

COLLABORATIVE GOVERNANCE OF URBAN FLOOD MANAGEMENT: A STUDY IN SURABAYA CITY, INDONESIA

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Abstrak: Flooding remains a persistent challenge in rapidly urbanizing cities, including Surabaya, Indonesia. This study examines the application of democratic collaborative governance in urban flood management by analyzing how multi-stakeholder collaboration enhances sustainable flood mitigation. Guided by Ansell and Gash's Collaborative Governance framework, the research investigates the interactions among local government, non-governmental organizations, the private sector, and local communities. A descriptive qualitative approach was employed through interviews, observations, and document analysis involving key stakeholders from the Surabaya Water Resources and Public Works Agency (DSDABM), the Regional Disaster Management Agency (BPBD), the Regional Representative Council (DPRD), and flood-affected residents. The findings indicate that Surabaya has strengthened flood governance through effective political leadership, institutional coordination, and participatory mechanisms such as the 112 Command Center and *musrenbang* (participatory development planning). These initiatives have improved emergency response, preparedness, and community engagement while supporting the localization of Sustainable Development Goals (SDGs), particularly SDG 11 (Sustainable Cities and Communities) and SDG 13 (Climate Action). However, challenges persist, including limited public awareness, technical constraints, extreme weather events, and socio-political barriers that reduce collaborative effectiveness. The study concludes that integrating democratic principles into collaborative governance enhances inclusiveness, accountability, and urban resilience, offering practical lessons for other cities seeking adaptive and sustainable approaches to flood management.

Keywords: Collaborative governance, Urban flood management, Sustainable flood mitigation, Surabaya, Indonesia

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INTRODUCTION

Indonesia, as a country located in a region with high geological activity, is prone to various natural disasters, including floods that frequently occur throughout most of the country, especially in major cities¹. Floods pose a significant threat as they can cause material losses, loss of life, and damage to infrastructure and public facilities that have been built². Environmental factors contributing to flooding are becoming increasingly complex, such as global climate change, which increases the intensity of extreme rainfall in a short period of time³. This situation is exacerbated by low drainage capacity in many areas and the conversion of green open spaces into residential areas in line with rapid urbanization and population growth. The problem of flooding in Indonesia is increasingly worrying, especially in urban areas that are experiencing rapid population growth and infrastructure development that is not balanced with disaster management needs.

The city of Surabaya, as one of the largest metropolitan cities in Indonesia, faces major challenges related to flood management⁴. Surabaya has experienced rapid population growth, from 2,880,284 people in 2021 to around 3 million people in 2023⁵. The increase in the number of people coming from rural areas in search of job opportunities and a better life has exacerbated the problem of green open spaces and worsened the impact of flooding. Although the city government has made various efforts through the construction of drainage infrastructure and mitigation policies, flooding continues to recur every year, with increasing

¹ Azizah Baldah, After Valent Duarisah, and Rizky Akbar Maulana, "Clustering Daerah Rawan Bencana Alam di Indonesia Berdasarkan Provinsi dengan Metode K-Means," *Jurnal Ilmiah Informatika Global* 14, no. 2 (2023): 31–36, <https://doi.org/10.36982/jiig.v14i2.3186>.

² G. R. Rabsanjani, A. A. Akbar, and H. Herawati, "Valuasi Dampak Banjir di Kabupaten Landak, Kalimantan Barat," vol. 20, no. 1 (2022): 65–75.

³ M. D. Arvi, R. M. Y. Sibarani, Y. I. Tanjung, and T. Fairuz, "Analisis Faktor Penyebab Bencana Banjir di Kota-Kota Besar Indonesia: Studi Kasus Analisis Banjir Berbasis Literasi," *Indonesian Journal of Emerging Trends in Community Empowerment* 3, no. 1 (2025): 1–8, <https://doi.org/10.71383/ijetce.v3i1.70>

⁴ L. Refnitasari, H. W. Cahyaka, K. D. Handayani, and A. Amudi, "Analisis Kerentanan Fisik Wilayah Pesisir Utara Kota Surabaya Terhadap Bencana Banjir ROB," *Jurnal Tata Kota dan Daerah* 14, no. 2 (2022): 55–62, <https://doi.org/10.21776/ub.takoda.2022.014.02.2>.

⁵ BPS Surabaya, *Kota Surabaya Dalam Angka 2024* (2024), <https://surabayakota.bps.go.id/id/publication/2024/02/28/38c76de6074beea6951be69e/kota-surabaya-dalam-angka-2024.html>.

intensity, as was the case in April and December 2024. These incidents indicate that despite improvement efforts, effective and sustainable flood management remains a major challenge for the government and community of Surabaya.

Beyond the national disaster management framework, recurrent flooding in Surabaya can also be understood as a concrete obstacle to achieving the Sustainable Development Goals (SDGs) at the city level. Specifically, SDG 11 (Sustainable Cities and Communities) Target 11.5 emphasizes the reduction of the number of people affected by disasters and the reduction of direct economic losses related to disasters. In Surabaya, recurring flood events—including those reported in April and December 2024—signal persistent vulnerabilities that can disrupt livelihoods, damage urban infrastructure, and generate repeated economic and social losses, thereby challenging the city’s progress toward this target.

The increasing intensity of extreme rainfall described in this study further underscores the relevance of SDG 13 (Climate Action) Target 13.1, which calls for strengthening adaptive capacity and resilience to climate-related hazards and natural disasters. As climate variability amplifies short-duration high-intensity rainfall, urban flood management requires not only engineering solutions but also adaptive governance arrangements capable of responding to uncertainty and compounding risks.

However, while existing studies on flood management in Indonesia often emphasize technical interventions and administrative capacity, fewer studies explain how “partnerships”—the core logic of collaborative governance—operate as a mechanism for advancing these SDG targets in practice. This study addresses that gap by applying Ansell and Gash’s collaborative governance framework to examine how multi-stakeholder partnerships among municipal agencies, community actors, and other stakeholders shape collective problem-solving and strengthen urban resilience, providing a governance-based pathway that supports SDG 11.5 and SDG 13.1 at the city level⁶.

Existing studies on flood management in Indonesia repeatedly show that governance constraints—not only engineering limitations—often determine whether mitigation policies translate into effective implementation. Across cases, three obstacles recur: fragmented inter-agency coordination, resource and budget limitations, and weak integration between spatial planning, community preparedness, and disaster risk reduction. For example, Rosyidah et al. (2024)

⁶ <https://sdgs.un.org/goals>

emphasize that flood management in West Surabaya requires an integrated package combining drainage improvements, community education, and long-term policy commitment.⁷ Similarly, Ginting et al. (2022) find that Samarinda's policy implementation is administratively functional (communication and organizational structure operate), yet still constrained by funding and territorial/land limitations for retention infrastructure.⁸ Complementing these institutional accounts, Muhammad and Abdul Aziz (2020) highlight social and bureaucratic frictions that weaken implementation capacity.⁹ Taken together, these studies indicate that effective flood management depends on institutional arrangements capable of aligning mandates, pooling resources, and sustaining coordination across actors over time.

More process-oriented research further shows that coordination alone does not resolve the political and administrative barriers that emerge during implementation. Rahayu et al. (2021) report that in Singkil District, policy standards and targets were not fully realized, as key projects such as embankments and river normalization remained incomplete.¹⁰ Depary and Manar (2024) similarly demonstrate in Medan that actor coordination can coexist with implementation blockages when interests diverge (convergence and divergence), resources are limited, and accurate information is unevenly available across stakeholders.¹¹ Importantly, when policies are not formulated through inclusive and deliberative processes, gaps can appear across the disaster cycle—before, during, and after flood events—reducing public buy-in and weakening

⁷ S. J. Rosyidah, L. Putri, A. P. Sumarsono, S. R. Fadilah, and E. R. Nawangsari, "Analisis Kebijakan Pemerintah Dalam Penanggulangan Bencana Banjir di Wilayah Pakal Surabaya Barat," *JDKP Jurnal Desentralisasi dan Kebijakan Publik* 5, no. 1 (2024): 97–106, <https://doi.org/10.30656/jdkp.v5i1.8784>

⁸ J. S. Ginting, B. Irawan, and Daryono, "Implementasi Kebijakan Antisipasi Dan Penanganan Banjir Kota Samarinda," *Jurnal Administrative Reform* 10, no. 1 (2022), <https://doi.org/10.52239/jar.v10i1.7572>.

⁹ F. I. Muhammad and Y. M. A. Aziz, "Implementasi Kebijakan Dalam Mitigasi Bencana Banjir Di Desa Dayeuhkolot," *Kebijakan: Jurnal Ilmu Administrasi* 11, no. 1 (2020): 52–61, <https://doi.org/10.23969/kebijakan.v11i1.2235>.

¹⁰ I. P. Rahayu, W. Rompas, and S. Dengo, "Implementasi Kebijakan Penanggulangan Banjir Pemerintah Kota Manado (Studi Kasus Di Kecamatan Singkil)," *Jurnal Administrasi Publik* 7, no. 105 (2021), <https://ejournal.unsrat.ac.id/v3/index.php/JAP/article/view/34862>

¹¹ F. G. Depary and D. G. Manar, "Politik Tata Kelola Bencana: Analisis Kepentingan Antar Aktor dalam Kasus Pengelolaan Bencana Banjir di Kota Medan Tahun 2023," *Journal of Politic and Government Studies* 13, no. 3 (2024): 713–726.

compliance.

At the same time, research on collaborative approaches suggests a plausible pathway for addressing these recurring governance bottlenecks. Hasna and Darumurti (2023), for instance, show that collaboration among government, community, and private actors can improve flood mitigation effectiveness in Pekalongan, even though resource shortages and coordination problems persist.¹² However, relatively few studies have systematically applied Ansell and Gash's (2008) Collaborative Governance framework to explain how starting conditions, facilitative leadership, institutional design, and collaborative processes interact in an Indonesian metropolitan context. This study addresses that gap by using the Surabaya case to trace not only whether collaboration exists, but how specific collaborative mechanisms shape trust, commitment, and joint problem-solving in urban flood management.¹³

Beyond national disaster management frameworks, urban flood governance is increasingly connected to the global Sustainable Development Goals (SDGs) adopted by the United Nations in 2015 through the 2030 Agenda for Sustainable Development¹⁴. Urban flood management is directly linked to SDG 11 (Sustainable Cities and Communities), which emphasizes inclusive, safe, resilient, and sustainable urban systems; SDG 13 (Climate Action), which calls for strengthening adaptive capacity to climate-related hazards; and SDG 6 (Clean Water and Sanitation), particularly in relation to integrated water resource management and sustainable drainage systems. In this sense, flood governance in Surabaya is not merely a local administrative issue but also part of a broader global sustainability agenda that requires policy integration, resilience-building, and multi-actor coordination.

Although many studies have discussed flood management policies, there is still a research gap in terms of the comprehensive application of *Collaborative Governance* theory in the context of urban flood management in Indonesia, particularly in the city of Surabaya. Previous studies have focused more on technical and infrastructure policies without actively involving relevant actors in

¹² A. L. Hasna and A. Darumurti, "Collaborative Governance Dalam Mitigasi Bencana Banjir Rob Di Kota Pekalongan," *JISIP UNJA (Jurnal Ilmu Sosial Ilmu Politik Universitas Jambi)* (2023): 25–37, <https://doi.org/10.22437/jisipunja.v7i1.24210>

¹³C. Ansell and A. Gash, "Collaborative Governance in Theory and Practice," *Journal of Public Administration Research and Theory* 18, no. 4 (2008): 543–571, <https://doi.org/10.1093/jopart/mum032>.

¹⁴ United Nations. (2015). *Transforming our world: The 2030 Agenda for Sustainable Development*

the decision-making process. This study fills this gap by applying Ansell and Gash's *Collaborative Governance* theory in the context of Surabaya to analyze how collaboration between stakeholders (government, community) can improve the effectiveness and sustainability of flood management policies.¹⁵

The theory of *collaborative governance* is a form of governance that emphasizes the active involvement of stakeholders outside the government or state and is oriented towards consensus and deliberation in the collective decision-making process aimed at creating or implementing public policies and programs. This theory focuses on the importance of involving various stakeholders in the decision-making process based on consensus and deliberation. The key elements of this theory, namely *starting conditions*, *facilitative leadership*, *institutional design*, and *collaborative process*, will be used to analyze how collaboration between various actors in flood disaster management can improve policy effectiveness in the city of Surabaya. This approach is relevant because it provides a more inclusive and coordinated framework for addressing complex issues such as flood disasters.

In this article, Ansell and Gash's (2008) Collaborative Governance model functions as the study's organizing framework rather than as a background reference.¹⁶ The four elements—starting conditions, facilitative leadership, institutional design, and the collaborative process—guide how evidence is collected, coded, and presented in the analysis. Because the paper emphasizes democratic collaboration, the analysis also pays attention to the quality of participation and deliberation: who is included in problem definition and priority-setting, how information and decisions are communicated (transparency), and how responsibilities and follow-up are ensured (accountability). This combined lens is relevant for Surabaya because urban flooding is a cross-sectoral problem that requires not only technical solutions, but also legitimate coordination among government agencies, citizens, and other stakeholders to sustain prevention, response, and long-term resilience.

While this study primarily employs Ansell and Gash's (2008) Collaborative Governance framework, it also situates the analysis within the broader normative

¹⁵ C. Ansell and A. Gash, "Collaborative Governance in Theory and Practice," *Journal of Public Administration Research and Theory* 18, no. 4 (2008): 543–571, <https://doi.org/10.1093/jopart/mum032>.

¹⁶ C. Ansell and A. Gash, "Collaborative Governance in Theory and Practice," *Journal of Public Administration Research and Theory* 18, no. 4 (2008): 543–571, <https://doi.org/10.1093/jopart/mum032>.

agenda of the Sustainable Development Goals (SDGs). The SDGs reflect the concept of sustainable development as defined in the Brundtland Report (1987), namely development that meets present needs without compromising the ability of future generations to meet their own needs. This concept integrates three interdependent dimensions—economic growth, social inclusion, and environmental protection—often referred to as the triple bottom line¹⁷.

In the context of urban flood management, sustainability requires not only technical flood control measures but also institutional resilience, participatory governance, and long-term ecological balance. Therefore, collaborative governance can be understood as an enabling mechanism that operationalizes SDG principles at the local level. Through multi-stakeholder engagement, transparent decision-making, and adaptive institutional arrangements, local governments may translate global sustainability commitments into concrete urban policies.

This study answers two main questions: *First*, how is collaborative governance applied in flood management in the city of Surabaya? *Second*, what are the challenges and opportunities faced in implementing sustainable flood management policies in Surabaya? The purpose of this study is to analyze the application of collaborative governance in flood management in the city of Surabaya. Specifically, this study will explore the extent to which the involvement of various actors in flood management can improve policy effectiveness, as well as identify the challenges and opportunities faced in implementing a collaborative approach in Surabaya.

This study is expected to contribute significantly to the development of *Collaborative Governance* theory, particularly in the context of urban flood disaster management. In practical terms, the results of this study can provide recommendations to the Surabaya City Government and related agencies to improve the effectiveness of flood management policies through a more collaborative, inclusive, and evidence-based approach. In addition, this study can also be used as a reference in formulating policies that are more adaptive to the needs of the community.

This article is organized into several sections, namely introduction, methods, results, discussion, and conclusion. This clear structure is expected to provide a comprehensive overview of flood management efforts in Surabaya and how collaboration among stakeholders can improve the effectiveness of disaster

¹⁷ World Commission on Environment and Development. (1987). *Our Common Future*.

management policies.

METHOD

This study adopts a qualitative descriptive approach to explore the implementation of democratic and collaborative governance in managing urban flooding in Surabaya. Qualitative research aims to explore and understand the meanings generated by individuals or groups related to a social or humanitarian issue¹⁸. This study examines in depth the collaborative process, decision-making, and the roles of various stakeholders involved in flood management, with an emphasis on integrating democratic principles into the governance structure. Focusing on Surabaya, this study aims to provide insights into how democratic governance and collaborative frameworks can be used to address complex urban flooding issues in Southeast Asia.

The research was conducted in Surabaya, one of Indonesia's urban centers, which faces recurring flooding. Surabaya was chosen as the research location because of its unique approach to urban flood management, which involves a multi-stakeholder collaborative governance framework, including government agencies and local communities. The city's ongoing challenges in flood management make it an ideal location to study the effectiveness and democratic aspects of collaborative governance in addressing urban environmental issues.

Research informants are individuals who have knowledge, experience, or views relevant to the research topic and can provide in-depth insights and valuable perspectives on the phenomenon being studied¹⁹. Informants were selected using *purposive sampling*, focusing on key informants who were directly involved or experienced in urban flood management in Surabaya²⁰. These informants included government officials from the Surabaya Water Resources and Public Works Agency (DSDBM), the Regional Disaster Management Agency (BPBD), the Surabaya City Council, and affected community members. The sample was deliberately selected to ensure a comprehensive understanding of the various perspectives involved in flood management decision-making. A total of 7 informants were interviewed, providing rich insights into the collaborative process at the city level.

¹⁸ J. W. Creswell and C. N. Poth, *Qualitative Inquiry and Research Design: Choosing Among Five Approaches* (SAGE Publications, 2017).

¹⁹ J. W. Creswell and J. D. Creswell, *Research Design: Qualitative, Quantitative, and Mixed Methods Approaches* (SAGE Publications, 2022).

²⁰ Sugiyono, *Metode Penelitian Kuantitatif Kualitatif dan R & D* (Alfabeta, 2010).

Data was collected through semi-structured interviews, observations, and documentation²¹. Semi-structured interviews provided flexibility in exploring key themes related to democratic collaboration and flood governance. Interviews were conducted with stakeholders from various sectors involved in flood management, such as Surabaya City government officials from the Surabaya Water Resources and Public Works Agency (DSDBM), the Regional Disaster Management Agency (BPBD), members of the Surabaya City Council, and affected community members. In addition, observation sessions were held in major flood-prone areas in Surabaya to gain an understanding of the challenges faced in the field during floods. Relevant documents, including policy papers, flood management plans, and meeting minutes, were also analyzed to complement the primary data collected.

Data analysis followed Miles and Huberman's interactive model (data condensation, data display, and conclusion drawing/verification) and was implemented through a theory-guided thematic approach.²² To strengthen theoretical consistency, coding combined (1) deductive categories derived from Ansell and Gash's (2008) four elements—starting conditions, facilitative leadership, institutional design, and collaborative process—and (2) inductive themes that emerged from the field related to democratic collaboration (e.g., inclusiveness, transparency, responsiveness, and perceived accountability).²³ Interview transcripts, observation notes, and policy documents were coded iteratively, and the results were synthesized into analytic narratives for each element to show how collaborative mechanisms operate and what constraints they face.

In addition to the collaborative governance categories, the analysis also interprets findings through the lens of the Sustainable Development Goals (SDGs), particularly SDG 11 (urban resilience), SDG 13 (climate adaptation), and SDG 6 (water governance). This secondary analytical lens allows the study to assess how local collaborative mechanisms contribute to broader sustainability objectives and to evaluate whether flood management practices reflect long-term resilience and inclusive governance principles.

²¹ Sugiyono, *Metode Penelitian Kuantitatif Kualitatif dan R & D* (Alfabeta, 2010).

²² M. B. Miles, A. M. Huberman, and J. Saldana, *Qualitative Data Analysis* (SAGE, 2014).

²³ C. Ansell and A. Gash, "Collaborative Governance in Theory and Practice," *Journal of Public Administration Research and Theory* 18, no. 4 (2008): 543–571, <https://doi.org/10.1093/jopart/mum032>.

Interpretations were checked through triangulation across sources and member checking with selected informants to ensure that the findings reflect the empirical realities of flood governance in Surabaya. To ensure the validity of the findings, several strategies were applied, including triangulation. Triangulation is the verification of data from various sources using various methods and at various times²⁴. This study used source triangulation by comparing data from various sources, such as interviews, observations, and documents, to verify the consistency of information. Member checking involved sharing initial findings with some participants to ensure the accuracy and relevance of interpretations.

RESULTS AND DISCUSSION

This section presents the empirical findings on urban flood management in Surabaya through Ansell and Gash's (2008) Collaborative Governance framework. To maintain theoretical coherence, the discussion is structured explicitly around the model's four elements—starting conditions, facilitative leadership, institutional design, and the collaborative process—so that descriptive findings are directly linked to an explanatory governance logic. For each element, the analysis triangulates interviews, observations, and documents to show (a) how collaboration is organized in practice (for example through coordination mechanisms, participatory forums, and reporting channels) and (b) what enables or constrains democratic collaboration in terms of participation, transparency, and shared responsibility. This structure allows the paper to explain how governance mechanisms shape collective problem-solving in Surabaya, rather than only listing flood programs and actors.

The city of Surabaya, as one of the major cities in Indonesia, plays a strategic role in the regional economy, thanks to its location on the east coast of Java Island, which connects eastern Indonesia through sea trade and transportation routes. With an area of approximately 326.81 km², Surabaya is divided into 31 subdistricts and 154 villages²⁵, each of which has its own characteristics and challenges in terms of natural resource management, infrastructure, and disaster mitigation, including flooding. The city experiences significant population growth each year, driven by urbanization and migration from surrounding areas, creating pressure on existing infrastructure, particularly in drainage systems and water

²⁴ Sugiyono, *Metode Penelitian Kuantitatif Kualitatif dan R & D* (Alfabeta, 2010).

²⁵ BPS Surabaya, *Kota Surabaya Dalam Angka 2024* (2024), <https://surabayakota.bps.go.id/id/publication/2024/02/28/38c76de6074beea6951be69e/kota-surabaya-dalam-angka-2024.html>.

resource management.

Flooding in Surabaya is a complex problem influenced by various physical factors, such as poor drainage systems and land conversion, as well as governance factors involving many actors with different capacities and interests. Although flooding in Surabaya tends not to last long, some areas, especially those close to river flows, remain prone to flooding. Therefore, flood management in Surabaya involves many parties and requires strong cross-sectoral coordination.

Flood disaster management in Indonesia is comprehensively regulated by Law No. 24 of 2007 on Disaster Management²⁶. This law provides a legal basis for the central and regional governments to implement systematic, structured, and sustainable disaster management efforts. Within this framework, floods are categorized as natural disasters that require a risk-based approach and involve various cross-sectoral parties.

This policy emphasizes the importance of mitigation, preparedness, emergency response, and rehabilitation activities carried out as an integrated whole within the disaster risk management system. The main objective of this policy is to minimize the impact of disasters from the early stages and to build community resilience in a sustainable manner through risk-based planning. Thus, this policy aims to protect the community from disaster threats, improve the capacity of the government and the community, and build an effective, efficient, and sustainable disaster management system.

At the regional level, particularly in the city of Surabaya, disaster management policy is reinforced through Surabaya Mayor Regulation No. 115 of 2021 concerning Disaster Management²⁷. This regulation is not only an administrative guideline but also a basis for strengthening the disaster risk reduction system in Surabaya. This regulation focuses on the city's resilience in facing increasingly complex disaster threats, emphasizing the importance of collaboration between the government, non-governmental organizations, and the community. Sustainable flood management requires strong political commitment and inclusive, long-term collaborative governance.

The Surabaya City Government, through the Water Resources and Public Works Agency (DSDABM) and the Regional Disaster Management Agency

²⁶ Undang-Undang Republik Indonesia Nomor 24 Tahun 2007 tentang Penanggulangan Bencana, Database Peraturan (JDIH BPK), 2007, <http://peraturan.bpk.go.id/Details/39901/uu-no-24-tahun-2007>.

²⁷ Peraturan Walikota Surabaya Nomor 115 Tahun 2021 tentang Penyelenggaraan Penanggulangan Bencana (2021).

(BPBD), plays a strategic role in planning and implementing flood management policies. DSDABM is responsible for the construction and maintenance of drainage infrastructure, while BPBD focuses on increasing community capacity through education and disaster training. In addition, the role of the Surabaya City Council in overseeing and supporting flood management policies is also very important. Collaboration between the government and the community is key to improving resilience to the floods that frequently hit this city. Therefore, this study aims to explore how collaborative governance is implemented by various relevant parties in dealing with flooding in Surabaya, as well as the challenges faced in flood mitigation and management efforts.

Across interviews and observations, informants consistently described collaboration between municipal agencies (especially DSDABM and BPBD), the DPRD, and neighborhood-level actors as central to both flood response and mitigation planning. Several respondents linked perceived improvements in specific locations to the combination of physical interventions (such as drainage or embankment upgrading) and faster inter-agency coordination when inundation occurs, particularly through clearer reporting and follow-up channels. At the same time, the findings reveal persistent bottlenecks that collaboration has not fully resolved: drainage capacity and land-management constraints remain structurally difficult, and uneven public awareness limits preparedness and sustained participation in prevention-oriented measures. These mixed dynamics indicate that Surabaya's flood governance is an evolving collaborative arrangement shaped simultaneously by technical constraints and socio-political conditions.

The research results were analyzed using the Collaborative Governance theoretical framework²⁸, which includes four key elements underlying collaborative governance: (1) Initial Conditions, which describe the complexity of the flooding problem in Surabaya, (2) Facilitative Leadership, which plays an important role in coordinating various parties, (3) Institutional Design, which involves various government agencies and the community, and (4) Collaborative Processes, which involve face-to-face dialogue and inter-sectoral cooperation in formulating solutions.

Synergistic Cooperation in Flood Mitigation Efforts

The application of collaborative governance in flood management in

²⁸ C. Ansell and A. Gash, "Collaborative Governance in Theory and Practice," *Journal of Public Administration Research and Theory* 18, no. 4 (2008): 543–571, <https://doi.org/10.1093/jopart/mum032>

Surabaya City, with reference to the Collaborative Governance theory developed by Ansell and Gash. The focus of this study is to understand how the elements of *Collaborative Governance* are applied in flood management efforts in Surabaya and how collaboration between various actors plays a role in creating sustainable solutions.

1. *Starting Conditions*

The initial conditions for flood management in Surabaya City are influenced by various factors, including structural, geographical, and infrastructural factors. Based on interviews with communities affected by flooding, particularly in Pakis Village, Sawahan District, it can be concluded that flooding in the area is not only triggered by high rainfall but also by suboptimal infrastructure management. For example, the narrowing of drainage channels due to construction that did not take environmental aspects into consideration, such as the construction of a mosque with pillars placed in the riverbed. This caused the previously smooth flow of water to be blocked, triggering flooding.

This was explained by Beni Setianto, Head of RT 01 RW 03, Pakis Village: "Basically, here, if it rains for more than half an hour, there will definitely be flooding, especially if the rain is heavy... the narrowing of the channels... causes frequent flooding in this area"²⁹.

This data explains that the geographical conditions, which cause water from various areas to converge, exacerbate vulnerability to flooding.

Additionally, an interview with Tania Marwati from Ploso Village revealed that road improvements that raised the surface level actually created new problems by diverting water onto residents' yards.

"... After the road was raised, water actually flowed into people's yards..."³⁰.

This shows that even though the government's efforts are focused on physical improvements, drainage and spatial planning issues that do not consider long-term impacts remain a major challenge.

The same thing was also revealed by a drainage staff member from the Surabaya City Water Resources and Public Works Agency, Dimas Mahardhika Akbar, who said:

²⁹ Beni Setianto, "Wawancara dengan Ketua RT 01 RW 03 Kelurahan Pakis, Kecamatan Sawahan," February 13, 2025 (personal communication).

³⁰ Tania Marwati, "Wawancara dengan Masyarakat RT 7 RW 5 Kelurahan Ploso, Kecamatan Tambaksari," February 27, 2025 (personal communication).

"Regarding flooding or waterlogging... to date, this has been one of the main targets or efforts of the Surabaya City Government, where the budget is focused on two things, namely a dry and bright Surabaya..."³¹.

The above data explains that the problem of flooding or waterlogging in the city of Surabaya is still a major concern. The Surabaya City Government has currently set two main focuses in urban development, namely Dry Surabaya and Bright Surabaya. The Dry Surabaya program aims to overcome the problem of flooding and waterlogging that often occurs in various areas of the city by repairing and building drainage systems, regulating land use, and strengthening supporting infrastructure.

Flooding in the city of Surabaya is caused by several factors, including inappropriate land use, such as too many areas being covered by buildings or concrete, preventing water from being absorbed into the ground. Existing drainage systems are often unable to accommodate the volume of rainwater, especially during periods of high rainfall intensity. In some cases, the drainage systems that were built in the past are no longer suitable for the city's growing conditions.

This was explained by Joko Siswanto, S.T., a disaster advisor at the Surabaya City Regional Disaster Management Agency, who said:

"... in 2017, in West Surabaya, Sumberejo Village, Pakal District, there was flooding that lasted for about a week... Then after 2017, thank God, it didn't happen again..."³²

The same acknowledgment was made by flood-affected residents in the Sumberejo Village area of Pakal Subdistrict, Septian Hadinata, who stated:

"In recent years, it has not been too significant because the water flow in the Sumberejo Village area, Pakal District, has been fairly well organized, so perhaps only when there is high rainfall does flooding occur. Before the embankment was repaired, the area was severely flooded, forcing residents to evacuate..."³³

The above data shows that in recent years, the intensity and impact of flooding in the area has been much better than before. This happened after an

³¹ Dimas Mahardhika Akbar, "Wawancara dengan Staff Bidang Drainase DSDABM Kota Surabaya," February 12, 2025 (personal communication).

³² Dimas Mahardhika Akbar, "Wawancara dengan Staff Bidang Drainase DSDABM Kota Surabaya," February 12, 2025 (personal communication).

³³ Septian Hadinata, "Wawancara dengan Masyarakat RT 4 RW 2 Kelurahan Sumberejo, Kecamatan Pakal," February 20, 2025 (personal communication).

increase in the capacity of flood control infrastructure, such as the construction or repair of embankments. This experience shows that efforts to improve flood control infrastructure, such as repairing embankments and regulating water flow, have had a real impact in reducing the potential for flooding.

Flood management efforts are also carried out by the Surabaya City Government together with the Regional Representative Council (DPRD) by establishing a budget. This was conveyed in an interview with a member of the Surabaya City DPRD, Ghofar Ismail, who said:

"... So, regarding the flood problem, the proposed budget is quite large for the whole of Surabaya, and all of it is based on a survey of the location of development activities, assisted by academics from ITS and others so that the development is on target"³⁴

This data shows that the city government is not working alone, but is involving educational institutions and the Regional Representative Council (DPRD) in the budget planning process, so that the development carried out can be more effective in overcoming flooding problems.

The research findings show that the geographical and structural conditions of the city of Surabaya greatly influence the occurrence of flooding. One of these is the problem of suboptimal drainage infrastructure and topographical conditions that cause some areas to become natural basins where water collects. This is in line with the theory of Collaborative Governance, which considers an understanding of the initial conditions to be an important foundation for analyzing collaboration³⁵. In the context of Surabaya, these challenges require a more coordinated approach between the government, community, and private sector to address complex infrastructure issues.

2. *Facilitative Leadership*

Facilitative leadership exercised by the Mayor of Surabaya plays a major role in flood management. Clearly structured leadership, starting from the mayor, through the Head of the Office, to the technical team in the field, enables effective coordination between various regional apparatus organizations (OPD) in responding to disasters.

³⁴ Ghofar Ismail, "Wawancara dengan Anggota DPRD Kota Surabaya," February 18, 2025 (personal communication).

³⁵ C. Ansell and A. Gash, "Collaborative Governance in Theory and Practice," *Journal of Public Administration Research and Theory* 18, no. 4 (2008): 543–571, <https://doi.org/10.1093/jopart/mum032>

According to Dimas Mahardhika Akbar, a drainage staff member from the Water Resources and Public Works Agency,

"When it comes to leadership in flood management, of course the main person in control is the mayor himself".

This data shows that a clear and structured leadership system facilitates the decision-making process and ensures that the policies and programs implemented are in line with regional priorities.

This study found that the Mayor of Surabaya plays a central role in leading flood management collaboration, reflecting the principle of facilitative leadership in Collaborative Governance theory. As explained by Dimas Mahardhika Akbar from the Water Resources and Public Works Agency, the Mayor not only provides strategic direction but also ensures policy implementation through coordination between OPDs. This demonstrates leadership that supports collaboration between various sectors in tackling flooding, which is a real-world application of the theory of facilitative leadership ³⁶.

3. Institutional Design

In terms of institutional design, the Surabaya City Government has created a highly structured coordination system to handle flooding. One of the most prominent forms is Command Center 112, which functions as a disaster coordination center. Based on Surabaya City Regulation Number 20 of 2023 concerning *Command Center* 112, Surabaya City has two main tasks, namely as a recipient of reports or complaints from the community and also as the main liaison to ensure quick, accurate, and coordinated follow-up by the relevant regional apparatus³⁷. *Command Center* 112 also carries out educational tasks by conducting public awareness campaigns on disaster issues, peace, and public order. These activities are carried out through electronic media, which allows for wider and more even distribution of information. *Command Center* operates a *real-time response* mechanism, which is one of the important pillars of effective crisis management.

According to Joko Siswanto from the Surabaya City Disaster Management Agency (BPBD),

³⁶ C. Ansell and A. Gash, "Collaborative Governance in Theory and Practice," *Journal of Public Administration Research and Theory* 18, no. 4 (2008): 543–571, <https://doi.org/10.1093/jopart/mum032>

³⁷ Peraturan Walikota Surabaya Nomor 20 Tahun 2023 tentang Penyelenggaraan Command Center 112 (2023).

"... *Command Center* 112 is a coordination channel for all OPDs to handle disasters..."³⁸

The Command Center enables quick and efficient decision-making in response to various types of disasters, including floods. In addition, the Disaster Resilient Village Forum (KETANA) established by BPBD as part of the community preparedness process also plays an important role in increasing community capacity to respond to disasters.

The institutional design implemented in Surabaya, which involves the Command Center 112 as a forum for cross-sector coordination in responding to disasters, clearly reflects this element³⁹.

The findings related to community engagement, particularly through the Disaster Resilient Village Forum (KETANA), also align closely with SDG 6 Target 6.b, which emphasizes supporting and strengthening the participation of local communities in improving water and sanitation management. Flooding in Surabaya is intrinsically linked to drainage systems, water flow regulation, and urban water absorption capacity. Thus, effective water governance cannot rely solely on technical infrastructure but requires sustained community participation.

KETANA functions not only as a preparedness mechanism but also as a participatory platform that enhances residents' awareness of drainage maintenance, waste management, and localized water monitoring. Community commitments to maintaining clean waterways and monitoring neighborhood drainage systems represent a form of co-production in water governance. In this regard, Surabaya's collaborative model demonstrates that achieving sustainable water management under SDG 6 requires institutional arrangements that empower local actors as active partners rather than passive beneficiaries.

From an SDG perspective, the institutional arrangements developed in Surabaya—particularly Command Center 112 and the Disaster Resilient Village (KETANA) initiative—reflect efforts to strengthen urban resilience in line with SDG 11. These mechanisms enhance early warning coordination, rapid response, and inter-agency communication, which are essential components of disaster risk reduction in sustainable cities. Furthermore, infrastructure investments in drainage systems and embankments align with SDG 6 targets concerning

³⁸ Joko Siswanto, "Wawancara dengan Staff Penyuluh Bencana BPBD Kota Surabaya," February 28, 2025 (personal communication).

³⁹ C. Ansell and A. Gash, "Collaborative Governance in Theory and Practice," *Journal of Public Administration Research and Theory* 18, no. 4 (2008): 543–571, <https://doi.org/10.1093/jopart/mum032>.

integrated water management. By linking physical infrastructure improvements with community preparedness programs, Surabaya demonstrates an emerging model of localized SDG implementation through collaborative governance structures.

4. Collaborative Process

The collaborative process in flood management in Surabaya involves various actors, including the government, the community, and the private sector. Direct interaction between the Surabaya City Government and the community through face-to-face dialogue and socialization shows a pattern of open communication that builds trust. Dimas Mahardhika Akbar explained that before implementing projects, such as the construction of box culverts or drainage channels, they first held direct dialogues with local residents to listen to their input and ensure that the projects were in line with the community's needs.

In addition, the role of the Surabaya City Council in overseeing and supporting flood management policies is also very important. As stated by Ghofar Ismail, a member of the Surabaya City Council: "We in the DPRD also hold recesses to listen to residents' aspirations regarding flood management"⁴⁰.

Through these activities, the DPRD plays an important role in ensuring that the policies and budgets proposed for flood management are truly targeted and effective.

Flood management is not only the responsibility of the government, but also requires the active involvement of the community. In addition to demonstrating its commitment through various programs and policies, such as infrastructure development and regulation drafting, the government also encourages citizen participation in protecting the surrounding environment. This was expressed by affected residents in the Simomulyo Baru neighborhood, Sukomanunggal subdistrict, RT 03 RW 04, Jaka Triyanta, who said:

"The commitment that the community has made is to dispose of waste in the designated areas and to always monitor the drains in their respective neighborhoods. If there is a blockage, it is immediately cleaned up."⁴¹

This shows that the community's commitment to flood management is not only reflected in mutual assistance or community service activities in their

⁴⁰ Ghofar Ismail, "Wawancara dengan Anggota DPRD Kota Surabaya," February 18, 2025 (personal communication).

⁴¹ Jaka Triyanta, "Wawancara dengan Masyarakat RT 3 RW 4 Kelurahan Simomulyo Baru, Kecamatan Sukomanunggal," February 14, 2025 (personal communication).

neighborhoods, but also in daily behaviors that reflect an awareness of the importance of maintaining environmental cleanliness. One of the most basic yet impactful forms of commitment is the habit of disposing of waste properly and the concern to actively monitor and clean the waterways around their homes, reflecting the community's real participation in flood prevention efforts.

The evidence above illustrates the collaborative process element in Ansell and Gash's model, particularly the role of repeated face-to-face interaction in building trust and sustaining commitment. In Surabaya, project socialization meetings and Musrenbang forums operate as deliberative spaces where residents can communicate localized risk points and priorities, while implementing agencies can explain technical constraints, timelines, and trade-offs. From the perspective of democratic collaboration, these interactions can enhance legitimacy because decisions are discussed publicly rather than finalized solely within bureaucratic routines. However, the quality of participation remains uneven: communities with limited experience of flooding or lower awareness may be less engaged, which can reproduce participation gaps and constrain prevention-oriented collective action.⁴²

However, challenges remain. As stated by Tania Marwati, despite improvements in drainage, changes to the road surface have created new problems by increasing the risk of flooding in residents' yards. In addition, there are challenges from various interrelated aspects, such as technical, social, and political aspects. The most dominant challenge relates to the uneven awareness and understanding among the community about the importance of preparedness and participation in disaster management. Therefore, periodic evaluation of the policies implemented is crucial to ensure that the solutions adopted are truly effective in the long term.

From the perspective of SDG 17 (Partnerships for the Goals), Surabaya's flood governance illustrates the operationalization of Target 17.17, which calls for effective public, public-private, and civil society partnerships. The institutional design embodied in Command Center 112 functions as a cross-sector coordination hub that integrates multiple Regional Apparatus Organizations (OPD), emergency services, and community reporting channels into a unified response system. Rather than operating as isolated bureaucratic units, agencies are structurally connected through standardized communication flows and rapid response

⁴² C. Ansell and A. Gash, "Collaborative Governance in Theory and Practice," *Journal of Public Administration Research and Theory* 18, no. 4 (2008): 543–571, <https://doi.org/10.1093/jopart/mum032>.

protocols, reducing fragmentation in disaster management.

Similarly, the collaborative process facilitated through Musrenbang (participatory development planning forums) reflects a structured mechanism for stakeholder inclusion in policy deliberation and priority-setting. Through these forums, residents articulate localized flood risks and infrastructure needs, while legislative actors (DPRD), municipal agencies, and technical experts negotiate feasibility and budget allocation. In this sense, partnership is not merely symbolic but institutionalized within planning and response mechanisms.

Therefore, Surabaya's collaborative flood governance can be interpreted as a localized implementation of SDG 17.17, where cross-sectoral coordination and participatory deliberation form the backbone of sustainability-oriented urban governance.

This hybrid configuration of hierarchical coordination and participatory engagement may also be interpreted as a localized governance response to the SDGs. Rather than treating sustainability as a separate policy agenda, Surabaya integrates resilience-building within routine governance practices. In this sense, collaborative governance operates as a practical instrument for achieving SDG 17 (Partnerships for the Goals), as it fosters cross-sectoral cooperation between government agencies, local communities, legislative actors, and academic institutions. The Surabaya case thus illustrates how global sustainability commitments can be embedded within municipal governance systems through adaptive collaboration.

Collaboration on Challenge Implementation

Flood management in Surabaya faces various complex challenges, both technical, coordinative, and social. These challenges affect the effectiveness of the flood management program implemented by the Surabaya City Government, which involves various Regional Apparatus Organizations (OPD) and related sectors. The following are findings related to the challenges faced in flood management based on interviews with several sources.

1. Lack of public awareness and knowledge

Based on an interview with Joko Siswanto, a staff member of the Surabaya City Disaster Management Agency (BPBD), the main challenge faced in flood management is the varying levels of public awareness. People who have never been affected by flooding often do not understand the correct disaster management procedures. This leads to a lack of interest or confusion about the existence of rapid response teams that conduct initial assessments after flooding occurs. As

stated in the interview:

"Sometimes there are still people or communities who don't understand. They think we just come to collect data and don't do anything else."⁴³

This illustrates the gap in understanding among residents that hinders participation and a faster response in dealing with disasters.

2. Physical Conditions and Regional Infrastructure

Another technical challenge comes from regional infrastructure that does not always support flood management plans. Dimas Mahardhika Akbar, a drainage staff member from the Water Resources and Public Works Agency (DSDABM), explained that drainage infrastructure development planning is often hampered by physical conditions in the field, such as limited space (*catchment area*). One example mentioned is the difficulty in building pump houses due to residents' objections to the impacts caused, such as dust and noise.

3. Extreme Weather and Climate Change

Extreme weather and climate change are non-technical challenges that are very difficult to predict and control. High rainfall and unpredictable rainfall intensity often change the patterns of flooding in some areas. This creates uncertainty in planning flood control measures that are more flexible and responsive to weather conditions. Dimas Mahardhika Akbar stated that one of the growing non-technical challenges is this uncertainty, which requires a better weather monitoring system.

4. Land Use Issues

Other technical obstacles arise from land use issues that are often not in line with the initial plan. In some cases, infrastructure development plans, such as pump houses or drainage channels, are hampered by objections from landowners or developers. Dimas Mahardhika Akbar revealed that sometimes information about the status of the land is only revealed during the socialization or implementation stages, thereby delaying the development process.

5. Socio-Political Factors

Socio-political factors also play a major role in complicating the flood management process. Socio-political challenges often arise in the form of resistance from individuals or groups with social or political influence. For

⁴³ Joko Siswanto, "Wawancara dengan Staff Penyuluh Bencana BPBD Kota Surabaya," February 28, 2025 (personal communication).

example, someone who has close ties to influential figures such as council members or officials can obstruct development projects for reasons such as seeking votes or personal interests. This makes coordination between stakeholders difficult and slows down the decision-making process needed for rapid flood control.

The challenges faced in flood management in the city of Surabaya involve various interrelated technical, social, and political aspects. The most dominant challenge is related to the uneven awareness and understanding among the public about the importance of preparedness and participation in disaster management. On the technical side, limited development space, extreme weather conditions, and land use issues complicate the implementation of flood control infrastructure. Socio-political factors also hamper the smooth process of development that should accelerate flood mitigation. Therefore, more effective communication strategies and stronger collaborative approaches are needed to optimally overcome these challenges.

To further clarify the relationship between Surabaya’s collaborative flood governance and the Sustainable Development Goals, the following table maps key local initiatives against relevant SDG targets. This mapping demonstrates how collaborative mechanisms function not only as administrative coordination tools but also as institutional pathways for localizing global sustainability commitments.

Table: Mapping Surabaya’s Flood Governance Initiatives to the Sustainable Development Goals (SDGs)

SDGs Goal	Target Relevance	Surabaya Policy/Program	Collaborative Governance Dimension	Analytical Interpretation
SDG 11: Sustainable Cities and Communities	11.5 Reduce the impact of disasters	Construction of drainage systems, embankment reinforcement, pump houses	Institutional Design & Facilitative Leadership	Strengthens urban resilience through infrastructure and coordinated response mechanisms
	11.b Integrated disaster risk reduction policies	Command Center 112, integrated reporting system	Institutional Design	Enhances rapid coordination and inter-agency integration
SDG 13: Climate Action	13.1 Strengthen adaptive	KETANA (Disaster Resilient	Collaborative Process	Promotes community-based climate

	capacity to climate-related hazards	Village), community training		adaptation and preparedness
	13.3 Improve awareness and institutional capacity	Disaster education and public socialization	Starting Conditions & Collaborative Process	Builds social resilience and disaster literacy
SDG 6: Clean Water and Sanitation	6.5 Integrated water resources management	Drainage normalization and retention basin development	Institutional Design	Improves sustainable water flow management
	6.6 Protect water-related ecosystems	River embankment control and spatial regulation	Facilitative Leadership	Aligns infrastructure policy with environmental sustainability
SDG 17: Partnerships for the Goals	17.17 Multi-stakeholder partnerships	Coordination between DSDABM, BPBD, DPRD, communities, and academics	All Four CG Elements	Demonstrates partnership-based governance for sustainability implementation

The mapping indicates that Surabaya's flood management initiatives contribute most directly to SDG 11 and SDG 13, particularly in strengthening urban resilience and climate adaptation capacity. Importantly, the presence of multi-actor coordination mechanisms reflects alignment with SDG 17, suggesting that collaborative governance serves as an operational bridge between local disaster management and global sustainability frameworks. However, the depth of SDG integration remains uneven, especially in long-term ecological protection and behavioral transformation, indicating the need for sustained institutional and civic commitment.

Taken together, the Surabaya case suggests a hybrid configuration that can be described as adaptive collaborative governance: a combination of hierarchical bureaucratic capacity (clear coordination lines and rapid follow-up through mechanisms such as Command Center 112) and bottom-up participation (Musrenbang, neighborhood monitoring, and community feedback during project implementation). In this setting, collaboration does not eliminate hierarchy; rather, facilitative leadership and institutional design provide predictable rules and response channels that make multi-actor coordination feasible, while repeated

engagement with citizens helps align priorities, build trust, and generate compliance with everyday preventive practices (such as monitoring drains and reporting blockages). This interpretation does not replace Ansell and Gash's framework; instead, it refines its application by showing how collaborative governance in a developing-city context may work best when top-down coordination and participatory deliberation operate together in an iterative, problem-solving cycle.

This study is in line with previous studies, but also highlights several aspects that distinguish it. For example, Rosyidah et al. (2024) emphasize the importance of a comprehensive approach in flood management policies that involve infrastructure, public education, and long-term policies. These findings are similar to the results of this study, which show that despite improvements in drainage infrastructure, a collaborative approach involving the community and the private sector is an aspect that has not been emphasized in previous studies⁴⁴.

Meanwhile, Ginting et al. (2022) study on flood management in Samarinda mentions constraints related to financial resources and territorial barriers in infrastructure development. This study shows that budget constraints and administrative problems, such as land status, which often hinder development, are problems also faced by the city of Surabaya. However, the findings of this study show that despite challenges related to resources, a collaborative approach makes it possible to find joint solutions between the government, the community, and the private sector, which was not highlighted in Ginting's study⁴⁵.

In Depary & Manar's (2024) study on disaster governance politics, it was found that differences in interests among actors often hinder policy implementation. This finding is also reflected in my research, where I found that resistance from influential figures and competing interests at the community level were among the main obstacles to the collaboration process. However, this study emphasizes how face-to-face dialogue and deliberation are important means of

⁴⁴ S. J. Rosyidah, L. Putri, A. P. Sumarsono, S. R. Fadilah, and E. R. Nawangsari, "Analisis Kebijakan Pemerintah Dalam Penanggulangan Bencana Banjir di Wilayah Pakal Surabaya Barat," *JDKP Jurnal Desentralisasi dan Kebijakan Publik* 5, no. 1 (2024): 97–106, <https://doi.org/10.30656/jdkp.v5i1.8784>

⁴⁵ J. S. Ginting, B. Irawan, and Daryono, "Implementasi Kebijakan Antisipasi Dan Penanganan Banjir Kota Samarinda," *Jurnal Administrative Reform* 10, no. 1 (2022), <https://doi.org/10.52239/jar.v10i1.7572>

resolving these differences⁴⁶.

This research makes a significant contribution by applying the theory of *Collaborative Governance* in the context of urban flood management in Surabaya, which until now has not been studied in depth. The research gap that this study attempts to fill is the application of this theory to analyze collaboration between actors (government, community, and private sector) in overcoming highly complex flooding problems. This study highlights how consensus-based collaboration can produce more inclusive and effective solutions, and how challenges such as limited resources, differing interests, and ineffective communication can be overcome with a more coordinated and adaptive approach.

The findings of this study provide a clear picture that *Collaborative Governance* is a highly relevant and applicable approach to addressing flooding issues in the city of Surabaya. This approach not only considers the technical aspects of flood management, but also the social, political, and economic aspects that play a major role in policy effectiveness. Although challenges such as social disharmony, resistance from influential actors, and resource constraints remain obstacles, inclusive collaboration based on open communication provides opportunities to create more sustainable and adaptive policies. Therefore, this study makes an important contribution to the literature on disaster management and flood control, as well as providing insights for future public policy.

This study provides an in-depth understanding of the application of *Collaborative Governance* theory in flood management in the city of Surabaya. However, the results open up space for further research that can explore more deeply the comparative between cities, the effects of climate change, and more effective disaster education strategies. Considering the existing limitations, the direction of further research can make a greater contribution to improving sustainable and inclusive flood management policies in the future.

CONCLUSION

Drawing on Ansell and Gash's (2008) Collaborative Governance framework, this study finds that Surabaya's urban flood management is increasingly shaped by multi-actor collaboration linking municipal agencies, community actors, and other stakeholders through both formal coordination and participatory engagement. Under starting conditions, recurring inundation and uneven public

⁴⁶ F. G. Depary and D. G. Manar, "Politik Tata Kelola Bencana: Analisis Kepentingan Antar Aktor dalam Kasus Pengelolaan Bencana Banjir di Kota Medan Tahun 2023," *Journal of Politic and Government Studies* 13, no. 3 (2024): 713–726.

awareness generate a shared problem pressure while simultaneously creating participation gaps that complicate prevention. Facilitative leadership—particularly the coordinating role of the Mayor—helps broker priorities and maintain alignment among regional apparatus organizations (OPD) when technical interventions require trade-offs. In terms of institutional design, coordination instruments such as Command Center 112 strengthen reporting, follow-up, and inter-agency responsiveness, reducing fragmentation during flood events. Finally, the collaborative process—through socialization activities, Musrenbang deliberation, and routine interaction with neighborhood representatives—supports face-to-face dialogue that builds trust, mutual commitment, and shared responsibility. Together, these four elements explain why collaboration can improve response capacity, while also clarifying why structural constraints (land use, drainage limitations, and uneven civic engagement) continue to shape the limits of long-term resilience.

Viewed through the Sustainable Development Goals framework, Surabaya's collaborative flood governance contributes substantively to SDG 11 by strengthening urban resilience, to SDG 13 by enhancing adaptive capacity to climate-related hazards, and to SDG 6 by improving water and drainage management systems. The study demonstrates that collaborative governance functions not only as an administrative coordination model but also as an institutional pathway for localizing global sustainability commitments. Achieving the 2030 Agenda at the municipal level ultimately depends on governance innovation, inclusive participation, and sustained political commitment that integrates technical infrastructure with social resilience.

Second, although collaboration between stakeholders is relatively good, this study also identifies a number of challenges in policy implementation. These challenges include low public awareness of disaster management procedures, imbalances in preparedness levels across regions, and resistance from residents influenced by social and political factors. In addition, technical constraints, such as limited space for building flood control infrastructure, and non-technical constraints, such as climate change affecting rainfall intensity, are also significant obstacles to flood management in Surabaya.

Based on the findings of this study, several policy implications that can be considered by the Surabaya City Government include: first, there is a need to increase public awareness through more comprehensive and sustainable education programs on flood management and disaster preparedness. Second, better coordination between OPDs in Surabaya City, the private sector, and the

community must continue to be strengthened to ensure that flood management policies and programs run in an integrated and efficient manner. Third, increasing community involvement in every stage of flood management policy planning and implementation can help strengthen the sustainability of the program. Fourth, the use of disaster management information systems, such as the 112 Command Center, needs to be expanded to include more actors in real-time disaster risk management.

Overall, this study contributes to scholarship on collaborative governance and disaster governance by showing how the four elements of Ansell and Gash's model interact in the practical politics of flood management in a decentralized Indonesian metropolis. At the same time, the study's qualitative single-case design and limited number of key informants imply that the findings should be interpreted as mechanism-centered insights rather than as statistical generalizations. Even so, the triangulated evidence offers policy-relevant lessons for other cities facing recurrent flooding, and it highlights clear directions for further research—especially comparative studies across cities and mixed-method designs that can test how far the Surabaya mechanisms travel under different political, institutional, and hydrological conditions.

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