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The Relevance of Collaborative Governance in Disaster Anticipation in The Cities of Surabaya and Jakarta

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A B S T R A C T

This research aims to examine the relevance of collaborative governance in flood disaster management within the smart city frameworks of Surabaya and Jakarta. Both cities are identified as having the highest flood disaster risk, yet disaster risk reduction has not been integrated effectively into their smart city initiatives, and flood management remains sectoral. Using the CORE (Collaborative Resilience) analysis and a qualitative research approach, this study investigates the extent of collaboration in disaster management in these cities. The findings reveal that in Surabaya, where the population is more homogeneous, smart city initiatives function effectively even without significant collaboration between actors. However, in Jakarta, with its more heterogeneous population, the absence of collaboration presents greater challenges. The research also highlights that collaboration is a critical factor in the success of smart city implementation, as seen in both cities. Surabaya's bureaucratic approach to disaster management, though efficient in execution, can be slow in response. Meanwhile, Jakarta's smart city infrastructure, though more advanced, suffers from a lack of long-term collaborative policies. The study concludes that population homogeneity in cities like Surabaya allows for easier collaboration, while the complexity in Jakarta demands a more integrated and collaborative governance framework for effective flood management. Further research is needed to explore these dynamics in other Indonesian cities.

INTRODUCTION

Smart city implementation in Surabaya and Jakarta began in the early 2000s earlier than in other cities in Indonesia. Smart city is a combination of infrastructure and technological systems, which is able to strengthen social cohesion, increase resilience between individuals, communities and institutions (Elvas et al, 2021). Many literature show that the smart city concept was already known at the end of 1990. In 2000, Robert E. Hall in the 2nd International Life Extension Technology Workshop expressed his views regarding the smart city vision, namely: a smart city is a future city center, where the environment is safe, green, efficient and systems are designed, built and maintained using electronic sensors and networks connected to computerized systems and decision-making using algorithms.

In its development, smart cities are growing so rapidly, big cities in the world are adopting the smart city concept to overcome the problems they face. The main focus of smart city is still on the use of information technology even though much research has been conducted to look at social and environmental relations as an important part of the smart city concept (Caragliu et al. 2011). Smart cities and technology are closely related, the important role of the technology industry and creative industry for long-term growth, the perspective of paying attention to social and relational functions in city development, the vision of social and environmental sustainability are the most important aspects in smart city development (Xing and Xing, 2020).

The development of the smart city concept by including elements of disaster resilience began in 2005 when the city of London experienced a bombing and when Japan faced a tsunami in 2011 (Alazawi, et al, 2014). Resilience in an urban perspective is the ability of a city to absorb, recover and adapt to shocks caused by natural disasters. Smart city with the concept of resilience has developed into a concept about planning, absorbing, recovering and adapting to every disaster risk faced (Sukmaningsih, et al, 2020). This concept is included in the smart environment element, where the natural environment has low levels of pollution, nature protection activities and sustainable resource management.

Smart environment elements, including nature protection activities, are really needed by big cities in Indonesia, so that they have resilience to disasters. Indonesia's geographical conditions are in a tropical area where two oceans and two continents meet, making most of its territory prone to floods, landslides, flash floods, extreme weather, extreme waves and abrasion and drought which can be triggered by climate change (Warsono and Buchari, 2019). With such a large risk, Indonesia is ranked third, the country with the highest disaster risk in the world besides the Philippines and India (World Risk Report, 2022).

Disaster risk studies have been carried out by BNPB (National Disaster Management Agency) since 2008. BNPB publishes the Indonesian Disaster Risk Index (IRBI), in which the disaster risk index is an assessment based on: danger, vulnerability and government capacity in dealing with disasters. Referring to IRBI 2022, the cities of Surabaya and Jakarta are at quite high risk of the threat of flood disasters, whether caused by weather anomalies or rising sea levels due to climate change.

On the other hand, Surabaya does not yet have a technology-based disaster risk reduction plan that is integrated with the smart city concept, to overcome disasters and reduce economic and physical losses. Jakarta's conditions are not much different from Surabaya, but on the one hand, Jakarta has integrated the smart city concept to overcome or reduce flooding.

The similarity in the implementation of smart cities in Surabaya and Jakarta is that each city has a flagship application that makes it easier for its people to access all information. Jakarta has JAKI (Jakarta Kini) and Surabaya has WargaKu.

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However, the use of modern applications has not been accompanied by disaster risk reduction, smart cities are still focused on information on services and facilities that can be accessed by the public. The focus in Surabaya and Jakarta is still on implementing digitalization to run government.

In several cities expanding, accelerating and mainstreaming the use of technology in smart cities has become a necessity (OECD, 2020). However, smart cities are not only based on the use of sophisticated devices or technology, more than that, smart cities must be able to improve the quality of their communities to live inclusively, part of resilience and sustainability. In 2020 the OECD released indicators to measure smart cities. Indicators in the health and security sector are explained, related to the safety of citizens during a disaster where an early warning system is established.

It is hoped that good disaster management can reduce losses caused by floods. In the implementation of smart cities in Surabaya and Jakarta, flood disaster management is still sectoral and there is no collaboration between regional and government officials at regional and national levels. This research is aimed at identifying disaster management problems in two cities that have implemented smart cities and providing a collaborative governance framework for handling flood disasters. From the explanation of problem identification in the cities of Surabaya and Jakarta, the problems faced by the two cities can be formulated, namely:

1. How do Surabaya and Jakarta manage actors and institutions related to flood disaster management within the smart city concept?
2. What should be the form of collaborative governance between the central and regional governments that utilize smart cities in the cities of Surabaya and Jakarta?

The smart city concept is widely implemented in several developed countries, smart city policies are highly correlated with the capacity and knowledge possessed by city governments. In the cities of Cambridge and Utrecht, smart cities are largely determined by the political capacity of the city government, mastery of technology is only one factor in the sustainability of the smart city program (Nochta, et al, 2021; Meijer, et al, 2016). Actors or policy makers in a smart city must be mapped so that governance can be evaluated (Choi, et al, 2022). Smart cities will encourage economic growth, improve population skills and encourage labor-intensive industries (Tariq, 2021). However, on the other hand, smart cities also require conceptual models and data analysis so that their impacts can be measured and quantified (Anez, et al, 2017).

Smart cities are not only applied to cities in developed countries, several cities in developing countries are trying to implement smart cities in the hope of providing improved services to their citizens (Iqbal, 2021). Smart city development is considered a way to improve the quality of development (Visvizi, et al, 2018; Hanine, et al, 2021). Governance, economy, environment, citizens and smart mobility are requirements for smart city development, but there are still many cities that are in a hurry to implement it so that the results are not optimal (Huang, et al, 2021). From the application of the smart city concept in developed countries and developing countries, the focus is still on governance and implementation of all smart city elements.

The problem of a lack of collaborative elements in disaster management in smart cities also occurs in India (Chaudhari, et al, 2019). The country with the second largest population in the world makes Smart City one of its flagship programs. The Indian government launched a smart city program in 2015 and developed one hundred smart cities in several states in India (Wataya, et al, 2022). The goal of smart cities in India is to increase economic growth and improve the quality of life. However, unfortunately the development of smart cities in India still does not include disaster resilience as one of its goals.

Meanwhile in Indonesia, like most metropolitan cities in other countries, Surabaya is implementing Surabaya Smart City (SSC) to build integrated information and communication technology to improve public services (Sari, et al, 2020). The city government emphasizes the intelligence dimension, by strengthening online public service management or Smart Governance (Amalia, et al, 2023).

On the other hand, the Jakarta Smart city program was officially launched by Governor Basuki Tjahaya Purnama at the end of 2015. Smart city is a mainstay program to maximize the use of information and communication technology to provide public services while providing solutions to problem solving (Firmansyah, 2019). In realizing a smart city, the Jakarta Government has several programs as stated by Sangaji, et al (2021), including the smart living program. The Jakarta government manages public facilities that are healthy and livable, such as flats, open parks in the form of Child-Friendly Integrated Public Spaces (RPTRA), Green Open Spaces (RTH). Apart from that, there is a Smart Governance program, but its implementation faces challenges. Jakarta Smart city through Qlue (2020) and JAKI (2022).

The implementation of Surabaya as a smart city is regulated in the Decree of the Mayor of Surabaya Number 61 of 2016 concerning Position, Organizational Structure, Description of Duties and Functions and Work Procedures of the Surabaya City Communication and Information Service where in the fourth part of the field of electronic-based government services (E-Gov) it is stated that the implementation organizing an information technology ecosystem for smart city. Apart from preparing facilities and infrastructure, the Surabaya City government will also increase the capacity of the community in implementing e-government and smart city.

The same thing also applies to Jakarta, Regulation of the Governor of the Special Capital Region of Jakarta Province Number 306 of 2016 concerning Organizational Establishment and Work Procedures of the Jakarta Smart City Management Unit. Jakarta uses sustainable information and communication technology to help city residents manage existing resources to improve the quality of life of the community. The Jakarta government will integrate all government-related data to make it more easily accessible to the public. Both Surabaya and Jakarta use the smart city concept, which is still at the stage where public services have not yet reached the stage as a tool for making policies related to disaster management.

Smart cities are increasing along with the development of artificial intelligence. Because smart cities are always connected with technological progress, although many studies show that technology is only part of a smart city, it is not the only element or elements that must be present (Cavada, et al, 2017). At the beginning of the growth of smart cities, technology was the initial driver for the formation of infrastructure, but as it develops, collaboration between all policy stakeholders from all backgrounds will contribute to planning, development, operations and also governance (Harrison and Donelly, 2011).

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Public administration always develops from year to year. Reform and compromise processes by combining existing elements in public administration create new public management or new Public Management (Christensen and Laegreid, 2010; Ferdous, 2016). For more than 20 years, new public management (NPM) has become the dominant paradigm in public administration theory and practice. The private sector and government are close, and NPM is considered capable of dealing with crises (Levy, 2010). There is still very little research measuring the impact of collaboration on public management with a focus on outcomes. This is because there is still an assumption that collaboration is something new for government so that in some cases it is only marked by a change in power to decentralization (McGuire, 2006; Kapucu, 2010).

NPM is a new model of public management that prioritizes a different relationship between administration, public facilities and society. Changes to NPM contain more than just a reorganization of public services (Ferdous, 2016). In its development, the NPM concept emphasized the need for collaboration between public service organizations and actors must consolidate beyond an inward-oriented culture and way of operating (Erikkson, et al, 2019). Several problems intersect, requiring more flexible handling and collaboration as a system. Collaboration in the NPM post is joint work carried out practically and intelligently (McGuire, 2006; Christensen, 2012).

Collaboration between stakeholders is very important in the context of disaster management. The government is an important actor in collaborative disaster management. The central government and local governments must develop integrated management plans and integrated recovery strategies (Jiang, et al, 2016). Collaboration also often leads to changes in the form of public services, the readiness of supporting infrastructure, Human Resources (HR), budgets, and collaboration between stakeholders to become a foundation for bureaucratic governance that is adaptive to all forms of change (Istania, et al, 2022). Collaboration must also involve institutions or community organizations. Harmonization between local government and community institutions can create a resilient society (Asropi, et al, 2023).

The governance study presented by Ratner and Smith (2014), regarding collaborative governance consists of three stages, namely: identifying problems or obstacles and opportunities, conducting debates related to how to influence and planning collaborative action. Identify problems or obstacles and opportunities.

At the collaboration stage, stakeholders identify problems, provide explanations to each other about the problems they face. Then take into account the opportunities to solve each problem that has been identified or find a solution to the problem that occurs. Each stakeholder has the same authority in determining policies to resolve identified problems.

In the collaboration theory offered by Ratner, great emphasis is placed on bringing all the main stakeholders into the collaboration process, this is to ensure that all perspectives are represented and local actors (community) have the opportunity and have the same understanding. In the end, commitment is built with the involvement of all parties, not through other people's analysis. Involving local actors can increase institutional capacity so that governance assessments do not end in planning and action.

The principles underlying this approach are taken from a process known as CORE (Collaborative for Resilience) or collaboration for resilience (Ratner and Smith, 2014). Stakeholders need to carry out social interaction and organization as well as institutional adjustments. This framework emphasizes the entire system to search for solutions together, catalyzing collective action to overcome common problems.

The theory offered by Ratner has never been applied to collaboration theory in smart cities. Ratner's theory which emphasizes CORE is considered the most appropriate for building joint collaboration for disaster resilience and better disaster governance. It is hoped that the involvement of policy makers and the community will produce joint solutions and catalyze disaster management in the smart city context. Below is how CORE is carried out at the community level.

METHOD

Research regarding the relevance of collaborative governance in anticipating disasters in the cities of Surabaya and Jakarta as smart cities uses qualitative methods with a case study approach. Case studies are used to test hypotheses and are useful for theory development. Apart from that, case studies can help identify cause and effect relationships and help understand the views of the people interviewed (George and Bennett, 2005; Thatcher, 2006).

In this case study approach, qualitative data analysis will be carried out using interviews, archival studies and documentation about smart city implementation. Interviews involving actors related to disaster management governance, such as: disaster mitigation directorate and early warning directorate at the National Disaster Management Agency (BNPB), Regional Disaster Management Agency (BPBD), smart city management agencies in Surabaya and Jakarta, Non-Governmental Organizations Communities (NGOs) who observe disasters, academics who observe disasters, journalists in Surabaya and Jakarta,

Qualitative data collection techniques related to smart city implementation in the cities of Surabaya and Jakarta are carried out in several ways, namely:

1. The resulting interviews will be analyzed. Qualitative data in the form of interviews is the main source of data explored by researchers.
2. Archival studies in the form of literature studies are carried out to look at disaster management in all smart cities and also collaboration between public institutions and academics or the community or the private sector.
3. Documentation, to complete research data from written sources, videos, photos. Documentation is used to explore information related to smart city implementation and collaboration between institutions.

RESULTS AND DISCUSSION

Surabaya Smart city (SSC) a management structure was formed, the Surabaya Regional Secretary (SEKDA) Surabaya Smart city (SSC) as Chair of the SSC where the Deputy Chair is held by the General Administration Assistant. Meanwhile, the Head of BAPPEDA is Secretary I and the Head of DISKOMINFOTIK is Secretary II. SSC has several working groups (pokja) in accordance with the smart city theme, namely: Smart Governance working group where the Head of the Organizational Section of the Regional Secretariat office is the coordinator, while the members consist of various elements of regional apparatus organizations (OPD) in Surabaya.

The Surabaya City Government has prepared fourteen complaint channels that can be accessed by all residents of the City of Surabaya. The fourteen complaint channels are: *Sambat Nang Cak Eri* where residents of the City of Surabaya can directly dialogue with the Mayor of Surabaya at City Hall, *Sambat Nang Camat*, *Sambat Nang Lurah*, residents can also come directly to the Surabaya City Government Media Center at the KOMINFOTIK Service, complaints can also be made via the media center.surabaya.go.id page, live chat at the media center, via SMS/WA at 081230257000.

The Surabaya City Government also has a special e-mail address for complaints, namely: e-mail: mediacenter@surabaya.go.id, apart from that there is an application WargaKu (Wadah Aspirasi Rukun Warga Rukun Tetangga dan Kampung Unggul), Facebook: @sapawargakotasurabaya, @BanggaSurabaya, twitter/X : @sapawargakotasby, @BanggaSurabaya and Instagram: @SapawargaKota Surabaya and @Surabaya (https://jatim.antaranews.com/berita/626005/pemkot-surabaya-menyiapkan-14-kanal-pengaduan-warga). The Surabaya City Government also has a 112 command center for emergency services.

Jakarta Smart city (JSC) is one of the Regional Public Service Agencies (BLUD) belonging to the Jakarta Provincial Government which is under the Jakarta Province Communication, Information and Statistics Service (DISKOMINFOTIK). Jakarta Smart City (JSC) as BLUD which manages the official regional government complaint channel. The DKI Provincial Government itself has a rapid community response system or Citizen Relations Management (CRM) through 13 (thirteen) official complaint channels consisting of: JAKI, Twitter/X @dkiJakarta; Facebook Pemprov Jakarta, e-mail dki@jakarta.go.id; Governor and Deputy Governor's personal social media, complaint SMS at number: 0811272206; City Hall Hall; Inspectorate Office, Mayor's Office; Sub-district Office; Lurah Office, Mass Media Public Aspirations and LAPOR 1708. Of the thirteen complaint services that are managed directly by JSC, only JAKI; Twitter@dkiJakarta; Facebook Pemprov Jakarta, Surat Elektronik/Email dki@Jakarta.go.id; Governor and Deputy Governor's personal social media, SMS 0811272206; Aspirasi Publik Media Massa dan LAPOR 1708.

Smart City in Surabaya

In research related to the relevance of collaborative governance in anticipating disasters in Surabaya and Jakarta as smart cities, researchers used the action and learning cycle of collaborative resilience which was coined by B.D Ratner. In research conducted in the cities of Surabaya and Jakarta, not all stages of Ratner and Smith (2014) were carried out due to researcher limitations.

The stages carried out include the first and third stages, the second stage in the form of facilitating dialogue and action is not carried out, since it takes longer and must be completed in stages. Dialogue is carried out starting from the lowest level of the Neighborhood Association/RT or community at the lowest level to the City Government or Provincial Government, in this case the Mayor or Governor. This process will take a lengthy time so that the second stage is bypassed in favor of the third.

The consequence of not passing this second stage is that the dynamics of dialogue between the community and stakeholders are not reflected. As well as how dialogue is carried out and the process of discussing problems in detail by involving all parties in flood management in the cities of Surabaya and Jakarta. Data obtained from DISKOMINFOTIK Surabaya during the period March 2021 to September 2023, the number of complaints from the people of Surabaya regarding flooding was 134 complaints.

Table 1. Public Complaints through Various Complaint Channels

No	Institution	Number of complaints	Platform used	Complaint
1	Department of Water Resources and Highways	1	Instragram	Flood, slow water drainage
2	Department of Water Resources and Highways	1	lapor.go.id	Puddles of water never recede
3	Department of Water Resources and Highways	1	Telepon	Flooded commuter shelters
4	Department of Water Resources and Highways	119	WargaKu	Flood, water puddles, rubbish-filled culverts
5	Department of Water Resources and Highways	8	Website	Flood, overflowed river, rubbish-filled culverts
6	Department of Water Resources and Highways	4	Whatsapp	Flood and overflowed river

Source: DISKOMINFO Surabaya, October 2023

From the table 1, it can be seen that the number of complaints from residents was mostly through the WargaKu platform, complaining about flooding, puddles of water and also waterways filled with rubbish. However, not all people make their complaints through official channels owned by the Surabaya City Government. Radio Suara Surabaya is an alternative channel owned by the private sector that consistently conveys the voice of the community. The public can monitor the follow-up actions carried out by the city government. This service is not provided by the city government's complaint channels. For disaster management, mayor Eri Cahyadi formed the Surabaya City BPBD through Mayor Regulation (PERWALI) Number 92 of 2021. With the formation of the Surabaya City BPBD, the duties and responsibilities for disaster management were taken over by the BPBD which previously belonged to several OPDs.

The actors and institutions that are members of the SSC have very diverse capacities and reach. In the SSC, the Mayor of Surabaya is the Chair of the Smart City Council whose task is to formulate policies and provide direction on how to run a smart city. The function and role of the Mayor is very important or has

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a central role in formulating policies related to smart cities. Apart from that, the Surabaya Regional Secretary (SEKDA) who is the head of the smart city implementer carries out the coordination function between regional agencies. The Head of BPBD is the leader of the organization and is at the forefront of disaster management. The role of BPBD will determine how Surabaya responds to floods.

Surabaya society tends to be homogeneous and Surabaya society is very egalitarian. With a homogeneous societal structure, the relationship between social cohesion and informal social control has a positive influence in creating a social order that is mutually acceptable and reduces the negative impact of differences (Collins, et al, 2016). The homogeneity of Surabaya society is strengthened by the presence of Suara Surabaya radio as community radio. These actors all have a very significant role in how smart cities are implemented. Because smart cities are not only related to how cities use sophisticated devices in their daily lives, more than that, the actors involved must be able to collaborate to solve existing problems.

Collaborative planning will quickly lose momentum if it is not contained in a common platform, where all stakeholders gather regularly and evaluate the collaborative steps taken. More than one Regional Apparatus Organization (OPD) is involved in flood management in Surabaya. Identification of the actors and institutions in the city of Surabaya, there are seven institutions, one community institution and one media which are alternatives for the people of Surabaya to convey complaints or exchange information related to city conditions. Communication and coordination between OPDs in the city of Surabaya is carried out regularly, but general discussions about the city's conditions have not yet reached the stage of forming collaborative action.

The budget allocated for flood management in Surabaya in 2023 will reach IDR 846 billion. This large budget is expected to be able to free Surabaya from flooding. A large budget and existing smart city infrastructure is the right combination to make Surabaya a smart city that is free from flooding if accompanied by collaboration between the actors involved in smart city management. From the description above, collaboration between actors involved in management Smart cities and disaster management do not yet exist. So far the collaboration carried out for disaster management has only involved the community and Surabaya City BPBD personnel.

The paradigm shift of city leaders has made Surabaya not only a smart city but also concerned with disaster management or disaster risk reduction. In the Surabaya Mayor's Regulation Number 54 of 2022 concerning the 2023 Regional Government Work Plan for the City of Surabaya, data on the occurrence of catastrophic floods in the City of Surabaya for 2017-2021 reported no cases of flooding or sea water tides. However, this is different from findings in the field that up to the end of 2021, flooding occurred on several main roads in Surabaya. The people of Surabaya regretted that they did not receive information about flooding quickly, so that people continued to drive through flooded sections and resulted in their vehicles getting stuck in the middle of the flood. In the collaboration stage according to Ratner and Smith (2014), it is not possible to measure the progress of collaboration in the process being carried out in Surabaya.

Collaboration between actors is one of the conditions so that the problems faced by the city of Surabaya as a smart city can be resolved or even completely eliminated. Collaboration will enable all actors or stakeholders to be in a forum to create a consensus that is oriented towards policy making to resolve existing problems. Resilient collaboration is needed in building Surabaya smart city, continuity of collaboration can be formed if there is a platform as a forum for all actors involved to create integrated policies.

Smart City in Jakarta

Several channels have been prepared by the Jakarta Government, for complaints which are managed by Jakarta Smart City or JSC. JSC is a BLUD (Regional Public Service Agency) which is under DISKOMINFOTIK. Data obtained from JSC during the period March 2021 to September 2023, the number of complaints from Jakarta residents regarding flooding was 407 complaints.

Table 2. Public Complaints through Various Complaint Channels

No.	Institution	Number of complaints	Platform used	Complaint
1	Regional Agency for Disaster Countermeasure (BPBD)	32	JAKI	Flood
		1	E-mail: dki@jakarta.go.id	
		1	Facebook Pemprov	
		1	Governor and Deputy Governor's personal social media	
		178	Twitter/X @dkijakarta	
2	Civil Development Agency	11	JAKI	Flood
		159	Twitter/X @dkijakarta	
3	Water Resource Agency	1	E-mail: dki@jakarta.go.id	Flood
		1	Facebook Pemprov	
		20	JAKI	
		3	Twitter/X @dkijakarta	

Source: smartcity.jakarta.go.id, Oktober 2023

From the table above, it can be seen that many public complaints were directed to BPBD, Bina Marga and Water Resources regarding the flood complaints they experienced. Meanwhile, the platform used most is via twitter/X@dkijakarta. The number of downloads was more than 5 million, and the number of reports reached 305,758 from September 2019 to September 2023.

In the same period the number of flood reports only reached 20,780 reports or around 7 percent. On the other hand, the complaint information mechanism is responded to by the DKI

Jakarta Government through Jakarta SEKDA Decree Number 99 of 2022 concerning follow-up to handling public complaints through the Citizen Relations Management (CRM) or Quick Community Response application related to smart city services.

The actors and institutions involved in JSC and disaster management in Jakarta are very diverse. BPBD Jakarta as one of the actors has a central role in disaster management. BPBD Jakarta in collaboration with the SDA Department will provide data or information support related to the situation and conditions of rivers and riverbanks. The community is not only the beneficiary, more than that the community must be actively involved in developing the city.

Jakarta as a smart city should have a platform where all stakeholders can hold regular and in-depth discussions regarding flood management and create sustainable collaboration. Collaboration between actors involved in smart cities as well as disaster management on a smaller scale has been carried out by BPBD DKI Jakarta with the Department of Transportation, the Department of Water Resources in carrying out flood monitoring. Collaboration is still responsive when there is a threat of flooding, on a wider scale and the involvement of many actors has not been carried out

Collaboration in the context of the Jakarta Smart City is still very simple, limited to supplying information and then continuing existing information. Not yet in a joint collaboration to get a permanent joint solution to overcome floods or other disaster problems. A platform is needed so that collaboration between actors in a smart city can produce strategic policies in handling Jakarta's floods. Collaboration will be able to continue if Jakarta can also invite buffer regions to jointly implement smart cities.

Forms of Collaborative Governance that Utilize Smart City in the City of Surabaya that is Responsive to Floods

The classic problem that causes flooding still persists even though Surabaya has become a smart city. The reduction in water catchment areas, poor drainage management and the lack of solid collaboration between stakeholders have made flooding an annual problem that will never be resolved. It is hoped that the implementation of smart cities will be a catalyst for solving flooding problems.

Collaboration has the aim of planning, coordinating, controlling, monitoring, directing the resources available to make preventive and strategic steps. The strategic steps chosen and agreed upon in the implementation process must involve all actors sitting together to negotiate and evaluate the involvement of each actor. The policy evaluation process is carried out by considering the proposals of all actors involved.

Resilient collaboration will not only make a smart city a safe city to live in but will also be able to reduce the risk of disasters to the lowest point. The concept of resilient collaboration proposed by Ratner (2014) can be depicted in a round diagram as below. The round diagram shows that the process being carried out must be continuous. For the Surabaya context, researchers offer sustainable collaboration as in the figure 1.

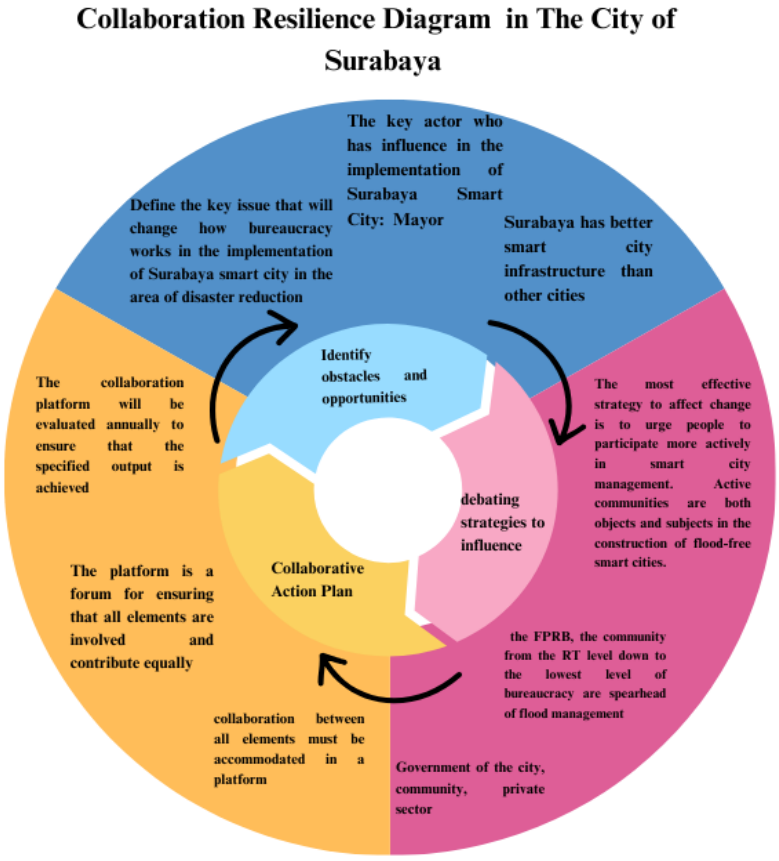

Figure 1. Collaboration Offered for Smart City Surabaya, adopted from the Ratner diagram

Increasing the capacity of existing personnel in smart cities and coordinating between stakeholders is still not the main goal. Many of the features in the smart city application have not been used optimally to reach and serve the needs of the people of Surabaya. Socialization to the public needs to be increased so that the number of application users increases and can enjoy the benefits of the WargaKu application.

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The application must also be made inclusively so that the benefits can be enjoyed by all residents, both those who have a Surabaya KTP and those who do not have a Surabaya KTP. There are several stages that must be carried out to carry out collaboration. The collaboration stages that must be carried out so that all stakeholders are actively involved in utilizing the potential that exists in Surabaya as a smart city to solve flooding problems are as follows:

- The listening stage or identifying problems and opportunities. In the collaborative government process, identifying the extent of the area experiencing flooding in Surabaya and looking at the potential for involvement of the community and the private sector to handle areas affected by flood.
- In the stage of making choices, the policy stakeholders involved will plan the implementation of each strategy that has been discussed in the previous stage. Planning is made in a systematic way and contains the main tasks and functions of each party involved in it.

Forms of Collaborative Governance that Utilize Smart City in the City of Jakarta that is Responsive to Floods

JAKI as an application is more inclusive compared to WargaKu. Where all people who carry out activities in Jakarta, whether they have a Jakarta KTP or not, can access and use it, but the socialization of this application has not been optimal (Ernawati, et al, 2023).

The people or citizens of Jakarta are very heterogeneous, all the tribes in Indonesia are in Jakarta. On the one hand, this is a strength in forming cohesiveness. Social cohesion is an important element for overcoming common social challenges, social relationships, a sense of identification or belonging and shared orientation (Moustakas, 2023). A more heterogeneous society makes them less concerned and sensitive to their environment. This happened when FPRB Jakarta attempted to promote disaster risk reduction. The community is less responsive, the best response actually comes from building and apartment managers. But again, supports like this must be managed well by the bureaucrats behind the smart city. The concept of resilient collaboration proposed by Ratner and Smith (2014) for Jakarta can be depicted in a round diagram. In Jakarta, collaboration is sustainable as in the figure 2.

Figure 2. Collaboration Offered for Smart City Jakarta, adopted from the Ratner diagram

Collaborative Resilience or collaboration for resilience (CORE). Dialogue between stakeholders needs to be carried out so that collaborative action can become a transformation between multi-stakeholders. The approach is built on understanding the relationship between goals, authority and organization. The stages of collaboration that must be carried out must be carried out so that all stakeholders are actively involved in utilizing the potential that exists in Jakarta as a smart city that is free from flooding, as follows:

- The listening phase or identifying problems and opportunities. In the collaborative government process, identifying the extent of the area experiencing flooding in Jakarta and looking at the potential for involvement of the public and the private sector in handling areas affected by flood.
- The phase for determining options, at this stage the policy makers involved will start planning the implementation of each strategy that has been discussed in the previous stage. Planning collaborative actions for flood disaster management. Planning is prepared systematically and contains the main tasks and functions of each party involved.

The strategic steps chosen and agreed upon in the implementation process must involve all actors sitting together to negotiate and evaluate the involvement of each actor. Policy

evaluation is carried out by considering the proposals of all actors involved. Sustainable collaboration will not only make a smart city a comfortable and safe city to live in.

In Jakarta, the management process requires synergy and socialization between all parties involved in smart city management. Smart cities are built with quite large investments so that the continuity of all parties to ensure that this can run sustainably is very necessary. The collaboration process built in the cities of Surabaya and Jakarta must also gain legitimacy from the central level.

For disaster risk reduction and disaster management, the role of BNPB needs to be encouraged to be more active by creating programs that are in line with regional needs rather than one program applied to all regions. On the one hand, uniformity will make implementation easier, but it will not be in accordance with regional needs. In the smart city framework of Surabaya and Jakarta, where human resource capacity and funds as well as infrastructure have been arranged. The need for assistance in designing disaster risk reduction and disaster management will be different from other regions.

In general, the collaboration stages are designed to do the following three things: 1). defining the overall goal of a collaborative initiative that utilizes different points of view on an issue, 2). building networks and relationships so that organizers can attract as many resources as possible to overcome the problems they face, 3). build trust by being very transparent in the initial consultation process, so that all participants feel their concerns are understood and will be addressed.

Similarities and Differences Between Surabaya and Jakarta in Smart City Management and Disaster Management

From the description related to smart city management in both Surabaya and Jakarta, there are several similarities and differences as depicted in the table below:

Table 3. Similarities and Differences between Surabaya smart city and Jakarta smart city

Description	Surabaya	Jakarta
	Similarities	
Smart city focus/ *Cit* Ecosystem 4.0	*Smart Governance, smart society, smart economy, smart branding, smart environment, smart living,*	*Smart Environment, Smart Economy, Smart People, Smart Mobility, Samart Governance, Smart Living, Smart Branding*
Use of Technology in Smart City	Ease of internet access throughout the city of Surabaya, ease of service and processing of permits through Surabaya Single Window, complaint and information services through WargaKu	Ease of internet access throughout the DKI area and also in public transportation modes, ease of service and processing of permits via JAKEVO, complaint and information services via JAKI
Use of Technology in flood disaster management	Rivers in Surabaya are equipped with tools to measure water levels, there is a command center 112 serving the community 24 hours a day and 7 days a week, BPBD Surabaya will disseminate information through WargaKu, WhatsApp groups, information via radio and also social media	Rivers in Surabaya are equipped with tools to measure water levels, there is a command center 112 serving the community 24 hours a day and 7 days a week, BPBD Surabaya will disseminate information through WargaKu, WhatsApp groups, information via radio and also social media.
	Differences	
Society	In a homogeneous society, social bonds will be easily formed, so that concern for the environment is stronger	Heterogeneous society requires strong efforts to create social ties and foster concern for the environment
Smart city management structure	Regional Secretary as Chief Executive	Managed by BLUD
Presentation of data and information related to smart cities	Smart city data and information presented on several sites are quite complete but are not updated regularly	Data and information related to smart cities are presented in full and updated regularly on the Jakarta smart city website
Disaster management within a smart city framework	Homogeneous communities have solidity in handling disasters and also managing disasters that pose a threat. Even though management is still bureaucratic, the community with its power and efforts is able to carry out disaster management	Heterogeneous community solidarity occurs in smaller groups. Bonds will be formed based on regional or ethnic similarities. It is a challenge to make a heterogeneous society have compliance and concern for the environment and disaster management

Source: Processed by Researchers

Although in size they cannot be compared considering that Surabaya is only the provincial capital and Jakarta is a special region which is also the capital of Indonesia. Surabaya and Jakarta are two cities that have implemented smart cities in almost the same time span. These two cities also have problems related to urbanization. Lessons that can be taken from the implementation of smart cities in these two cities are:

1. To run a smart city is not cheap, it requires a lot of financial support. The Surabaya APBD allocates around 100 billions and the Jakarta APBD allocates around 700 billions.
2. So far the focus of smart cities is still on mastering technology, not how to maximize existing technological infrastructure..
3. Actors in managing a smart city must collaborate because the success of a smart city will depend greatly on how the actors involved can synergize

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Smart cities and disaster management can be synergized, resilient collaboration carried out by the actors involved will make the cities of Surabaya and Jakarta smart cities that are comfortable and free from the threat of floods.

CONCLUSION

The results of research conducted in two cities with the predicate of smart city, shows that Surabaya smart city is headed by bureaucrats and run by bureaucrats, on the one hand this makes it easier to carry out commands if a disaster occurs. However, with all the elements of bureaucracy it creates a bureaucratic hierarchy that is inefficient in responding. Surabaya has a community radio which is very influential in determining policies on how a smart city is run. Surabaya's smart city infrastructure has not been fully maximized, there has been no intense collaboration, so far there has been coordination between actors in the event of a flood.

In addition to Jakarta smart city is a BLUD with professional management that bypasses many governmental procedures. On the other hand, the use of smart city infrastructure among Jakarta authorities, as well as among Jakarta residents, is thriving. This does not necessarily imply that the data and information handled by Jakarta Smart City can be used to develop an integrated policy. Because of a lack of long-term collaboration among regional officials, flood control remains reactive when compared to preventive approaches.

Surabaya and Jakarta are two big cities that have different population patterns. Surabaya is more homogeneous while Jakarta is very heterogeneous. Collaboration between homogeneous communities is easier to do compared to heterogeneous communities. The cohesiveness of a homogeneous society can contribute to social control. Several cities in Indonesia that have smart city status have a more homogeneous population, such as: Bandung, Medan and Makassar. There needs to be further research on whether what happened in Surabaya also applies to other cities.

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