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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; Nor, 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,



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



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

### Acknowledgement

The authors would like to express their gratitude to everyone who helped to the writing of this research.

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