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Implementation of Collaborative Governance in Flood Management in the Greater Bandung Area

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Abstract: *Indonesia is a country that is prone to natural disasters, especially floods. This disaster usually hits Indonesia during the rainy season. This hurts human life, the economy and the environment. This paper aims to examine collaborative governance implementation in flood management that occurs in the Greater Bandung area. The research method used is a literature study with qualitative methods. The research location is a flood-prone area, namely 4 (four) districts/cities around the Greater Bandung metropolitan area in West Java Province, Indonesia. All of them have a high flood hazard index. In conclusion, sustainable flood management requires the involvement and participation of various stakeholders from the community simultaneously. Flood management in collaborative governance must be carried out with a systematic approach and synergy from multiple disaster management efforts. Therefore, strengthening a sense of crisis, commitment, shared roles and responsibilities, and continuity of cooperation/collaboration in governance networks is needed to maintain effective flood management.*
Keywords: *Collaborative Governance, Public Administration, Planning, Disaster, Flood.*

Introduction

Rainfall for several regions in Indonesia with tropical climates can be a special gift for the people. However, rain can be a problem in some urban areas, or even a disaster, because the stagnant rainwater cannot flow properly, causing flooding (Karley, 2009; Mohapatra & Singh, 2003). One of the reasons this can happen is that the drainage system in the urban area is not functioning correctly. On average, the channel is covered by paving blocks of shop-houses and residential buildings, so that rainwater can stagnate quite deep. There are fewer culverts along the drainage channel for functioning and

sedimentation and accumulation of waste (Kodoatie, 2021; Wismarini & Ningsih, 2010). On rainy days, urban areas close to rivers and tributaries can be flooded because the river overflows. Silting of the river is possible if the settlements built are not far from the river and silting of the river occurs. Floods are one of the disasters that often happen today. In general, high, over-normal rainfall is responsible for floods. The water drainage system, consisting of rivers and creeks, drainage systems, and artificial water storage canals, cannot accommodate the accumulated rainwater overflows (Kazi, 2014; Collier et al., 1996).

There are 5,590 major rivers in Indonesia, and 600 of them have the potential to produce floods. These major rivers drain an area of 1.4 million hectares that is prone to flooding. According to different research, floods that affect vulnerable regions are mostly caused by three factors. To begin, human actions alter the physical environment and have an effect on natural changes. Second, natural disasters such as extremely heavy rainfall, sea-level rise, and hurricanes. Third, environmental deterioration, which includes the eradication of ground cover species in the catchment region, the silting of rivers due to sedimentation, and the narrowing of river channels (Arsyad, 2009; Noor, 2014).

Floods are classified into two types: those produced by natural disasters and those induced by human activity. Rainfall, physiography, erosion and sedimentation, river capacity, drainage capacity, and the influence of tides all have an effect on natural floods (Rizkiah, 2015). Meanwhile, flooding is the outcome of human activities that are resulting in changes to the environment, such as changes in watershed status (DAS), residential areas adjacent to banks, land drainage damage, damage to flood control infrastructure, and wood damage (natural vegetation) (Mahfuz, 2016). Flooding cannot be completely prevented and must be handled. Flooding risk is contingent upon the presence of hazards and vulnerabilities. Flooding is caused by a mixture of natural and human sources. Success in flood management requires the use of both structural and non-structural solutions. Flood preventive and mitigation strategies include both structural measures such as dam construction or river embankment construction, flood risk management, community engagement, and institutional arrangements (Suwitri, 2008; Hikmah & Santoso, 2017).

In Bandung, the problems that always occur are standing water from drainage runoff and obstruction of the flow of water from a tributary that becomes flooded. Not only in certain areas, in urban areas, there is also some stagnant water a few hours after the rain. In areas adjacent to rivers and tributaries, it is likely that they will experience flooding if the river conditions experience thick sedimentation and settlements are built without following the development requirements of the government (Mariana & Sjoraida, 2016; Nurhikmah et al., 2016). The flood that occurs is not only due to the carrying capacity of the city environment, which is no longer able to bear the burden

of the city. This is also exacerbated by the polemic of the North Bandung area as an absorption and catchment area that changes the land use in a powerful way for residential and commercial areas. The built area ranges from 23.88% (9399.76 Ha) to 76.12% (29,954.55 Ha) that has not yet been built up to 96.47% (3,274.40 Ha) that has not yet been built up to 3, 53% (118.88 Ha).

Floods that occur in Bandung City are caused by mismanagement of areas and watershed areas in the city of Bandung, which is marked by the change in the function of the green water catchment/infiltration/cover area of the KBU (North Bandung Area), which is part of 3 regencies/cities and is caused by water sent from the Lembang area (West Bandung), which mostly flows into the Cikapundung river. Additionally, the floods in Bandung were caused by a reduction in the carrying capacity and capacity of the Citepus River Basin (including its tributaries, such as the Cikalintur, Cianting, Cikakak, Ciroyom, and Cibeureum rivers) (Untari, 2012). Bandung Regency is also affected by the flood of shipments originating from Bandung, Cimahi City, and West Bandung Regency. Areas that are regularly flooded in Bandung Regency include Rancaekek, Baleendah, and Dayeuhkolot (Muhammad et al., 2017). Almost every year, the area is a frequent location for floods due to the overflowing of the Citarum river. The river itself is the estuary of various small rivers in Bandung, Cimahi City, and West Bandung Regency. When a flood occurs in the upstream area, the downstream area will also be affected (Imansyah, 2012).

The flooding problem in the Bandung Raya area is systemic, meaning that the fulcrum is not at one point. This is because the flooded areas are no longer only in Bandung City but also include Cimahi, Bandung Regency, and West Bandung Regency. Flood handling must be carried out between administrative regions, institutions, and authorities, even between groups of people. A cross-sectoral collaboration between each autonomous region and an area that causes flooding in Bandung is needed, such as the North Bandung area. Policies that are centralized or only made by a party, such as the regional government, without any coordination with other local governments, even without involving the community, are proven to have caused the flood problem in the Bandung Raya area to never finish.

For flood management to be more integrative and practical, collaborative governance is needed not only at the implementation level but also at the policy planning level of each autonomous region in the Greater Bandung area, including the participation of the community and other stakeholders. Collaborative governance is a publicity concept that is starting to be of great interest to academics. Collaborative governance appears to respond to the failure of implementation, high costs, and politicization of public sector regulations (Ansell and Gash, 2007). The focus is on every stage of public policy. Collaborative governance is a new paradigm in

understanding the existence of multi-stakeholders in public affairs. There are specific characteristics in actor-relationships, so it is essential to carry out a collaborative study (Dewi, 2019).

Method

This research employs a qualitative technique, specifically analysis, that generates substantial research based on facts and information gathered in the field. The research process begins with the development of a research design, a list of statements or research questions, and data collection from informants and respondents via qualitative interviews, qualitative observation, inductive data analysis, and the organization of partial data into themes, followed by data analysis and interpretation in the form of data collection, data processing, and the writing of a paper.

Result And Discussion

Collaborative Governance Paradigm

The present paradigm of development is no longer reliant on the function of government alone (government), but rather evolves into one that engages stakeholders (governance). What are the stakeholders? Stakeholders are those who are impacted by the policy, those who have the ability to influence the procedure, and those who have the resources and power to implement the policy (Bengston et al., 2004). Their participation is anticipated to account for the public's values and interests in decision-making, improve the quality of public choices, strengthen community capacity, and minimize conflict. The degree to which stakeholders are involved in each development initiative will vary. Generally, they may be classified into groups based on their hobbies and duties. In the course of development, there is an ongoing interaction between society and the state (Meadowcroft, 2007).

Governance is "the relationship between civil society and the state, between the rulers and the ruled, the government and the governed" (McCarney, 1996). The change in the paradigm of government to governance is also shown by the change in public institutions that were initially controlled by by-laws (regulations) to be more animated by prioritizing the people's interests. The governance process is said to be successful if it meets the indicators of good governance. These aspects are involvement, the creation of consensus, accountability, transparency, responsiveness, efficiency, equity, inclusion, and respect for the rule of law (Gisselquist, 2012).

Anshell & Gash (2008) expand on the governance paradigm outlined above by defining collaborative governance (collaborative management) as a method that enables or fosters collaboration among stakeholders in formal, consensus-based, and negotiated decision-making. They create a model and then validate it. This approach is designed to examine the situational elements that facilitate or obstruct collaboration. This model incorporates essential aspects affecting the collaborative process's effectiveness, including beginning circumstances,

institutional design, and leadership. The basic prerequisites for cooperation include trust, conflict, and social capital, which serve as either a support for or a hindrance to cooperation. Institutional design establishes the ground principles for collaborative work. The function of leadership is critical in mediating and enabling the collaborative process. Collaboration is a cycle that involves face-to-face communication, trust development, dedication to the process, common understanding, and intermediate outcomes. The study's findings showed that there are three critical contingency factors: time, trust, and interdependence, with trust and interdependence having an interacting effect. Interdependence encourages involvement and commitment to meaningful partnerships, and in instances of strong interdependence, trust may be developed. Buuren (2009) then builds on the study by demonstrating experimentally that when the engagement process in the collaborative governance structure is successfully managed, it may act as a catalyst for enhancing the cycle of trust, commitment, understanding, communication, and outcomes, all of which are markers of collaborative success.

There are differences in governance in public administration and planning (Verma, 2016). In public administration, governance requires more trust, transparency, and accountability, and this is related to the willingness of actors who can make wrong or right choices when faced with incentives. Meanwhile, governance in planning shows a learning model in which efforts to change perceptions and preferences are considered more essential. The governance paradigm in planning reflects a more refined approach. The point is that the paradigm is an ethos rather than an attribute. Ethos requires greater sensitivity and involvement. In the context of participation, signs of participation appear when trust and engagement dominate the system (Forester, 1982).

Co-existent planning with governance is called collaborative planning (Healey, 2003) because this approach involves various stakeholders. Collaborative planning currently dominates urban planning. By looking at the characteristics of collaborative planning, this planning approach can overcome development problems, including environmental issues.

Collaborative planning is planning that is focused on stakeholders, involves stakeholders, and is not constrained by geography (Euclidean space) or time (Graham & Healey, 1999). Collaboration planning is founded on Gidden's structuralist notion and Habermas' communicative action, and so encompasses communication, conversation, and transactivity processes (Graham & Healey, 1999). This is a process of reciprocal learning amongst actors in order to get an understanding of the issues at hand through organized discourse, which will benefit both parties.

Collaboration planning will be effective if there is mutual reliance and

consensus among the parties (Innes, 2018). This dependency encourages involvement and commitment to meaningful collaborative activities, and it is possible to develop trust in highly interdependent contexts (Ansell & Gash, 2008). Interdependence creates a drive for compromise in order to reach a final settlement.

The essence of the collaborative process is structured negotiation in decision-making, and the consensus is the result of a collective decision-making process. Thus, the formation of consensus is a result of a process that is democratic, structured participation, and requires time and patience. Furthermore, according to Innes & Booher (2000), dialogue to reach consensus must be authentic dialogue, not rhetorical or ritual. Each speaker has legitimacy, speaks seriously, makes statements that others can understand, and delivers accurate statements. Such dialogue will result in reciprocity, relationships, learning, and creativity.

By elaborating on the concepts of collaborative governance and collaborative planning above, it can be seen that the collaboration process is a significant aspect of collaborative planning. The collaborative process involves "rummaging" for opinions from various parties, ultimately resulting in a mutually agreed statement, namely a consensus. A process consists of multiple stages, namely efforts to build commitment to the process, mutual understanding, interim results, authentic dialogue, and trust. These stages are a cycle so that the learning process occurs within it (Healey, 2003).

Even though it looks ideal, many collaborative processes doubt its effectiveness, both because of the process and its ideological basis. Putting together several different opinions and coming up with an agreement seems ideal, but it's not an easy job. The collaborative process is challenging to implement because it is a demanding process. It takes a lot of time, yields low certainty, and a lack of stakeholder commitment causes disputes within the group (Altrock, 2006). Moreover, accessible and unhindered public engagement to solve common problems is a conceptual impossibility. Concerning collaborative planning, Boonstra & Boelens (2011) argue that the collaborative planning proposed by Healey carries the risk of simplifying ideologies and mistaken thinking.

Collaborative Governance in Flood Management

Cooperation planning needs the active engagement of the relevant parties in relation to the decision-making process. On the ladder of involvement, according to Arnstein (1969), collaboration can only occur when public participation is highest. However, this does not mean that the Indonesian people cannot do it. The arrangement of the Kali Code area is clear evidence of the collaboration process. The location was transformed from a slum area full of risks, unfit for shelter, into a site that is livable and pleasing to the eye (Sari, 2020). At that time, the process involved the government, universities, the private

sector, and the community. They are involved from planning to implementation.

Law Number 24 of 2007 concerning Disaster Management has brought a paradigm shift in disaster management from responding to situations when a disaster occurs (emergency response) to prevention and disaster risk reduction (DRR). With this change, "collaborative governance" is an activity that has been started since a disaster has not occurred. The risk of flooding can be reduced through a program to develop a flood disaster risk reduction and spatial planning perspective based on mapping and disaster risk assessment.

Identification of problems in the context of flood disaster management, among others: 1. Some local people still do not know about the existence of the Regional Disaster Management Agency (BPBD). Therefore, the government needs to conduct socialization and invite the community to be more intensely involved/participate in activities to deal with disasters, especially floods. 2. Perceptions of flood disasters are not comprehensive and are generally unchanged from an emergency response perspective. 3. Budget allocation for disaster management is inadequate. Still, it depends on requests for funds on calls to the central government in an emergency. 4. The absence of community organizations' systemic involvement. 5. Lack of coordination across sectors, including the private sector and universities.

From several identifications of flood disaster management problems, recommendations that can be followed up include, among others:

1. The Regional Government and DPRD in 4 (four) districts in Bandung Raya need to formulate and implement Regional Regulations on Disaster Management. These regulations will define various parties' collective roles and responsibilities (government, society, and the private sector).Disaster management through a partnership pattern is possible to ease the burden, including the budget burden (APBD) of the four autonomous regions in the West Java Province.
2. Considering that the 4 (four) districts in Bandung Raya are disaster-prone areas, primarily floods, it is necessary to focus more attention on the pre-disaster period so that it is expected to become an investment, which can prevent minimizing casualties and various other losses.
3. In establishing an institution (including disaster-related institutions), the regions should have the right to determine the institutional form according to the needs/capabilities of the area. The size of the organization, whether it be an existing agency, office, or capacity building institution, must consider the aspirations of the region. The level of vulnerability and disaster

characteristics differ between areas, and each part has its own problems that must be prioritized.

4. The required budget allocation policies should also be prioritized for pre-disaster needs in a comprehensive disaster management framework (from pre-disaster to post-disaster).
5. The strengthening of regional institutions related to disaster management is an urgent need. For this reason, the government (both at the central and provincial levels) should continue to carry out advocacy and seek programs that can encourage increased institutional capacity in the regions.

No single actor, public or private, possesses all of the knowledge and information required to deal with complex, dynamic, and diverse challenges; no single player possesses sufficient perspectives to enable the practical application of a required tool; and no single player possesses sufficient action to unilaterally control a governance model. Governing can only be implemented through collaborations, partnerships, and networks among the governance parts, namely the state, the business sector, and civil society. Networks have become a necessary component in the growth of contemporary organizations, whether public or private. Public policy is no more a self-contained process involving only state actors, but rather the result of networking, cooperation, and collaboration among governance aspects (policy network). Collaboration between governmental, private, and associated entities is necessary for effective flood control in Bandung Raya.

The University of Michigan conducts collaborative research on land use planning, forest management, and neighborhoods in eight State Trust Land areas. Based on the results of investigations into the collaboration process, it is known that the stages of collaboration carried out are: 1. determining when to collaborate, 2. devising a strategy for success, 3. choosing who will take part, 4. organizing the process, 5. developing a decision-making structure, 6. assisting participants in working together, 7. sharing information, and 8. putting the agreement into action.

Not only the governmental sector, but also the commercial sector, must demonstrate environmentally benign and non-destructive acts. This is demonstrated by several direct natural disaster relief activities, although they are still only charitable and unsustainable. Reforms must also be structured constructively based on ideas and an operational orientation that has been based entirely on financial returns without adequate and balanced attention to social risks. Commitment from the private sector needs to be increased, such as through the application of Corporate Social Responsibility (CSR) or social activities that can be carried out in various forms. In Indonesia, the implementation of CSR is still far from what was expected. The problem is the perception of most corporations that consider the allocation

of funds for CSR a burden because it is a cost factor. In addition, they already feel pretty responsible for paying the taxes since the proceeds are used for development. The perception of disaster management as a standard issue would lead to an ideal conception of the interactional network between various actors. Flood control must be planned along a specific vision and mission corridor that includes the three sectors: government, private, and public. Of course, the various roles and responsibilities will be different. The sharing of responsibilities between the three industries requires transparency and accountability to build trust between them, which will serve as a binding glue for performance between them in disaster management efforts. The social responsibility of the private sector must be affirmed, the social rights of the community need to be guaranteed, and the role of government regulation needs to be strengthened.

This is based on the urgency of the perspective and values of governance in disaster management efforts. Synergic involvement in the form of a network of the three pillars of governance is the main emphasis. With governance, the values and practices of public administration are no longer dominated by the government sector. The existence of conditions and guarantees for creating a synergistic network at the same time reflects a democratic multi-factor relationship.

Finally, decision-making should be a hybrid of top-down and bottom-up processes that provide for equitable participation of all stakeholders. The stakeholders include the government (as the lead), academic institutions, the private sector, non-governmental organizations (NGOs), and civil society. The inclusion of diverse stakeholder expertise offers a cohesive understanding of flood risk. Members of flood-affected communities have the chance to voice their needs and to advocate for their inclusion in decision-making. Because the majority of stakeholders favor effective and sustainable flood control, stakeholder participation enables the identification and implementation of such measures.

Conclusion

Handling floods that occur continuously every year requires the involvement of many parties and the participation of the community simultaneously. The participation of every component of the community in carrying out disaster management is the key to success. It is hoped that the greater their involvement, the greater their capacity to minimize the risk of flooding. Flood disaster management must be carried out with a systematic and synergistic approach from various parties to overcome the disaster. This approach hopes that later it will no longer be done partially by each party, but that all elements can work hand in hand. Therefore, strengthening the sense of crisis, concern, commitment, collective roles and responsibilities, and continuity of cooperation/collaboration in a

governance network is necessary for the sustainability of effective flood disaster management.

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References

Altrock, U. (Ed.). (2006). *Spatial Planning And Urban Development In The New EU Member States: From Adjustment To Reinvention*. Ashgate Publishing, Ltd.

Ansell, C., & Gash, A. (2008). Collaborative Governance in Theory and Practice. *Journal Of Public Administration Research And Theory*, *18*(4), 543-571.

Arnstein, S. R. (1969). A ladder of citizen participation. *Journal of the American Institute of Planners*, *35*(4), 216-224.

Arsyad, S. (2009). *Konservasi Tanah dan Air*. Bandung: IPB Press.

Bengston, D. N., Fletcher, J. O., & Nelson, K. C. (2004). Public Policies For Managing Urban Growth And Protecting Open Space: Policy Instruments And Lessons Learned In The United States. *Landscape and urban planning*, *69*(2-3), 271-286.

Boonstra, B., & Boelens, L. (2011). Self-Organization in Urban Development: Towards A New Perspective on Spatial Planning. *Urban Research & Practice*, *4*(2), 99-122.

Buuren, A. V. (2009). Knowledge For Governance, Governance Of Knowledge: Inclusive Knowledge Management In Collaborative Governance Processes. *International Public Management Journal*, *12*(2), 208-235.

Collier, M., Webb, R. H., & Schmidt, J. C. (1996). *Dams And Rivers: A Primer On The Downstream Effects Of Dams* (Vol. 1126). US Department of the Interior, US Geological Survey.

Dewi, N. L. Y. (2019). Dinamika Collaborative Governance Dalam Studi Kebijakan Publik. *Jurnal Ilmiah Dinamika Sosial*, *3*(2), 200-210.

Forester, J. (1982). Planning in The Face of Power. *Journal of The American Planning Association*, *48*(1), 67-80.

Gisselquist, R. M. (2012). *Good Governance As A Concept, And Why This Matters For Development Policy*. WIDER Working Paper.

Graham, S., & Healey, P. (1999). Relational Concepts of Space and Place: Issues For Planning Theory and Practice. *European Planning Studies*, *7*(5), 623-646.

Healey, P. (2003). Collaborative Planning in Perspective. *Planning Theory*, *2*(2), 101-123.

Imansyah, M. F. (2012). Studi Umum Permasalahan Dan Solusi Das Citarum Serta Analisis Kebijakan Pemerintah. *Jurnal Sosioteknologi*, *11*(25), 18-33.

Innes, J. (2018). *Planning Through Consensus Building: A New View Of The Comprehensive Planning Ideal*. Routledge.

Innes, J. B., & Booher, D. E. (2000). *Collaborative Policymaking: Governance*. Cambridge: Cambridge University Press.

Karley, N. K. (2009). Flooding and Physical Planning in Urban Areas in West Africa: Situational Analysis of Accra, Ghana. *Theoretical and Empirical Researches in Urban Management*, *4*(4 (13), 25-41.

Kazi, A. (2014). A Review of The Assessment And Mitigation of Floods in Sindh, Pakistan. *Natural Hazards*, *70*(1), 839-864.

Kodoatie, R. J. (2021). *Rekayasa dan Manajemen Banjir Kota*. Andi Publisher.

Mahfuz, M. (2016). Analisis Data Spasial Untuk Identifikasi Kawasan Rawan Banjir Di Kabupaten Banyumas Provinsi Jawa Tengah. *Jurnal Online Mahasiswa (JOM) Bidang Teknik Geodesi*, *1*(1).

Mariana, H. D., Si, M., & Sjoraida, D. F. (2016). Peran Kepala Daerah Dalam Mengatasi Banjir Di Kota Bandung. Bandung : Unjani.

McCarney, P. L. (1996). Considerations on The Notion of Governance. New Directions For Cities in The Developing World'. *Cities and Governance: New Directions in Latin America, Asia and Africa*, 3-20.

Meadowcroft, J. (2007). Who Is In Charge Here? Governance For Sustainable Development In A Complex World. *Journal of Environmental Policy & Planning*, *9*(3-4), 299-314.

Mohapatra, P. K., & Singh, R. D. (2003). Flood management in India. In *Flood Problem and Management in South Asia* (pp. 131-143). Springer, Dordrecht.

Muhamad, R. T., Sekarningrum, B., & Agma, Y. M. (2017). Modal Sosial Dalam Penanggulangan Bencana Banjir (Kasus Di Kabupaten Bandung, Jawa Barat). *Sosioglobal: Jurnal Pemikiran dan Penelitian Sosiologi*, *1*(2), 101-114.

Noor, D. (2014). *Pengantar Mitigasi Bencana Geologi*. Deepublish.

Nurhikmah, D., Nursetiawan, N., & Akmalah, E. (2016). Pemilihan Metode Sistem Drainase Berkelanjutan Dalam Rangka Mitigasi Bencana Banjir Di Kota Bandung (Hal. 39-50). *RekaRacana: Jurnal Teknil Sipil*, *2*(3), 39.

Rizkiah, R. (2015). Analisis Faktor-Faktor Penyebab Banjir Di Kecamatan Tikala Kota Manado. *SPASIAL*, *1*(1), 105-112.

Sari, D. N. (2020). Penerapan Smart Environment pada Pemukiman Kumuh di Bantaran Kali Code Kota Yogyakarta. *GOVERNMENT: Jurnal Ilmu Pemerintahan*, 34-42.

Suwitri, S. (2008). Jejaring Kebijakan Dalam Perumusan Kebijakan Publik Suatu Kajian Tentang Perumusan Kebijakan Penanggulangan Banjir dan Rob Pemerintah Kota Semarang. *Jurnal Delegasi, Jurnal Ilmu Administrasi, STIA Banjarmasin*, *6*(3), 01-32.

Taufiq, R., Susanty, E., & Nurlina, E. (2014). Gambaran resiliensi anak pasca bencana banjir di desa Dayeuhkolot, kabupaten Bandung, Jawa Barat. *Wacana*, *6*(1).

Untari, A. (2012). Studi Pengaruh Perubahan Tata Guna Lahan terhadap Debit di DAS Citepus, Kota Bandung.

Verma, N. (2016). Governance and Planning: A Pragmatic Approach. In *The Ashgate Research Companion to Planning Theory* (pp. 417-430). Routledge.

Wismarini, T. D., & Ningsih, D. H. U. (2010). Analisis Sistem Drainase Kota Semarang Berbasis Sistem Informasi Geografi dalam Membantu Pengambilan Keputusan bagi Penanganan Banjir. *Dinamik*, *15*(1).