robust to calamities. Effective and long-lasting catastrophe mitigation

initiatives depend on collaboration across the public, business, and governmental sectors (Seddeek, 2023).

For the catastrophe mitigation process to function well, players must cooperate. Collaborative governance is the term for this kind of cooperation. "Governance" is frequently used in public administration to describe organizational interrelationships. In addition to involving public institutions in creating, developing, and applying policies, governance establishes links across different organizations to accomplish public objectives (Aung & Lim, 2021).

In the context of disaster mitigation, governance is defined as the participation of different players in the formulation and execution of policies, encompassing the public, private, and civil society sectors. In order to accomplish shared objectives, collaborative governance places a strong emphasis on coordination and collaboration amongst diverse stakeholders. This is especially important in disaster mitigation, as different stakeholders must cooperate to lessen the likelihood and effects of disasters. It is envisaged that mitigation measures can function more effectively and efficiently with good teamwork (Albris et al., 2020).

The collaboration of several parties towards a shared goal is known as public administration. This interpretation highlights how important teamwork is in administration. Government, non-governmental groups, the commercial sector, and the community are all involved in this partnership regarding catastrophe mitigation. Each actor has different roles and responsibilities, but they complement each other in disaster mitigation efforts. The government, for example, is responsible for formulating policies and regulations, while non-governmental organizations can play a role in educating and empowering communities (Lapuente & Van de Walle, 2020).

Collaboration in disaster mitigation also includes active community participation. Local communities often have valuable knowledge and experience in dealing with disasters. Therefore, involving them in planning and implementing disaster mitigation can increase the effectiveness of these efforts. Community participation can be realized through discussion forums, preparedness training, and educational programs to increase awareness and knowledge of disaster risks (Shmueli et al., 2021).

The corporate sector also plays a significant portion of catastrophe mitigation. Businesses may make a difference through corporate social responsibility (CSR) initiatives prioritizing catastrophe risk reduction. Companies can support the development of disaster-resistant infrastructure, provide logistical assistance during disasters, or conduct preparedness training for employees and surrounding communities. As a result, the business sector may strategically collaborate with initiatives to mitigate disasters (Kanji & Agrawal, 2020). One example of efficient public administration is collaborative governance. Enhanced cooperation among the government, business sector, non-governmental groups, and the community is expected to improve the effectiveness and quality of disaster mitigation initiatives. This partnership may create a more resilient ecosystem prepared to withstand future catastrophes by increasing community involvement and participation in disaster mitigation initiatives (Joniškienė et al., 2020).

Collaboration in public administration can be realized through various mechanisms, such as discussion

forums, public-private partnerships, and collaborative programs. Various parties can share information, resources, and expertise through these mechanisms to achieve common goals. For example, the government can work with the private sector to build disaster-resistant infrastructure, while non-governmental organizations can educate and train the community on disaster preparedness (Liu et al., 2020). This argument demonstrates that one example of public administration is collaborative governance. It is envisaged that improved cooperation would enable the catastrophe mitigation process to function more smoothly and yield greater outcomes. This collaboration can also increase community involvement and participation in disaster mitigation efforts, thereby creating a more resilient environment and being ready to face future disasters (Wang & Ran, 2023). Governments, being public entities, are oriented toward policymaking. In the meantime, the goal of cooperation and its process is to bring stakeholders' opinions about the policy closer to one another. Acknowledging social fairness is a necessary condition for a cooperative government that upholds the public interest. In order to create or carry out public policies and programs, stakeholders from both inside and outside the government are actively involved in collaborative governance (Feng et al., 2020).

According to Ansell and Gash (2008), collaborative governance is a step toward bringing together public and private stakeholders with public institutions in a group setting so that they may participate in consensus-driven decision-making. Several factors influence the initial conditions of collaboration, including the following: a history of prior collaboration, mutual respect for the established collaboration, trust amongst stakeholders, and an imbalance of power, resources, and knowledge (Johan et al., 2020). Additionally, stakeholders may have common interests and visions to achieve. Facilitative leadership pertains to stakeholder debates, setting clear expectations, fostering trust, promoting stakeholder communication, and sharing reciprocal advantages. Institutional design pertains to the protocols and fundamental guidelines for legal, collaborative processes and the process's openness, inclusivity, and exclusivity. Building togetherness brings perceptions and unity into alignment to collaborate (Agbodzakey, 2021). Collaborative governance is a process and structure in the management and formulation of public policy decisions that involve actors who constructively come from various levels, both at the government level (public institutions), private institutions, and civil society, in order to accomplish public goals that cannot be accomplished if carried out by one party alone (Lee & Ospina, 2022). Collaboration is essential because of the interdependence between actors and organizations. The need for cooperation increases with both vertical and horizontal interdependence. A type of governance known as collaborative governance aims to make consensus-oriented shared decision-making amongst the public, private, and governmental sectors easier to manage. Several collaborative governance models exist as a framework for examining the prevalence of stakeholder engagement. The collaborative governance model thoroughly observes the cooperation process, encompassing input, drivers, and impacts (Costumato, 2021). The paradigm of collaborative governance highlights that the essence resides not just in a mutually beneficial agreement amongst several

institutions but in a transformational and long-lasting process. Numerous elements of collaborative governance are integrated into the framework, ranging from actions, effects, and adaptability to cooperation dynamics, system context, and motivations. According to the collaborative governance model, sustainable cooperation must be referenced in the collaboration process between the government and non-government actors engaged or stakeholders (Ansell et al., 2020). The collaborative governance model can observe eight characteristics of good governance: participation, rule of law, equity (equality) and inclusivity, transparency, responsiveness, legitimacy and consensus, effectiveness and efficiency, and accountability (Anđelković, 2023).

Method

This study, which used a qualitative method, aims to determine how the community, business community, and government might lessen the impact of flooding on the Bojonegoro Regency. The qualitative method was selected because it enables gathering non-numerical data to provide researchers with a comprehensive knowledge of social or human events. Qualitative research offers deeper insights into the dynamics and interactions among flood catastrophe mitigation players in this particular setting.

Qualitative research aims to get a comprehensive knowledge of social or human events. Data collection techniques used in this method include document analysis, observations, and interviews. Data for this study were gathered from various sources, including representatives of the public and commercial sectors and residents engaged in flood catastrophe mitigation. Researchers can investigate the viewpoints and experiences of the different players engaged with this method.

A case study is an appropriate qualitative technique for researching the role of collaborative governance in Bojonegoro Regency flood catastrophe mitigation. Through case studies, researchers can thoroughly investigate the context and dynamics of actor collaboration in mitigating flood disasters. They can also identify factors that influence the effectiveness of collaboration and develop recommendations to improve future mitigation efforts.

Through the use of case studies, researchers can provide a thorough investigation of how local governments, non-governmental organizations, and communities collaborate to mitigate flood disasters. This study can investigate the difficulties and achievements encountered in collaborating inside the Bojonegoro Regency. Using a case study approach, researchers can identify factors that influence the effectiveness of collaboration and develop recommendations to improve future mitigation efforts.

Case studies can be utilized with a variety of data-gathering techniques, such as participant observation, in-depth interviews, and document analysis. These techniques are important to obtain a comprehensive picture of the collaboration. In-depth interviews allow researchers to explore the perspectives and experiences of individuals involved in disaster mitigation. At the same time, participant observation provides insight into the dynamics of the interactions between actors in real situations. Document analysis, on the other hand, helps in understanding the policy context

and framework underlying mitigation efforts.

Regarding mitigating flood disasters in Bojonegoro Regency, the government is critical in formulating policies and facilitating stakeholder collaboration. The government is responsible for developing and implementing policies supporting mitigation efforts and ensuring the necessary resources are available. Furthermore, the government arranges joint ventures between the community and the corporate sector.

The private sector and the community also have important roles in flood disaster mitigation. The private sector can contribute through corporate social responsibility (CSR) programs focusing on reducing disaster risk. Conversely, the community can actively participate in mitigation through education and preparedness training. The community, business community, and government should work together well to ensure that Bojonegoro Regency's flood catastrophe mitigation initiatives are carried out as effectively and efficiently as possible.

This study mainly focuses on how various actors interact, share information, and work together to reduce flood risk. Data collection techniques such as interviews with government officials, members of non-governmental organizations, and residents involved in disaster mitigation will be very useful. Documentation was used for secondary data, and informants were directly interviewed for primary data. The Chief of the Local Disaster Management Agency (BPBD) was expressly selected by the researcher to serve as the primary informant., while the other informants were selected via the snowball method.

Once the data was gathered, interactives were used to analyze it. This method enables researchers to comprehend better the phenomena they are studying by using an iterative approach to data gathering, analysis, and interpretation. Using interactive analysis, researchers can test hypotheses generated during the study and find patterns and themes in the data.

Using a case study technique, the research will significantly contribute to creating cooperation models or theories that can be used in comparable situations. Additionally, the study's conclusions would offer helpful suggestions to communities, non-governmental organizations, and local governments on improving cooperation in the Bojonegoro Regency's efforts to mitigate the flood catastrophe. Consequently, community benefits from flood catastrophe mitigation initiatives might increase, and they can be more effective and efficient.

Results and Discussion

Government Synergy in Flood Management in Bojonegoro Regency

To successfully lower the risks that arise during a disaster, disaster mitigation is a crucial first step in disaster management. One organization cannot perform this task independently; instead, several organizations, agencies, and communities must work together within sound governance. In order to guarantee that everyone concerned can successfully collaborate to lessen the effects of the tragedy, this teamwork is crucial.

The collaborative governance paradigm proposed by Ansell and Gash (2008) can be utilized to facilitate effective collaboration in catastrophe mitigation. Initial circumstances, facilitative leadership, institutional design, and trust-building are some of the key components

of this concept. A commitment from all sides to collaborate and a common knowledge of the issues and objectives are prerequisites.

Facilitative leadership is an important element in collaborative governance. Facilitative leaders can direct and coordinate collaborative efforts and ensure that all parties are actively involved in decision-making. Good leadership can also build strong relationships between various actors, fostering trust and effective cooperation.

Institutional design includes structures and mechanisms that support collaboration between various parties. This includes clear rules and procedures and a forum or platform for communication and information sharing. Good institutional design allows all parties to participate and actively contribute meaningfully to disaster mitigation efforts.

Building trust is a key element in collaborative governance. Trust between various actors is essential to ensuring that collaboration runs smoothly. Trust can be built through open and transparent communication and positive collaborative experiences. With trust, all parties will be more motivated to work together and achieve common goals in disaster mitigation.

By following the collaborative governance model processes, disaster mitigation initiatives would function more smoothly and successfully. If the government, non-governmental organizations, the commercial sector, and the community work well together, all available resources and skills can be used to their fullest potential. As a result, the chance and effect of catastrophes decrease, and the community is better equipped to handle them in the future.

One common calamity brought on by natural constraints is the flood disaster in the Bojonegoro Regency. When the rainy season begins, in many locations in Bojonegoro, the Bengawan Solo River floods with water, causing floods in the surrounding villages. This need serves as the foundation for the necessary cooperation.

The players involved in disaster mitigation in Bojonegoro Regency have done a good job doing their roles. By mapping areas that are vulnerable to catastrophes, assessing capabilities for disaster management, and allocating funds for flood-related projects, the Bojonegoro Regency BPBD carried out a risk study. To guarantee that there was a risk of flooding catastrophes, the Cipta Karya Agency kept an eye on the structures along the Bengawan Solo River. To be ready for a flood calamity, the locals established Destana, or the calamity Resilient Village. Additionally, the regency government has budgeted appropriately to cover flood management demands.

The government of the Bojonegoro Regency is still providing facilitative leadership to reduce flood disasters. The Bojonegoro Regency BPBD regularly organizes meetings between the government and parties involved in flood catastrophe management. Suggestions made by those involved in disaster mitigation are anticipated to lower the likelihood of floods. To mitigate disasters, the Bojonegoro Regency Government also works with colleges, particularly when making and putting up warning signs and instructions for evacuation.

In particular, the Bojonegoro Regency Government has issued regional laws on the management of disasters, regarding the local emergency management agency, and assistance/compensation for survivors in order to effectively deal with flood disasters. These regulations serve as the

cornerstone for disaster management operations. Technical guidelines have also been made available by the director of the Area Disaster Management Agency. By Regent's Decree, the Bojonegoro Regency Council formed a Quick Reaction Team and an Operations Control Center. A directive from the Chief of the Local Emergency Management Agency, BPBD, describes these groups' technical requirements.

Dedication to the process is crucial when implementing disaster mitigation strategies from a governance standpoint. Establishing trust through this commitment has been challenging. The numerous structures along the Bengawan Solo River prove that the community's vow not to reside near the riverbed is still broken.

The Bojonegoro Regency Government's efforts to achieve efficient flood disaster mitigation within the governance structure are still confined to assigning specific tasks to each component. Additionally, not all factors that affect governance have been fully used by the notion of governance, particularly the limited involvement of the private sector. The government sector continues to dominate disaster mitigation by executing its many activities and functions.

Collaborative Strategy in Flood Disaster Management

According to several research studies on flood management, the aspects that most influence the effectiveness of collaborative governance are distributive responsibility and governance. The four primary components of governance elements are self-determination, laws, borders and exclusivity, and network management. Boundaries and exclusivity govern who is and is not allowed to participate in the partnership. Rules limit what can and cannot be done, and breaking them risks expulsion from the collaborative team. The right to select how participants or actors carry out their duties is governed by self-determination. Network administration controls the distribution of resources, quality assurance, organizational upkeep, and conflict resolution.

A component of distributive responsibility is putting the idea of shared governance and decision-making among participants or actors into practice. Consequently, accountability for achieving planned outcomes for preventative and curative interventions is shared. This allocation of responsibilities ensures that everyone clearly understands their responsibilities and can collaborate well to accomplish shared objectives in mitigating flood disasters. According to Ishiwatari (2019), collaborative governance in flood control must be part of an integrated plan rather than only being restricted to cooperation. Participants in this program come from academia, local communities, commercial industry, municipal and federal agencies, and local governments. Thanks to this integrated approach, all stakeholders may collaborate more successfully and efficiently on flood catastrophe mitigation projects. However, putting this scheme's mechanism into practice is a challenge that is difficult to succeed at and difficult to fail at. This is a result of the potentially conflicting duties that each stakeholder has. For instance, local communities or the business sector may have goals different from the government's. As a result, all parties concerned must develop effective communication and mutual understanding. As a result, disagreements may be reduced, and cooperation can improve.

Given the above, a robust collaboration system between institutions and the community is important for the collaborative governance scheme in flood catastrophe mitigation. Cooperative efforts would enable more effective and efficient functioning of flood catastrophe mitigation initiatives. All stakeholders may pool knowledge, resources, and expertise to accomplish shared objectives. Furthermore, effective cooperation may raise community engagement and participation in disaster mitigation initiatives, strengthening the environment's resilience and preparing it for future calamities. Table 1 lists the types of collaboration that may be used to lessen flood catastrophes.

Table 1. Cooperation Form Scheme

Form of cooperation	**Actor**
Groups with a Common Goal	Sub-district, Destana, Public Works and Public Housing Agency (PUPR), Legal Section, Regional Emergency Management Agency
Communities utilizing common practices	Non-Governmental Organizations and Government
Reason networks for the issue	National Search and Rescue Agency, Regional Disaster Management Agency, and Government
Tactical partnerships	Organizations Universities Corporate Non-Governmental Organizations Government
Unified administration	Private via CSR

Source: Author (2024)

Since mitigation calls for mutual agreement, the flood disaster mitigation scheme must be integrated across components. The most crucial stage of flood control measures is the mitigation phase. During this phase, government agencies that can respond to disasters quickly and efficiently are needed, like the regional catastrophe management agency and the National Emergency Management Agency. However, evidence from the study indicates that maturity and preparedness are the key components of success. According to Hapsari & Zenurianto (2016), these agencies' capacity to keep other players in check as they fulfill their responsibilities is the success factor rather than their mere existence inside the collaborative governance circle.

In a collaborative governance scheme, all parties involved must have the same understanding of their respective goals and responsibilities. To plan and carry out mitigation activities, local governments, businesses, nonprofit organizations, and the general public must collaborate. This collaboration covers various aspects, from policy formulation to resource allocation to program implementation in the field. Thus, each actor can contribute according to their respective capacities and expertise.

Preparation and maturity in flood disaster mitigation involve various steps, such as the preparation of disaster-prone

maps, the development of early warning systems, and preparedness training for the community. The local government, through the Regional Disaster Management Agency, is responsible for coordinating these efforts and ensuring that all parties involved have access to the necessary information and resources. In addition, it is important to build disaster-resistant infrastructure and ensure that buildings in flood-prone areas meet established safety standards.

Facilitative leadership also plays an important role in the success of collaborative governance schemes. Effective leaders can direct and coordinate collaborative efforts and build trust between the actors involved. Good leadership can also resolve conflicts and ensure that all parties work harmoniously. In flood disaster mitigation, facilitative leadership can help identify and overcome obstacles that may arise during the collaboration process.

The success of collaborative governance schemes in flood disaster mitigation depends heavily on the commitment of all parties involved. This commitment includes the willingness to work together, share information, and actively participate in every stage of the mitigation process. With a strong commitment, flood disaster mitigation efforts can run more effectively and efficiently and provide greater benefits to the community. Good collaboration can also increase community involvement and participation in disaster mitigation efforts, thus creating a more resilient environment and being ready to face future disasters.

Conclusion

In Bojonegoro Regency, the inadequate use of collaborative governance results in suboptimal flood catastrophe mitigation. In contrast to an integrated process, governance parts nevertheless frequently operate independently by their distinct primary roles and functions (tupoksi). Thus, a cooperation strategy amongst governance parts is needed for mitigation to be carried out as effectively as feasible. The cooperative initiatives under consideration are the joined-up government, issue response networks, communities of shared mission, and strategic alliances. Under the Communities of Shared Aim program, different parties participating in disaster mitigation have the same aims and objectives. In this case, everyone involved—local governments, businesses, non-governmental groups, and the community—cooperates to accomplish shared objectives in lowering the danger of flooding. Having the same mission, it is hoped that all parties can more easily coordinate and work together in mitigation efforts. Communities of Shared Practice involve sharing knowledge and best practices among various actors involved in disaster mitigation. Through this scheme, each party can learn from the experience and expertise of others, thereby increasing the effectiveness of mitigation efforts. For example, local governments can learn from the private sector about the latest technology in water management, while non-governmental organizations can share community empowerment experiences. Issue Response Networks are networks formed to respond to specific issues that arise in disaster mitigation. This network allows various actors to communicate and coordinate quickly and effectively when facing certain problems or challenges. With this network, disaster response is hoped to be carried out more quickly and precisely to minimize the negative impacts.

Strategic alliances and joined-up governments are more formal and structured cooperation schemes. Strategic alliances involve forming partnerships between various actors to achieve long-term goals in disaster mitigation. Meanwhile, joined-up Government is an approach where various government departments and agencies work together in an integrated manner to address disaster problems. With this scheme, flood disaster mitigation efforts in Bojonegoro Regency are hoped to run more effectively and efficiently. By implementing these cooperation schemes, flood disaster mitigation in Bojonegoro Regency is hoped to improve. Effective collaboration between various elements of governance will ensure that all available resources and expertise can be optimally utilized. In addition, this cooperation scheme can also increase community involvement and participation in disaster mitigation efforts, thereby creating a more resilient environment and being ready to face future disasters.

To improve flood disaster mitigation in Bojonegoro Regency, it is important to strengthen coordination between the government, private sector, and communities through regular meetings and effective communication platforms. Establishing a community of practice sharing can help the actors involved share knowledge and best practices. In addition, developing networks that are responsive to specific flood-related issues will enable quick and appropriate actions. Encouraging long-term strategic partnerships between various parties will also ensure the sustainability of mitigation efforts. Adopting an integrated governance approach, where various government departments and agencies work together in an integrated manner, will optimize the use of available resources and expertise. In an academic context, further research on applying collaborative governance in flood disaster mitigation in other areas can provide valuable insights. Comparative studies between Bojonegoro Regency and other areas that have successfully implemented collaborative governance can identify key success factors. Developing a theoretical model that can be used to analyze and improve the cooperation scheme in disaster mitigation is also very necessary. Evaluation of the impact of the implementation of the proposed cooperation scheme on the effectiveness of flood disaster mitigation will provide important empirical data. In addition, deeper research on the role and impact of community participation in collaborative schemes for flood disaster mitigation will help create a more resilient and disaster-ready environment.

This study has several limitations that need to be considered. First, this study only focuses on the Bojonegoro Regency, so the results may not be generalizable to other areas with different characteristics. Second, the qualitative approach used in this study allows for an in-depth understanding of social phenomena but does not provide quantitative data that can be used for statistical analysis. Third, this study relies on data from interviews and observations, which may influence the subjectivity of researchers and respondents. Finally, this study only explores the proposed cooperation scheme without empirically testing its effectiveness.

Further research can expand the geographical scope by examining the application of collaborative governance in flood disaster mitigation in other areas to obtain a more comprehensive picture. In addition, quantitative research can be conducted to complement qualitative

findings and provide stronger statistical data. Research can also develop and test the proposed theoretical model in different contexts to measure the effectiveness of the proposed cooperation scheme. In addition, longitudinal studies can be conducted to evaluate the long-term impact of implementing this cooperation scheme on flood disaster mitigation. Finally, further research on the role and impact of community participation in this cooperation scheme will provide deeper insights into how to increase community involvement and participation in disaster mitigation efforts.

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