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**ACHIEVING FLOOD RESILIENCE
 THROUGH URBAN RENEWAL:
 A STUDY CASE OF THE RIVER REVITALIZATION PROGRAM
 IN JAKARTA, INDONESIA**

MASTER THESIS

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2021

Colophone

Title	Achieving flood resilience through urban renewal: a study case of the river revitalization project in Jakarta, Indonesia
Thesis type	Master thesis
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Date	August 2021
Status	Final version
Illustration front page	ANTARA

Preface

This master thesis marks the final part of my double degree master program in Environmental and Infrastructure Planning at the University of Groningen and Urban and Regional Planning at Bandung Institute of Technology. In this special moment, I would first like to express my gratitude to my thesis advisor Dr. Juhyun Lee of the Faculty of Spatial Sciences at the University of Groningen and Prof. Ir. Djoko Santoso Abi Suroso, Ph.D of the School of Architecture, Planning and Policy Development at Bandung Institute of Technology. Their valuable guidance and profound feedback for my writing was very helpful in delivering this thesis.

I would also like to thank the Ministry of National Development Planning/Bappenas for granting me a scholarship during my master's study both at RuG and ITB. Next, I would like to thank to all the participants of the interview that is willing to share their knowledge, opinions, and expertise related to the study my research. I realize that without their active participation this research would not have been successful.

Finally, my very profound gratitude is for my parents Wahyudi Sigit Pribadi and Sulyana Setyaningsih, my supportive husband Ervan Arumansyah, my beloved sons Danish Argia Arumansyah and Raffasya Kahf Arumansyah, and other families and friends for their immeasurable encouragement during my study.

Rachmani Widyawati Wahyudi

Groningen, August 2021

Abstract

Global climate change induces a shift in the long-term weather pattern which affects the environment and human life. One of the major impacts is found in the water sector, where droughts and floods become an issue, especially in big cities. This problem is worsened by the massive urbanization that causes a significant change in the urban environment. The benefit brought by urbanization also followed with the negative impact as urban development can lead to changes in the natural landscape of the city and influence water run-off and availability, changing river flood systems. Urban revitalization through well-planned urban landscapes is considered as a potential effort to climate mitigation and adaptation. In this research, effective institutional arrangement to deal with flooding is explored using Jakarta as a case study. In Jakarta, one of the causes of flooding is the Ciliwung river, which has a high-rate water flow during rainy seasons. River revitalization has been taken by the government to overcome this problem. However, the issue became complex because the river flows across two provinces and several cities and municipalities. Through semi-structured interviews and document analysis, this study investigated how the current institutional arrangement in flood control deal with the complex urban issue through river revitalization. This research identified that strong coordination and commitment of institutions and actors play a significant role to attain transformation for resilient flood risk management through urban revitalization.

Key Words: *flood resilience, institutional arrangement, institutional transformation, urban revitalization, river restoration, collaborative governance*

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List of Abbreviations

APPSI: Asosiasi Pedagang Pasar Seluruh Indonesia or the Association of Indonesian Market Traders

Bappeda: *Badan Perencanaan Pembangunan Daerah* or Development Planning Agency at Sub-National Level

Bappenas: *Badan Perencanaan Pembangunan Nasional* or National Development Planning Agency

BBWSCC: *Balai Besar Wilayah Sungai Ciliwung-Cisadane* or Public River Basin Management Organization of Ciliwung-Cisadane

BMKG: *Badan Meteorologi, Klimatologi, dan Geofisika* or Meteorology, Climatology, and Geophysical Agency

BNPB: *Badan Nasional Penanggulangan Bencana* or National Board for Disaster Management

DKI Jakarta: *Daerah Khusus Ibukota Jakarta* or Jakarta Capital Special Region

HIPPI: *Himpunan Pengusaha Pribumi Indonesia* or the Association of Indonesian Indigenous Businesses

Jabodetabek-Punjur: Jakarta, Bogor, Depok, Tangerang, Bekasi, Puncak, and Cianjur

KBB: *Kanal Banjir Barat* or West Flood Canal

KBT: *Kanal Banjir Timur* or East Flood Canal

KemenPUPR: *Kementerian Pekerjaan Umum dan Perumahan Rakyat* or Ministry of Public Works and Public Settlements

KLHK: *Kementerian Lingkungan Hidup dan Kehutanan* or Ministry of Environment and Forestry

NGO: Non-Governmental Organization

RPJMD: *Rencana Pembangunan Jangka Menengah Daerah* or Jakarta Province Midterm Development Plan

RPJMN: *Rencana Pembangunan Jangka Menengah Nasional* or National Midterm Development Plan

WVI: *Wahana Visi Indonesia*

Chapter 1: Introduction

1.1. Background

Climate change is the biggest environmental challenge that is happening and undeniable. The characteristic of global climate change is that the shift in the long-term weather pattern (Vijayavenkataraman *et al.*, 2012) caused several impacts on the environment and human life. Human activities exacerbate this natural phenomenon by burning fossil fuels and coal, which makes the temperature increase drastically (Vijayavenkataraman *et al.*, 2012). Furthermore, the significant effect of climate change that can be seen worldwide is droughts and floods, which in turn can lead to an impact on water, health, agriculture, and energy (Vijayavenkataraman *et al.*, 2012; Pardo Martínez *et al.*, 2018). This climate change also threatens urban areas.

Currently, it is estimated that 55% of the global population lives in the city due to the massive migration of people from rural areas to urban areas over the past few decades (Ritchie and Roser, 2019; Wordbank, 2020). If this course continues, the number of people living in the urban area will be twice as much as today's population (Wordbank, 2020). Moreover, due to its vibrant activities, cities produce 70% of greenhouse gas emissions (Wordbank, 2020). The function of the city as the centre of economic activity influence urban development, which changes the city's natural landscape. The urbanization offers many benefits, such as increasing welfare. However, the economic and cultural developments resulting from urbanization could expose the cities to climate change. Thus, it is important to minimize the impact of climate change and increase the city's resilience.

Climate change and change in land use patterns due to urbanization influence water run-off and availability, changing river flood systems (Mishra *et al.*, 2018). The drainage construction for rainwater creates networks that shortened water time in the channel and consequently increased direct runoff, resulting in a rapid increase in river flow and depletion of the water surface (Mishra *et al.*, 2018). In addition, naturally created water bodies, such as rivers, lakes, and wetlands, which can store large amounts of floodwater, have widely been narrowed or filled, thereby escalating the flooding incidence. As the flow of water in urban rivers runs through areas with highly concentrated populations, there is only limited room for widening the channel, which also demands a comprehensive approach in flood management in urban regions (Mishra *et al.*, 2018).

Urban revitalization through well-planned urban landscapes is considered as a potential effort to climate mitigation and adaptation (Zevenbergen *et al.*, 2008; Kithiia and Lyth, 2011). This climate change response strategy is to renew the physical form and urban patterns to manage the long-term flood risks. Revitalization of infrastructure is one way to correct old mistakes in urban design, adapt to the current challenge, and increase flood resilience (Zevenbergen *et al.*, 2008).

This research takes Jakarta, Indonesia, due to its characteristic as a low-land city that faces climate challenges requiring the city and planners to adjust to such conditions. One of the biggest challenges for Jakarta is floods. The high rate of rainwater flow in the Ciliwung River that passes through Jakarta continuously causes massive flooding, especially during the rainy season (Mishra *et al.*, 2018). Mitigating the flood incidences and their impacts have been employed through several structural and non-structural measures (Mishra *et al.*, 2018). The Ciliwung River revitalization program is one of the strategies that aim to tackle the flood issue in Jakarta. However, the dynamic and complex of natural and social change demand governance systems to cope with the situation.

With approximately 10.6 million population in 2020 (Indonesia Bureau of Statistics), Jakarta is the most densely populated city in Indonesia that is vulnerable to floods. As Jakarta is located in a coastal area, the city is heavily affected by climate change and vulnerable to climate-related disasters (Firman *et al.*, 2011).

Jakarta experienced flood incidents almost every year, with an intensity that is also increasing each year. One factor that makes Jakarta prone to flooding is its geographical location, where the city is located in a coastal area with high tides (Rukmana, 2016). The major climate-related issue in Jakarta is rising seawater; this is since around 40 per cent of Jakarta are situated below sea level (Kimmelman, 2017). Urbanization also caused land-use changes in Jakarta metropolitan region, where during 1995-2005 vegetation area dropped by 20% and urban land use increased from 6% to 32% (Standifer, 2019). Another factor is that Jakarta is highly impacted by humans, increasing exposure to upcoming disasters caused by climate change pressures. The flood occurred every year in Jakarta. On January 1, 2020, Jakarta reached the highest rainfall of 377 mm/day and 14,372 hectares or 21.8% of the area of Jakarta was flooded (Bappenas, 2020). This incident was the greatest flood that broke records in the past quarter of a century (Darmajati, 2020).

The incident caused Jakarta to be submerged by floods for almost a week, resulting in a significant impact, with 19 people death and the economic activity, especially trade, was paralyzed due to cut off access. According to Himpunan Pengusaha Pribumi Indonesia (Hippi, the Association of Indonesian Indigenous Businesses) DKI Jakarta, the loss due to flooding in 2020 reached IDR 1 trillion (USD 69,6 million) (Setiawan, 2020). It hit business actors in various sectors such as retail, restaurants, Medium, Small, and Micro Enterprises (MSME) players, tourist destination managers, to transportation managers. Asosiasi Pedagang Pasar Seluruh Indonesia (APPSI, the Association of Indonesian Market Traders) estimated that 400 retail stores and 28 traditional markets are directly affected by floods (Setiawan, 2020).

Jakarta has implemented an urban revitalization program in which one of the main agendas is to restore the Ciliwung River that crosses Jakarta. The Upper Ciliwung Watershed is a watershed that has the potential to control floods in Jakarta. However, land cover in the Upper Ciliwung Watershed has a significant effect on the direct flow of the river. The overflowing of the Ciliwung River is one of the causes of flooding in Jakarta. These flood issues are tackled using a flood risk management combined with an urban revitalization program. The river revitalization program is part of flood risk management efforts through structural aspects (grey infrastructure). The development of grey infrastructure through river revitalization is implemented in the form of cross-sectional expansion of the river which aims to increase flow capacity and reduce the frequency of flood inundation.

1.2. Research goal and research questions

The research aims to get a better understanding of the current institutional arrangement for flood risk management in Jakarta and how to improve it through urban revitalization. The ultimate goal is to contribute to the improvement of the institutional design for flood risk management in Jakarta to become more flood resilient. The research also reflects on how these approaches could be replicated to other climate adaptation projects. Thus, this thesis will try to answer the following main research question:

“How can urban revitalization enable institutional transformation for resilient flood risk management in Jakarta, Indonesia?”

The following sub-research questions are set up to address the main research question:

1. How does existing policy encourage flood resilience in Jakarta?
2. How has the government built an institutional arrangement for flood risk management in the river revitalization program to increase flood resilience?
3. How river revitalization improves flood resilience from the perspective of the community?
4. What are the constraining factors and the potentials of the institutional arrangement for implementing resilient flood risk management policies in the city?

1.3. Research outcome

The outcome of this research is to gain insight in the enabling institutional conditions for resilient flood risk management through urban revitalization. This can be done by answering the research questions. The insight gain from this research of institutional conditions will be useful for the design of enabling institutional arrangements on flood risks management in a spatial planning setting through a river revitalization program, especially in Jakarta. Furthermore, this planning practice can become a reflection for the Jakarta government and other projects to develop an institutional arrangement for resilient flood risk management.

1.4. Societal and scientific relevance

This study will contribute to both theoretically (i.e. how to design the enabling institutional arrangement to increase flood resilience in a city) and in practice (i.e. how to implement the institutional transformation for flood resilience) through river revitalization programs as part of spatial planning. Furthermore, building and implementing institutional arrangement on climate adaptation and making Jakarta more resilient to flood will give a significant contribution for the society as well as the peri-urban since Jakarta receives approximately 2.3 million commuters per day from the outer cities (Bogor, Depok, Tangerang, and Bekasi) (Indonesia Statistic Board, 2014). Jakarta also plays a vital role as an economic and administrative centre. Currently, Jakarta is doing a river revitalization project, which is deemed one of the methods to enhance flood protection (Alokhina, 2020). Thus, making Jakarta more resilient to flood by exploring the institutional arrangement on flood risk management through implementing the Ciliwung River revitalization program is essential.

This research elaborated current institutional arrangement in Jakarta which was applied in the Ciliwung River revitalization project and analyzed the enabling institutional conditions for flood risk management through urban revitalization. The type of institutional arrangement used by Jakarta in the last part of the thesis will become the key for measurement to the design of institutional arrangement in Jakarta. Thus, provide beneficial information and concrete suggestions to planning practitioners to improve flood risk management by designing institutional arrangement to increase flood resilience.

The findings in this study have implications for theory in relation to the design of institutional arrangement in spatial planning to increase flood resilience developed by Meng *et al.* (2020). As reported in the findings, that strong coordination and commitment of institutions and actors plays a significant factor in the implementation of flood resilience to be successful. Since this research is conducted in Jakarta, hence the element of commitments in this finding can also be applicable for

cities in developing countries. Furthermore, this research also defined that the theory of urban flood resilience can be improved by implementing urban revitalization. This is because in general the purpose of urban revitalization is to make a positive contribution to the development of the city, in terms of social, economic, and cultural. So that the application of urban revitalization can be used to design an institutional arrangement for flood risk management to increase flood resilience of a city, especially for cities prone to flooding.

1.5. Outline of the thesis

Chapter 1 consists of the scope of this research, which includes the introduction of the topic river revitalization program in Jakarta, the aim of the research, and the research questions. In Chapter 2, institutional arrangement for flood resilience is conceptualized using literature on flood resilience. Conceptualization results in an analytical framework of the research. Chapter 3 describes the method used for data collection and analysis on this research. Next, Chapter 4 describes the Ciliwung river and Jakarta as the study area of this research. Chapter 5 shows findings based on semi-structured interviews and desk study. Then, Chapter 6 provides a discussion, conclusion, and recommendation based on the result of the analysis in conformance with the theory. Lastly, chapter 7 presents the reflection on this research.

Chapter 2: Theoretical framework

This chapter elaborates on the relevant theories used to understand how flood resilience strategy combined with urban revitalization program can be used as an institutional strategy for flood risk management, hence enhanced flood resilience of a city. It also explains the definition of the concepts and the interrelation between them. The concept overview allows the construction of a conceptual framework to be useful to analyse the observed phenomena and then find out the answer for the research question. Chapter 2.1 explains the concept of resilience and how the climate of urban climate operationalize. Subsequently, Chapter 2.2 elaborates the spatial planning policies and practices for increasing flood resilience. Then, Chapter 2.3 explains the urban revitalization approach to flood risk management. As a result, Chapter 2.4 develops a conceptual framework on how to increase flood resilience through combining institutional flood management strategy with urban revitalization program.

2.1. Conceptualising resilience

Conceptualization of resilience is based on the theoretical assumption of the systems and stability notion that entails, which depends on the view of the presumed system (Tempels, 2016). Resilience is a fuzzy concept that involves a high sense of uncertainty, surprise, and unpredictability (Folke, 2006; Davoudi, 2012). It can be defined as a system's capacity to absorb disturbance and has the ability to self-organize to maintain its structure, function, and identity while experiencing change (Bickerstaff and Walker, 2005; Folke, 2006; Davoudi, 2012). The term of resilience was first introduced by Holling in 1973 as a concept to assist in conceiving the capacity of ecosystems to persist in the initial state while experiencing disturbance. The concept has been used in multidisciplinary knowledge, such as engineering, economics, disaster management and planning, and replaces the term of sustainability in the daily discourse (Davoudi, 2012).

2.1.1. Type of resilience

Measurement of resilience is not based on the speed of recovery because there is a possibility for a system to have 'multiple stable states' to maintain its essential function (Walker *et al.*, 2004). The concept of resilience has developed from 'engineering resilience', emphasising physical meaning, expanding to the field of ecology with its 'ecological resilience', and 'evolutionary resilience' (Davoudi, 2012).

a. *Engineering resilience*

Engineering resilience is based on the mechanistic conception that everything is full of certainty, predictable, and explained (Davoudi, 2012). This traditional concept concerns stability close to the initial state and focuses on a single equilibrium (Holling, 1996). In engineering fields, the resiliency of a system is measured by the resistance and the speed of the system to return to its steady-state (Davoudi, 2012). This definition only prevails to the linear systems' behaviour, or the non-linear systems' behaviour as long as a linear approximation in the surrounding of the stable state is valid (Folke, 2006). However, when it comes to a complex adaptive system, which resembles ecological system characteristics, after the system experiences disturbances, there is an alternative stable state. This is what is called ecological resilience (Walker *et al.*, 1969; Holling, 1996; Davoudi, 2012).

b. Ecological resilience

Ecological resilience concerns the condition that is different from the initial state where disturbance can shift a system into another stability condition (Holling, 1973). It acknowledges that there are multiple attractors in complex systems (Folke *et al.*, 2010). This suggests that disturbance given to a system can pass the threshold marking the stability limit of its original state, which then the system does not return to the initial state but into a different state of equilibrium (Folke *et al.*, 2010). In contrast with engineering resilience, ecological resilience emphasises resistance to shock and time needed for a system to return to its stability and concern with adaptability, which is the extent of disturbance it can hold and endure within the critical limit (Holling 1996, Davoudi 2012). It recognizes the concept of multiple equilibria and the potential ability for a system to shift into other new stable conditions (Gunderson, 2000; Davoudi, 2012).

c. Evolutionary resilience

Evolutionary resilience comes from the fact that the system may experience change over time naturally with or without external shocks (Scheffer, 2009). This is because persistence to disturbance is not only the characteristic of resilience in the nature of the system but also the opportunities that disturbance creates in developing new trajectories and evolving the structures and processes (Folke, 2006). Consequently, the evolutionary resilience perspective does not view resilience as the ability to return to stability but rather as the ability of the system to change, adapt, and transform in reaction to disturbance (Davoudi, 2012). It presents adaptive capacity that enables continuous development and dynamic adaptive interactions between sustaining and developing by taking change into consideration (Folke, 2006).

Scholars like Folke *et al.* (2010) defined it as socio-ecological resilience, as human actions often contribute as external stimulants of ecosystem dynamics, including polluting and water harvesting. It relates to the dynamics of a complex adaptive system that interacts over spatial and temporal scales (Folke, 2006).

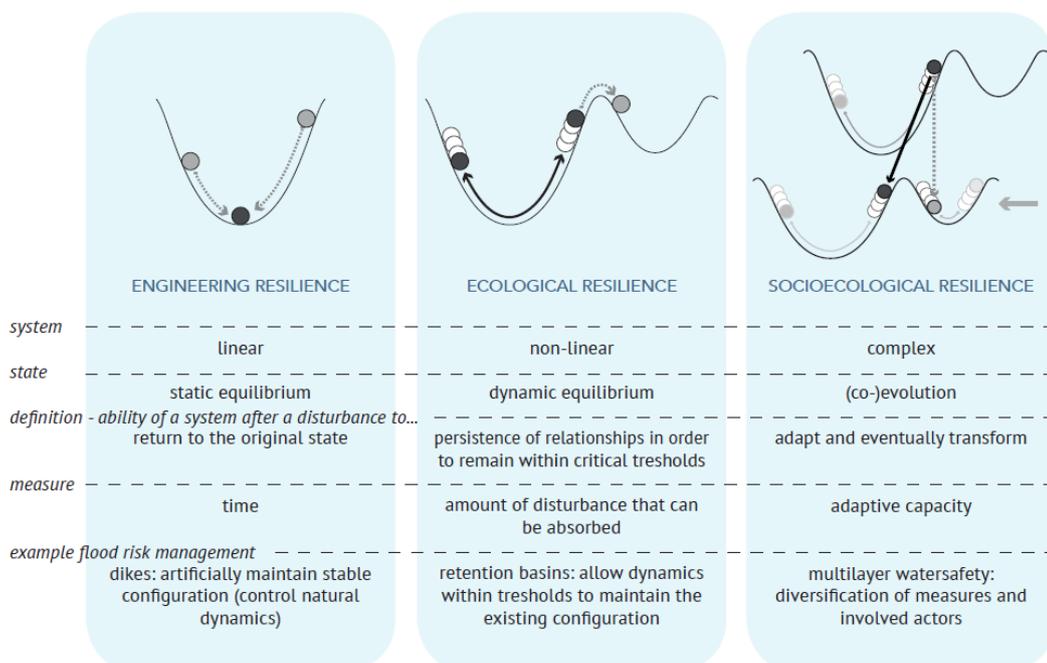


Figure 1. Schematic illustration of engineering resilience, ecological resilience, and socio-ecological resilience (Source: Tempels, 2016)

Evolutionary resilience or socio-ecological resilience concept shows the ability to persist and take into account the notion of adaptation, self-organization, and learning (Carpenter et al., 2001; Folke, 2006). Thus, social-ecological resilience is described as (1) the quantity of shocks that a system able to captivate and still maintain its same equilibrium, (2) the capability of a system to carry out self-organization, and (3) the capability of a system to develop and improve the learning and adaptation capacity (Carpenter et al., 2001; Folke, 2006).

An example of a socio-ecological system is the relationship between the impact of climate change on communities. Human activity, such as industrialization, urbanization, transportation, leads to pollution, change in nature and climate, which in return impacts society, which means that human and ecological systems are intertwined.

Resilience theory also applied in the flood resilience to prevent flood hazards, especially in the context of climate change. The resilience concept concern on the process of adaptation, self-organization, and transformation which is in accordance with the flood resilience initiative. Important part of flood resilience initiative is a reducing flood probability, adaptation, and transformative social change (Restemeyer *et al.*, 2015). Therefore, understanding resilience theory is important for approaching flood resilience concept.

2.1.2. Approach on flood resilience

Resilience approaches have been widely used to prevent flood hazards. Scholars like Restemeyer *et al.* (2015) have categorised three approaches on flood resilience: robustness, adaptability, and transformability.

a. Robustness

Robustness relates to the ability to persist and absorb disturbance by reducing the flood probability (Restemeyer *et al.*, 2015). Robustness is usually equated with resistance strategy, mainly focusing on the physical measures combined with spatial measures. In terms of the flood event, robustness strategy is applied through engineered structures, such as dykes, dams, or embankments, to absorb the damage caused by flood (Restemeyer *et al.*, 2015). In spatial planning, robust planning option is important for the society to be functioning. On the other hand, critics of this type of spatial planning often come from contemporary planning, judging that it is incapable of dealing with wicked circumstances and uncertainties (Hartmann et al., 2012a; Tempels and Hartmann, 2014). However, robustness is still an essential factor in spatial planning decisions (Tempels and Hartmann, 2014).

For flood resilience to be robust, other than social acceptance at the macro-level, strong political and financial support is needed (Restemeyer *et al.*, 2015). In Jakarta, as a capital city that holds administrative and economic functions, having a strong resistance strategy is substantial (Firman *et al.*, 2011).

b. Adaptability

Adaptability shows the ability to continually evolve to suitable circumstances (Restemeyer *et al.*, 2015). It requires the capacity of actors to induce resilience in the system (Walker *et al.*, 2004). Personal human actors are influential for the dynamics of socio-ecological systems to do self-

organization in a complex adaptive system. Therefore, adaptability can be regarded as a function of the social constituent (Walker et al., 2014).

In flood risk management, measurement to reduce vulnerability is required to include adaptation in the social realm and environmental configuration in the surrounding area. Thus, it requires a flexible institutional regime that can develop rules and regulations to reduce the consequences of flooding (Restemeyer *et al.*, 2015). Furthermore, engineering infrastructures and urban activities have substantial impacts on the water system. The enormous and increase land use activities in water catchment area causes the water system management to become harder to predict, complicated and complex (Tempels and Hartmann, 2014). Consequently, this wide range of inherent uncertainty and complexity concerning changes on the component of flood risks, either physically or socially, need a more flexible arrangement to be included in the process of decision (Tempels and Hartmann, 2014). In this regard, raising awareness and willingness to adapt is essential (Folke *et al.*, 2010).

c. Transformability

Transformability shows the ability and capacity of self-organization to make the transition to a new system that is more suitable in dealing with floods (Walker *et al.*, 2004; Restemeyer *et al.*, 2015). In many cases, a small degree of transformational changes could contribute to multiple scales of resilience. This can be done by using shock events as a window of opportunity for innovation and incorporating experience and knowledge to drive transformation (Folke *et al.*, 2010). Transformability requires an adaptive governance system to look at the wider social dimensions that allow adaptive governance framework (Folke, 2006). In this framework, collaboration among multiple stakeholders from different backgrounds and different levels of institutions is important (Folke, 2006). The role of individual actors is essential, as well as their activity in social relations. Social networks provide a link for an adaptive governance system and increase transformative resilience (Folke, 2006; Brown *et al.*, 2020). Multidisciplinary networks and learning desire become the modals to create a transition (Restemeyer *et al.*, 2015). Along with the increasing awareness and knowledge of the system, the transformation to cope with flooding will occur.

To conclude, the approach on flood resilience is reflected on the governance which demand to be adaptive. Adaptive forms of governance can tackle uncertainty, such as climate change, natural disaster, socio-economic crises, and political change, by considering an immediate and long-term change (Folke *et al.*, 2005; Rijke *et al.*, 2012). Nevertheless, the system dynamics' complexity and interrelation between distinct elements of governance systems lead to fundamental uncertainty regarding the time of the outcomes (Rijke *et al.*, 2012). Therefore, adaptive governance seeks to overcome uncertainty by means of continuous learning, multi actors participation in decision-making exercises, and self-organization of the system in the governance itself (Rijke *et al.*, 2012). Scholars like Folke *et al.* (2005) and Olsson *et al.* (2006) suggest the importance of continuous learning in adaptive governance, which considers uncertainties and dynamical complex systems. The learning operation is encouraged by networks that enable interactions between individuals, agencies, and institutions at various levels to take advantage of numerous knowledge and experiences to policies development (Rijke *et al.*, 2012). Thus, learning in adaptive governance is connected to institutional capacity building. Examples of this institutional capacity building are open decision-making process, development of policies, encouraging community participation, and developing networks between actors. Moreover, learning and interrelation of actions between actors will lead to self-organization in the adaptive governance systems (Folke *et al.*, 2005; Rijke *et al.*, 2012). Therefore, leadership plays

an important role in providing adaptive processes by drawing together people, knowledge, and resources (Rijke *et al.*, 2012; Schultz *et al.*, 2015).

2.2. Spatial planning policies and practices for increasing flood resilience

The necessity to react to intensifying flood hazards, climate change, and rapid urbanization has formed innovation on spatial planning policies and practices in various nations. The important key to reaching resilience in a socio-ecological system is the ability to adapt to change and reorganize the system (Folke *et al.*, 2010). The capacity of actors to react to disturbance by reorganizing the system is crucial in an adaptive socio-ecological system. In a wider social context, this capacity refers to adaptive governance (Folke *et al.*, 2005). Folke *et al.* (2005) defined adaptive governance organize itself as an interconnected social system with groups of actors leveraging multiple systems of knowledge and encounters for the policies building and shared understanding. In an adaptive governance approach, ideas or measures can be developed by various actors to reduce flood risks (Molenveld and van Buuren, 2019).

Spatial planning has been acknowledged as a tool for adaptive governance to manage flood risks, which takes technical intervention to organize spatial setting and land use (Meng *et al.*, 2020). Therefore, planning is considered substantial to increase flood resilience by improving the physical environment. However, an extensive perspective from various knowledge of the discipline is needed in this spatial planning domain. Meng *et al.* (2020) has identified four pillars of spatial planning that contribute to flood resilience and are interrelated to each other, as shown in Figure 2.

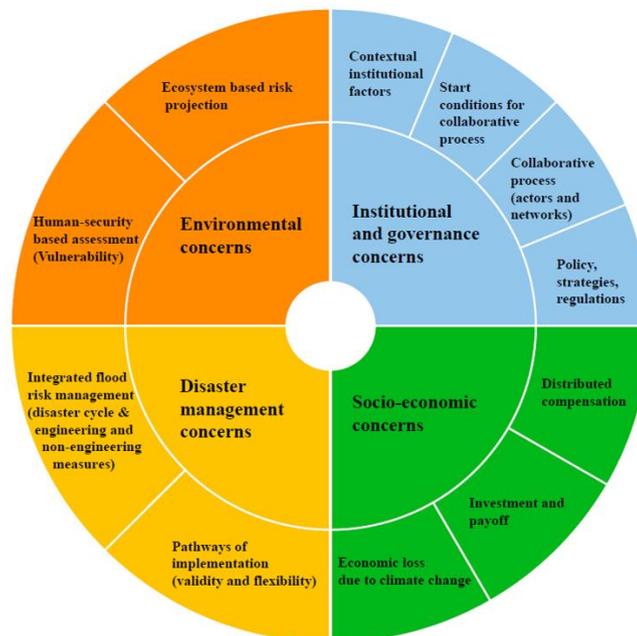


Figure 2. The four pillars of spatial planning for flood resilience (source: Meng *et al.*, 2020)

Since this research focused on institutional arrangement in spatial planning to increase flood resilience, it emphasized studying the elements of institution concern in spatial planning. Thus, this research did not attempt to assess the other three pillars of concern (environment, disaster management, and socio-economy) in spatial planning because they are out of the frame this thesis wants to examine. This research explored how the institutional system at the national and local levels responds to flood hazards. The pillars of institutional and governance consists of elements flood

governance products, collaborative process, pre-condition for governance, and contextual institutional factors. These four elements are considered important for the development of the institutional strategy to increase flood resilience in Jakarta; therefore, this research investigated these elements further.

2.2.1. Governance products

The governance products include policies, flood strategies, and planning rules, providing legal support and incentives for policies and planning to become involved in the flood agenda (Meng *et al.*, 2020). The important issues are the integration of existing policies and regulations against existing resilience scheme in planning and policy programs, the existence of tools that function more strict and detailed policies in all levels (nationally and locally) to escort actors (policymakers and planners) at lower levels of government, and the incorporation of climate knowledge and vulnerability assessments in long-term policy decision making (Driessen *et al.*, 2016). The alignment strategies between national and local governments are essential in anticipating flood hazards. The application of the master plan relies on the commitment of the central government to allocate budget and legislative support to the flood organizations (Simanjuntak *et al.*, 2012). This policy integration can be created if there is strong collaboration between various actors across sectors and levels of government (Meng *et al.*, 2020).

2.2.2. Collaborative process

The collaborative process demonstrates extensive cooperation among actors in developing and applying policies related to resilience and adaptation. It shows exchanges between governments, planners, and communities. In flood governance, the collaborative process is deemed complex due to institutional barriers (Meng *et al.*, 2020). Individual institutions or agents with diverse roles and interests created a social network in flood ventures. Building consensus between the public and private sectors is important in the collaborative process. Furthermore, the operationalization of policy-making between governmental sectors (horizontally and vertically), like workflows, methods, and frequency, can influence the collaborative process.

2.2.3. Pre-condition for governance

The pre-condition of flood governance relates to the existing setup of governance. However, the complex nature of the collaborative process, such as the authority, resources, and organizational circumstances, represents that pre-condition can influence planning implementation in collaborative governance (Meng *et al.*, 2016; Driessen *et al.*, 2018). Legal provision and adjustable planning tools can affect legal demarcations on the change of land use and climate policy (Driessen *et al.*, 2018). In addition, appropriate financial allocations and access to information concerning planning are needed in dealing with the impacts of flood distribution (equity), sharing knowledge among actors, and delivering information to the public (Driessen *et al.*, 2018). Furthermore, establishing a technical collaborative working platform, providing planning accountability, and delivering knowledge stipulates the planning agencies' capacity in governing floods (Meng *et al.*, 2020).

2.2.4. Contextual institutional factors

The contextual factors of an institution can shape the governance condition (Meng *et al.*, 2020). It could influence the pre-conditions for planning in governing the floods—from the specified administrative framework and shared conceptions to values and traditions embedded in history (Meng *et al.*, 2020). Furthermore, fractured frameworks in political administration, imbalances of power, and perseverance in traditional paradigms of flood governance can prevent planning agencies from applying a wide range set of adaptation measures on the flood agenda. Established institutional conceptions and public perceptions can interfere with the capacity of agents to embrace broad resilience measures since attachments to institutional routines and extensively admitted ideas are often irreversible. Institutional beliefs, values, notions, and traditions attached in history and culture (e.g., social expectation values, laws, and juridical decisions) and institutional attributes, such as administrative procedures, statutes, and organizational structures, are essential for effective flood institutions. However, they are relatively durable and difficult to change (Simanjuntak *et al.*, 2012).

Within the pillar of institutional and governance, Meng *et al.* (2020) developed a framework on institutional mechanism in planning that allowing effective and efficient (governance) actions in multi-level, multi-domain, and multi-actor settings which can be seen in Table 1.

Table 1 Institutional determinant in planning that enabling for effective and efficient governance actions followed by indicators (Meng *et al.*, 2020)

Institutional determinants for effective and efficient flood governance	Elements of institutions	Indicators
Flood governance products	Policies, standards, rules and strategies	Alignment of policies and strategies between governance levels
Collaborative process	Actors	<ul style="list-style-type: none"> - Proactive participation in decision-making process - Leaderships of the policy actors
	Networks	<ul style="list-style-type: none"> - Horizontal and vertical networks - Government, private, and public networks
Pre-condition of flood governance	Authority conditions	Legislative support from national to promote local actions in terms of land use function for flood resilience (political support)
	Resources conditions	<ul style="list-style-type: none"> - Information sharing and knowledge communication between governmental sectors and public - Availability of tools or platform for communication - Skills and knowledge of human resources (intellectual capital) - Relation among stakeholders (social capital)
	Organization conditions	<ul style="list-style-type: none"> - Clear responsibilities and power between authorities, local planning actors, and other stakeholders - Knowledge and capacities to organise flood risks

Institutional determinants for effective and efficient flood governance	Elements of institutions	Indicators
Contextual factor	Institutional design	<ul style="list-style-type: none"> - Administration procedures - Laws and regulations - Budget schemes (allocations) or financial instruments - Organisational structures or institutional setting - Stakeholder selections - Transparency and openness
	Inherent values and traditions	<ul style="list-style-type: none"> - Fixed costs - Learning effects - Social expectations and mindset - Legislation and juridical decisions values (Paradigm of institution) - Continuation of mal-adaptations

Since the research investigated the institutional strategy on flood resilience associated with the river revitalization program in Jakarta, the indicators used were adjusted with the research needs. Table 2 shows indicators of the Institutional determinant in planning that enable effective and efficient governance actions in the research study.

Table 2. Institutional determinant in planning that enabling for effective and efficient governance actions followed by indicators used in this research (Source: Meng *et al.* modified by author)

Institutional determinants for effective and efficient flood governance	Elements of institutions	Indicators
Flood governance products	Policies, standards, rules and strategies	<ul style="list-style-type: none"> - Detached or mainstreamed policies/strategies with other local agendas - Fit or mismatch of policy framing between different governance levels - Short-term vs. long-term benefits
Collaborative process	Actors/stakeholders	<ul style="list-style-type: none"> - Roles of governmental and private actors (diversity, participation, experimentation, learning and self-organisation) - Misaligned interests of parties - The leadership of the foremost actors/or political entrepreneurs
	Networks	Policy-making frequencies, cycles and procedures (horizontal and vertical; government, private, and civil society)
Pre-condition of flood governance	Authority conditions	<ul style="list-style-type: none"> - Legislative support from national to promote local actions (regulatory and procedural support) - Powers, responsibilities and discretions of governmental sectors (devolution and decentralisation)
	Resources conditions	<ul style="list-style-type: none"> - Finance support or financial resource exchange - Information sharing and knowledge communication between governmental sectors and publicity
	Organization conditions	<ul style="list-style-type: none"> - Political wills to take actions; clear responsibilities and power - Opportunities for the inclusion of citizen and private sectors in decision-making - Skills, knowledge, and capacities to organize climate adaptation - Emerging of alternative technics
Contextual factor	Institutional design	Administration procedures
	History and culture embedded notions, values and traditions	<ul style="list-style-type: none"> - Paradigm of institution - Mindset of stakeholders

The institutional determinants used in this research are: flood governance products which consists of policies and regulations that Jakarta has in flood management; collaborative process which includes actors involved in the collaboration and networks created in the collaboration process; pre-condition of flood governance which consists of authority conditions of the flood governance or political support, resources condition such as information sharing, intellectual capital, and social capital, and organization conditions of the institutions, for example the role and responsibilities of the institutions and the knowledge capacities on flood risks, and; contextual factor which includes institutional design or administration procedure of the institution and inherent values of the flood institution.

2.3. Urban revitalization as a spatial planning approach to resilience

Urban revitalization can also be used to increase resilience. Revitalization can be mean restoring the physical, socio-cultural and economic dimensions. This is based on the notion of balancing the fast development in the urban area by maintaining urban culture, identity, and tradition (Ramlee *et al.*, 2015). Revitalization can also mean conservation, which means that there is a physical intervention of the building to preserve its performance (Ramlee *et al.*, 2015). Urban revitalization can also be used to increase urban resilience since it can develop an urban area physically which improve the way of urban living (Ramlee *et al.*, 2015). Furthermore, according to Ramlee *et al.* (2015) there are many terms used for urban revitalization, such as urban renewal, urban conservation, urban regeneration, urban restoration, urban rehabilitation, urban redevelopment, urban reconstruction, and urban renaissance.

Urban revitalization can be defined as the development of public space, which usually contains enhancing attributes of the urban environment (Ramlee *et al.*, 2015). In terms of process, urban revitalization is composed of a collection of urban management strategies to give facilitation for the development of social, economic, and environmental in problematic urban areas (Ramlee *et al.*, 2015). It refers to several initiatives intended to restore the current cities, particularly in areas that are experiencing declined economically or socially. Therefore, the objectives are to rebuild a city with good quality of environment and appropriate socio-cultural facilities and improve quality of life (Ramlee *et al.*, 2015). The revitalization of urban space for vital infrastructure that is carried out effectively can produce the circumstances for an efficient city, encourage the creation of innovation, improve the quality of life, increase economic development and community welfare, and deliver respect to the environment (Kithiia and Lyth, 2011; Ramlee *et al.*, 2015).

Planning generally responds to changing by involving a revitalization strategy both physically and organizationally (Balsas, 2014). The physical approach consists of improvements to landscape and facades and investment in public infrastructure and facilities projects. Meanwhile, the organizational approach consists of organizational restructuring or forming a new organization that aims to develop and implement the renewal strategy, including utilizing existing resources, acquiring funds, organizing events, and promoting skills development training and workshops. This strategy's success depends largely on the need to design and implement revitalization that is localized, timely and resource-rewarded (Balsas, 2014).

Nowadays, social and economic dimension has been included in the urban planning and reflects the importance of integrative planning. Actions and strategies taken by restructuring the urban areas will help to improve the urban economic, social, and environment. In other words, physical activities will increase life quality and create sustainable communities (Ramlee *et al.*, 2015). The function expected from the urban revitalization can affect the types of renewal activities carried out. The revitalization

program can increase community engagement and the use of public spaces, such as the provision of parks or other facilities that can improve the quality of life of an area (Kithiia and Lyth, 2011). Depending on the scale and type of activities undertaken, urban revitalization initiatives can become large projects, complex in application and operation and demand advanced innovation and technology (Kithiia and Lyth, 2011). In some initiatives, urban revitalization programs intend to provide parts, such as utility grids, of the neighbourhood to meet the expected economic functions. However, a multi-governance approach and participation from stakeholders are essential for the revitalization to occur (Vasab, 2016).

The form and function of urban structures can affect the level of urban flood vulnerability, so it is necessary for urban planning to understand these to manage the city's capacity to adapt to changes in population and climatic conditions (Zevenbergen *et al.*, 2008). Therefore, it is important for a city to learn from the past to know what to prepare for the future through effective development and application of flood management. Consequently, the process of tracing and evaluating unsatisfactory practices in the past should be carried out and replaced with those old practices by experiments and innovations in better urban management. Revitalization of urban infrastructure and buildings is one of the ways of long-term change adaption for cities, fixing old mistakes, and increasing flood resilience (Zevenbergen *et al.*, 2008). Based on the latest climate change scenarios, a significant increase in the frequency of flooding will occur, and the age of infrastructure will affect its level of vulnerability. Therefore, periodic urban revitalization schemes can be an effective strategy to improve urban structures against the risk of flooding (Zevenbergen *et al.*, 2008). Furthermore, it clearly understood that by revitalizing the form and function of urban structure can give impact to the resiliency of a city.

Parks *et al.* (2008) classified the performance of urban revitalization into five categories: customer, innovation, sustainability, financial, and project process perspectives. The framework of urban revitalization developed by Parks *et al.* (2008) can be seen in Figure 3. This framework can be used for each category made by Parks *et al.* (2008). In urban revitalization, several critical factors should be considered, with a focus on how satisfactory a particular project is in terms of (1) alignment with the development plans (national and regional), degree of economic efficiency, and level of sustainability, (2) consideration of public needs, various functions of spaces, and cultural facilities, and (3) contribution to the local economy and promotion of urban attraction (Park *et al.*, 2008). Urban revitalization can create a major impact on local communities and the national economy. Therefore urban renewal has the attributes of public facilities (Park *et al.*, 2008).

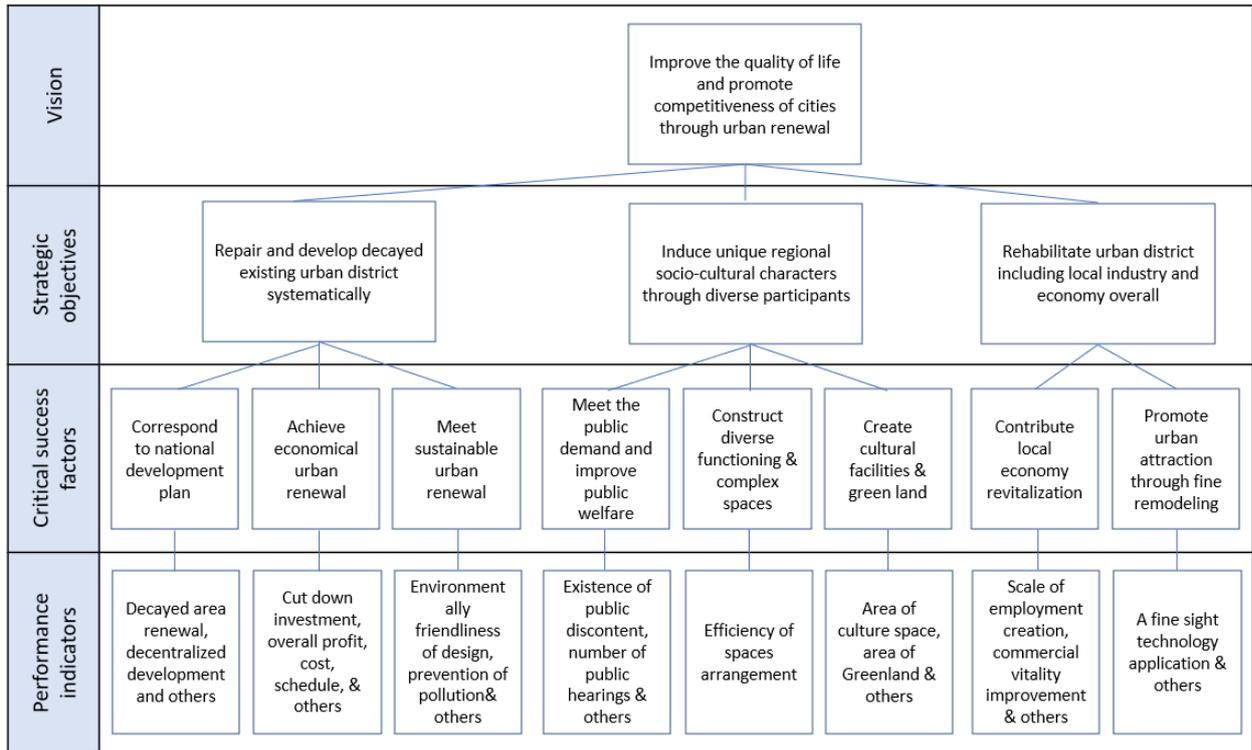


Figure 3. Performance indicator process of urban revitalization (source: *Park et al., 2008*)

However, since the case study of this research is river revitalization to increase resilience, which is characterized as public facilities, thus this research focuses on the category of customer perspective on the critical success factor of revitalisation. Therefore, the framework of urban revitalization success factor from the standpoint of community/public can be seen in Table 3.

Table 3. The framework of urban revitalization success factor (modified from *Parks et al.*)

Performance of urban revitalization	
Urban district system	<ul style="list-style-type: none"> - Consistent with the national strategy - Harmonious collaboration among organizations within the urban revitalization project
Socio-cultural	<ul style="list-style-type: none"> - Meet public expectation - Service and welfare improvement
Local economy	<ul style="list-style-type: none"> - Improve local economy (job creation)

This research explored the performance of urban revitalization based on three elements which is considered suitable for the condition on the Ciliwung river revitalization project. The first element is urban district system, which shows the consistency of the Ciliwung river revitalization project with the national strategy and the collaboration of institutions involved in the project. Next is socio-cultural element, which shows how the project meet public expectation regarding flood resilience and how the project contributes to the improvement of service and welfare of the local people. The last is local economy element, which shows how is the impact of the project on improving local economy, such as reduce financial lost and job creation.

2.4. Conceptual framework of this research

The conceptual framework is drawn to provide the concepts used in this research explained in the earlier section and showed the interrelation between them, which will guide to answer the main research question. These concepts help identifying which factors of institutional flood risk management could lead to the increased flood resilience in the city.

The model illustrates that climate change and urbanization lead to increased vulnerability to floods. Thus, to deal with these disturbances, a city needs to be resilient to flooding. In terms of spatial planning, that combination requires an institutional arrangement for resilient flood risk management in a multi-sectoral setting. Since this research aims to find out factors for institutional arrangement to increase Jakarta's flood resilience, it focuses on the institutional and governance section related to the performance of urban revitalization in flood resilience. The aspect of institutional and governance of urban resilience agenda are deemed significant to successful implementation of the flood resilience projects, hence these elements should be elaborated. This agenda consists of governance products, collaborative process, pre-condition of governance, and contextual institutional factors, and the aspects of urban revitalization for flood governance are significant to enhance urban resilience. Furthermore, urban revitalization is also deemed important in spatial development for increasing resilience, thus elaboration of the impact of urban revitalization to urban district, socio-cultural, and local economy have a vital role for the urban resilience. The combination of these factors requires adaptive flood governance to be operationalized. The operationalization of adaptive governance is by incorporating the institutional flood governance agenda and revitalization project so that it can create mutual arrangement of urban resilience. This approach helps strengthen the institutional arrangement for flood risk management to increase flood resilience (see the box in Figure 4).

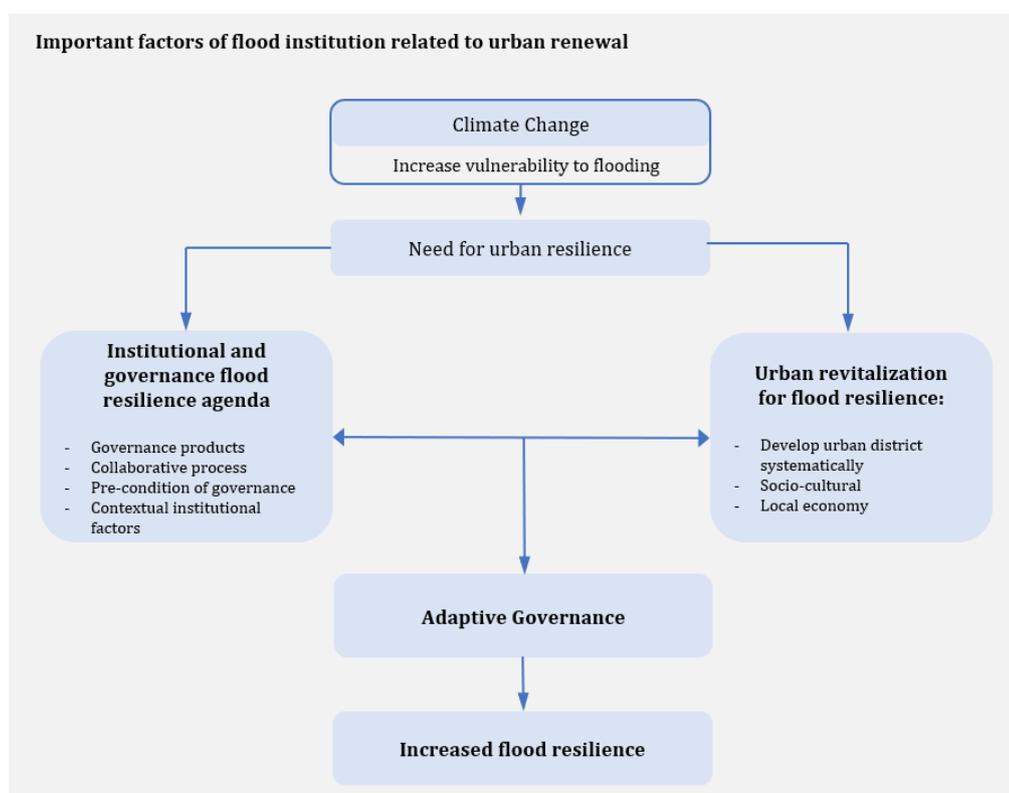


Figure 4. Conceptual framework of the research

Chapter 3: Methodology

3.1. Research approach

This study employed a qualitative case study approach (Yin, 2003). This approach provides an in-depth exploration of phenomena within some particular context (Rashid et al., 2019). According to Yin (2018), case studies can give a well-defined profoundness on a “case” as well as maintain holistic and actual perspective. As a research method, a case study can be utilized for three occasions, namely exploratory studies, descriptive studies, and explanatory studies (Yin, 1994). It acknowledges the importance of subjectivity based on the constructivist paradigm (Stake, 1995; Yin, 2003; Baxter et al., 2008). Furthermore, constructivism is developed upon the ground of the social construction of reality (Searle, 1995). Hence, cooperation between the researcher and the participant is fundamental so that the participants willing to tell their stories (Crabtree & Miller, 1999). Therefore, the received stories from the interviewees will be used to depict their views of reality, which allows the researcher to understand the phenomena that occur.

To establish an institutional strategy that contributes to the increased flood resilience in Jakarta within the river restoration platform, this study uses the Ciliwung River revitalization program as a case study. The Ciliwung River revitalization program is chosen due to the importance of the Ciliwung River for citizens in Jakarta and that the causes of flooding in Jakarta are mostly because of the overflowing of the river. This study uses a qualitative case study as a specific way of empirical inquiry that investigates the phenomenon of urban flood adaptation within the context of the governance of Jakarta. The research explores the information from various sources and creating a case study database.

3.2. Unit of analysis

Determination of boundaries of the case is important in the qualitative case study approach (Stake, 1995). Therefore, this research will make boundaries to define place, time and activities taken in the case study (Stake, 1995).

3.2.1. Spatial boundary

The spatial boundary in this research is in Jakarta city, with the focus on the area where the Ciliwung river restoration program has already occurred. In this study, the Bukit Duri area (Kampung Melayu-Manggarai segment) in East Jakarta is chosen due to the Ciliwung River restoration program had implemented in that area. Bukit Duri is also well known for its high vulnerability to flooding. The neighbourhood in Bukit Duri can be classified as a middle-low class settlement, with most of the communities are non-permanent workers. Furthermore, the area always experiences flooding in the rainy season every year, so the impact of the river restoration program can be observed in the area.

3.2.2. Time frame

The phenomenon of climate change, the relationships between actors, and the governance process can change over time. Therefore, it is important to define a research timeframe to have reliable and valid research. The research was conducted from February 2021 until August 2021. Data collection

will occur from April until June 2021. The results of the study are taken based on the respondent responses during that period.

3.3. Data collection

Research methodology applied in a case study comprises diverse methods of data collection and analysis (Taylor, 2016). This thesis uses primary and secondary data to attain a comprehensive understanding and amplify the research validity (Tyrell, 2016). In this research, data collection mainly based on the literature review, desk study, and semi-structured interview. The comprehensive data collection framework is presented in Table 4.

Table 4. Data collection framework

Research questions	Information needed	Source	Method of retrieval	Documentation method	Method of analysis	Output
a. How does existing policy encourage flood resilience in Jakarta?	Information of the policies and regulations related to flood resilience	<ul style="list-style-type: none"> - Interviews with stakeholders and experts - Policy documents, government documents and reports, articles from scientific journals 	Collecting policy documents and reports from official sources, Semi-structured interviews	<ul style="list-style-type: none"> - Writing in narrative - Transcripts note from interviews 	Explorative, content analysis, and examining the policy	Approach on flood risk management
b. How has the government built an institutional arrangement for flood risk management in the river revitalization program to increase flood resilience?	Information of the Jakarta flood institutions and strategies on tackling flood hazards	<ul style="list-style-type: none"> - Interviews with stakeholders and experts - Policy documents, government documents and reports, articles from scientific journals 	Collecting policy documents and reports from official sources, Semi-structured interviews	<ul style="list-style-type: none"> - Writing in narrative - Transcripts note from interviews 	Explorative, content analysis	Jakarta's institutional arrangement for the flood risk management
c. How river revitalization improves flood resilience from the perspective of the community?	Information of the performance of the river revitalization	<ul style="list-style-type: none"> - Interviews with stakeholders and experts 	Semi-structured interviews	Transcripts note from interviews	Explorative, content analysis,	Performance of Ciliwung river revitalization program
d. What are constraining factors and the potentials of the institutional strategies for implementing flood resilience policies in the city?	Information of the limitations and capabilities of the implementation of flood policies and from output b and c.	<ul style="list-style-type: none"> - Interviews with stakeholders and experts - Policy documents, government documents and reports, articles from scientific journals 	Semi-structured interviews, literature study, and critical reading	Transcripts note from interviews	Explorative, content analysis,	Factors influence the implementation of the flood resilience policies in Jakarta

3.3.1. Literature review

Scientific literature was examined and discussed for the theoretical framework. This process was built by specifying relevant concepts in the theory of resilience, the approach on flood resilience, and governance and institutional arrangement in spatial planning. The review materials consist of theories, concepts, and findings related to resilience strategies. The theory of resilience is useful to give understanding on the concept resilience itself which then applied in the flood resilience approach. Literatures on governance and institutional arrangement gives valuable insight on operationalization of the flood institution arrangement. Furthermore, literature on urban revitalization provide valuable information how revitalization could influence the flood resilience of a city. The result and information of the review are valuable sources for the development of this research.

3.3.2. Content analysis

The content analysis consists of an analysis of a set of documents, such as policies, government reports, and articles. This was conducted to obtain more insight into how the policies and regulations in spatial planning affect flood resilience in Jakarta. This analysis is useful to prepare for the interviews, as it provides background information of the study. The content analysis incorporated the information of the current institutional setting and current flood policies and strategies. All the information was collected through official government websites and scientific articles regarding flood risk management and resilience and river restoration programs in Jakarta. The information was able to explain the context related to the research. Moreover, articles and other websites from the news or independent organizations were also examined to acknowledge the impact of policies and strategies to the resilience of Jakarta. In this research, the content analysis was mainly focused on five relevant documents to the research. Table 5 presents an overview and a short description of the documents.

Table 5. Document used for policy analysis.

Name	Regulation	Description
Jakarta Midterm Development Plan (RPJMD Jakarta) 2017-2022	Jakarta Provincial Decree No. 1/2018	Provide direction for flood and abrasion control program, such as construction of river estuaries, reservoir construction or river normalization and naturalization, and improvement of water management.
Diversion of river Flow and/or utilization of ex-river segments	Ministry of Public Works and Public Housing No. 26/2015	Provide direction in carrying out river channel diversion and/or utilization of ex-river segments while maintaining the sustainability and function of the river, as well as collecting data and inventorying state assets in the form of rivers for orderly administration of rivers.
Determination of river boundaries and lake borders	Ministry of Public Works and Public Housing No. 28/2015	Regulates the determination of river boundaries, lake boundaries, including springs; Utilization of border areas; and supervising the utilization of border areas.
Integrated development and revitalization of water resources infrastructure with the concept of river naturalization	Governor Decree No. 31/2019	Regulates the arrangement of green open spaces and wetlands, ecological aspects for reforestation, waste management and water quality, to community empowerment, which aims to increase the carrying capacity of water resources infrastructure as an effort to control floods, conserve water resources and their ecosystems, and improve environmental quality life.
Urban spatial planning of Jakarta, Bogor, Depok, Tangerang, Bekasi, Puncak and Cianjur	President Decree No. 60/2020	(1) as a reference for the use and control of space utilization for economic development and a metropolitan activity centre with consideration of environmental sustainability aspects; and (2) mandating the establishment of the Jabodetabek-Punjur Area Management Coordinating Agency to strengthen coordination of regional development and management and accelerate debottlenecking.

3.3.3. Semi-structured interviews

The semi-structured interview is intended to collect the primary data. Semi-structured interviews have a certain predefined sequence but still allow flexibility in dealing with issues (Longhurst, 20016). The interviews are structured based on the operationalization created in the analytical framework. The semi-structured interview gives opportunities for the researcher to have a conversation with related stakeholders subjected to research interests in a semi-structured manner (Longhurst, 2016).

The semi-structured interview is implemented to obtain in-depth information and ascertain the data and information gathered from the literature review and content analysis. It intends to interpret the research interest into a series of evaluation criteria that will be explored in the field. Nevertheless, the questions and topics may be added depending on the development of the discussion while still focusing on the research objectives. This allows the flexibility of questions guidelines in the interview. Furthermore, the informal nature of flexibility gives participants opportunities to respond openly and to feel convenient during the interview (Longhurst, 2016). For this research, the interviews use the

online platform (e.g. Zoom, Google meet, and WhatsApp). However, due to the distance barriers and the COVID-19 pandemic, the interview could only be done through this method as the physical meeting is not possible. All the interviews conducted during this research were recorded and transcribed to become materials for the analysis of this study.

This research conducted fourteen semi-structured interviews from government actors, academics, community, and NGOs. The interview was divided into two categories: insider perspective and outsider perspective. Based on Laeni *et al.* (2019), framing perspective is useful to redevelop the strategy, process, and the outcome of the flood resilience policy. In this research, the insider perspective was to give an insight into the development and implementation of institutional arrangements for flood from the perspective of the government or practitioners who made the planning and regulation and the implementation of the revitalization program. This insight is useful to understand how the flood resilience concept being interpreted and operationalize under flood policy framework in the revitalization project. Meanwhile, the outsider perspective was to gain insights from outside the government, such as academicians or the community, regarding the flood management institutions in Jakarta. The outsider perspective is useful to examine the impact of the flood resilience policy frame in the river revitalization program on the communities in the Ciliwung River. This research categories data of interviews obtained from insiders as “G” (Government), which consists of nine interviewers from central, provincial, and municipal level of government. Data obtained from outsiders as “NG” (Non-Government) consists of interviews data from five interviews, who are academicians, NGOs, and representative of community. The nature of the interview was an explorative interview. The exploratory interview was held to gain more knowledge on the institutional arrangement of floods in Jakarta. The overview of the interviewees can be seen in the Table 6.

Table 6 Overview of the interviewees

No.	Organization	Function	Relevance	Date
G-1	Directorate of Water and Irrigation Development, Ministry of National Development Planning	Staff of irrigation development and vice head of PMO Jabodetabek-Punjur	Responsible in planning of water and irrigation development and actively involved in PMO Jabodetabek-Punjur	20-5-2021
G-2	Directorate of Spatial Planning and Disaster Management, Ministry of National Development Planning	Staff of spatial planning	Responsible for spatial planning direction in Jakarta	7-5-2021
G-3	Directorate of Regional Development, Ministry of National Development Planning	Team of urban affairs	Responsible for urban affairs and develop direction of national urban policy, involved in development of “Kota Berketahanan” (Resilience Cities) in Indonesia.	17-5-2021
G-4	PMO Jabodetabek-Punjur	Program Director of PMO (former Director of Space Utilization Control, Ministry of Agrarian	Involve in facilitating program coordination of flood management in	17-5-2021

No.	Organization	Function	Relevance	Date
		Affairs and Spatial Planning/National Land Agency)	Jabodetabek-punjur area	
G-5	BBWS Ciliwung-Cisadane (BBWSCC/Public River Basin Management Organization of Ciliwung-Cisadane), Ministry of Public Works and Human Settlement	Head of water source network implementation	Responsible for the construction, management, operation and maintenance of river revitalization in Ciliwung and river infrastructure in Indonesia in Ciliwung-Cisadane	24-5-2021
G-6	Directorate of Climate Change Adaptation, Ministry of Environment and Forestry	Section Head of ecosystem adaptation planning	Responsible for climate adaptation and mitigation plans	18-5-2021
G-7	Directorate of Planning and Evaluation of Watershed Control, Ministry of Environment and Forestry	Functional staff	Responsible for planning, evaluation of watershed control and management	1-6-2021
G-8	Bappeda DKI Jakarta (Development Planning Agency at Provincial Level)	Subdivision Head of Water Resource Management and Environment	Responsible for water resource planning and development in Jakarta	9-6-2021
G-9	Water Resource Agency of East Jakarta (Municipal level)	Planning staff	Responsible for developing water resources management planning in East Jakarta Municipality	19-5-2021
NG-1	Institut Teknologi Bandung (academician)	Head of Master of Urban and Regional Planning of Institut Teknologi Bandung (ITB)	Concern about institutional and organization in Indonesia and flood management in Indonesia	19-5-2021
NG-2	Institut Teknologi Bandung (academician)	Assistant Professor at Master of Urban and Regional Planning of Institut Teknologi Bandung (ITB) also senior research fellow in Resilience Development Initiative (resilience research center) and an adviser for Bandung Disaster Study Group	Concern about disaster management in Indonesia and how to build resilience	18-5-2021
NG-3	United Nation Development Plan (NGO)	Head of Exploration at UNDP Accelerator Labs	Involved in flood management practices in Jakarta	5-6-2021

No.	Organization	Function	Relevance	Date
NG-4	Wahana Visi Indonesia/WVI (NGO)	Former project officer of the WVI, an NGO funded by USAID which concern on flood disaster and resilience in Jakarta	Involved in capacity building for community in flood management practices in Jakarta, especially in Kampung Melayu, Penjaringan, and Kamal Muara	30-5-2021
NG-5	Ciliwung Institute (Community)	Head of Ciliwung community	Receive impact by the Ciliwung river revitalization program and concern on Ciliwung River and flood resilience	26-5-2021

Two interview guides are used in this research: one for the insider perspective (government) and the other for the outsider perspective (academicians, NGOs, and communities). The interview guides are presented in Appendix II.

3.4. Method of analysis

This research uses qualitative analysis. To analyze interview data, entire interview activities were recorded so that the collected data are possible to be transcribed (Longhurst, 2016). This enables the researchers to keep the focus on the structured questions and conversation throughout the interview. The important message of the interview could also be provided by recording and transcription. The next step was coding the transcription of every interview. These transcriptions were used as the data input for analysis using the software program of Atlas.TI. Beforehand, the interview transcriptions were divided into several categories that represent findings to identify the patterns.

In this research, the set of codes were predefined. The structure of this coding scheme was based on the concepts from the theoretical framework and in accordance with the interview questions (see Appendix I). I used two coding categories based on the source of information, which are: (1) the governmental group and (2) the non-government (academicians, NGOs, and communities) group. However, additional codes can be created during the coding process, and existing codes can be refined. Enabling some flexibility in coding while using a predefined one can provide fits in the data in the coding scheme, resulting in precise data analysis (Cope, 2010). The coding scheme for this research is presented in Table 7.

Table 7. Coding scheme of the interview

Codes	Sub-categories	Categories
Integration of policies	Rules and regulations	Flood governance products
Policy implementation		
Consistency of policies		
Commitment		
Financial support		

Codes	Sub-categories	Categories
Short term policy		
Silo/fragmented		
Spatial planning		
Monitoring and evaluation		
Infrastructures content on policies		
Leaderships	Actors	Collaboration
Political interests of political actors		
Participation of community		
Coordination	Networks	
Communication		
Horizontal networks		
Vertical networks		
Coordination office		
Political support	Authority conditions	Pre-condition of flood governance
Land use		
Land acquisition		
Human capital	Resources conditions	
Capacity building		
Welfare of government employees		
Information sharing among institutions		
Information to public		
Skills and knowledge		
Early Warning System		
Social Capital		
Roles and responsibilities	Organization conditions	
Priority of institution		
Capacity to organize		
Dichotomy (technical vs non-technical)		
Administration procedure	Institutional design	Contextual factors of institutions
Mitigation		
Adaptation		
Paradigm	Inherent values and traditions	
Mindset or behaviour		
Awareness		
Incentive	Innovation	Innovation
Innovation		
Nature Based Solution		
Holistic approach	Holistic approach	Holistic
Consistency with policies	Consistent with national strategy	Urban district system
Horizontal network	Harmonious collaboration	
Vertical network		
Meet public expectation	Socio-cultural	Socio-cultural
relocation		
Social impact		
Local economy	Local economy	Economic impact
Investment		

3.5. Research process

Overall, the process of this research is first by conducting preliminary analysis which consist of analysis on the relation of institutional arrangement in flood management with urban revitalization in spatial planning, analysis on the policy document on flood risk management in Jakarta, and document related the Ciliwung river revitalization program. This preliminary analysis is useful to develop criteria of institutional arrangement that is useful to increase flood resilience. Next, the research process is followed by qualitative analysis using semi-structured interviews to gain insight from the insiders and the outsiders perspective. The insider perspectives provide analysis on the how the resilience concept is constructed and being interpreted in the framework of flood policy in the revitalization project. Meanwhile, outsider perspectives provide analysis on result or impact of flood resilience policy that is implemented in the revitalization project. The anticipated result of this research is the criteria on how urban revitalization enable institutional transformation for resilient flood risk management.

Chapter 4: Description of the study area

This chapter contains a brief description of the study area, which is in Ciliwung river revitalization in East Jakarta and about the institutional context of Jakarta.

4.1. The Ciliwung River

Jakarta is the capital city of Indonesia which also functions as a centre for economic and political administration. Located in the lowlands area on the north coast of Java, it makes Jakarta prone to flooding. In Jakarta, 13 rivers across the city, where the Ciliwung River is the most vulnerable river (Mishra *et al.*, 2018). The Ciliwung River cross several districts and cities in two Provinces, namely Jakarta and West Java. The river has its upper reaches in Bogor Regency, which flows through several cities such as Puncak, Ciawi, Bogor, Depok, and Jakarta until it finally run-off into Jakarta Bay. The length of the river approximately 117 Kilometers with an average depth of fewer than 4 meters. As a river that passes through the city, the Ciliwung River is often used as a "scapegoat" for floods in Jakarta. This is because during the rainy season, the Ciliwung River can overflow, causing flooding in some regions in Jakarta. Figure 5 shows the Ciliwung River basin area.

The topography of the Ciliwung River naturally consists of sheer and flat terrain (Mishra *et al.*, 2018). The upper part of the basin is a mountainous area in South Jakarta, a less urbanized area, and the lower part of the river lies in Jakarta. The land-use change along the Ciliwung river watershed is inevitable due to massive human settlements that occupied nearly 90% of the midstream and downstream area (Saridewi and Fauzi, 2019). The reduction of the forested area upstream of the river, which was diminished from 30.3% in 1990 to 27.9% in 2014, significantly impacted the midstream and downstream area of the Ciliwung River (Saridewi and Fauzi, 2019). Furthermore, based on land use data, the area built in the Ciliwung watershed in 2006 was 18442.2 Ha or 47.2%, then in 2018 increased to 23385.08 Ha or 59.8% (Bappenas, 2020). Consequently, due to land-use conversion, which causes reduction of water catchment in the upstream area and the low ability for water absorption in the downstream, the risks of flooding in the downstream area increase significantly.

The dense population, mushroom development of high-rise buildings, and combined poor drainage systems caused flooding to be more frequent in Jakarta. However, due to Jakarta's location in a downstream area of the Ciliwung River, any activities in the upstream areas (Bogor, Puncak, Cianjur, and Depok) will directly affect Jakarta. In Jakarta, flood incidents occur every year with increased intensity (Budiyono *et al.*, 2015). One of the most severe floods is in the Kampung Melayu (Bukit Duri) area (Figure 6), which is the research area, with the flood could reach up to 4 meters (Vollmer and Grêt-Regamey, 2013). This segment consists of 13 Rukun Warga (RW, community unit) which most of the houses are informal settlements with narrow roads.

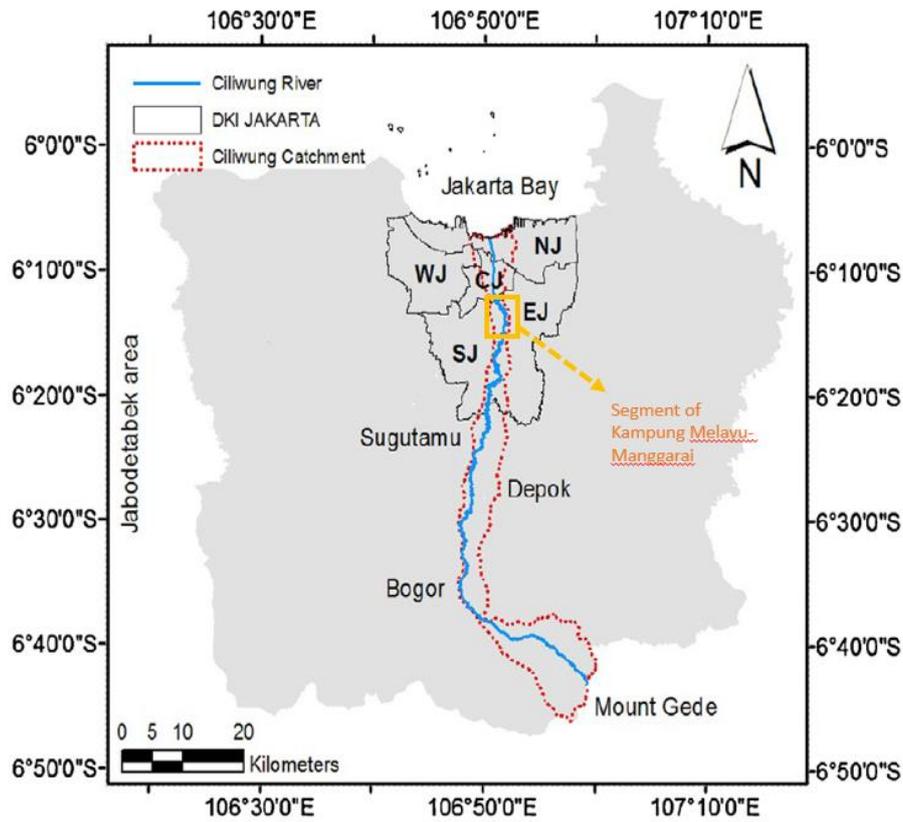


Figure 5. Ciliwung River basin that runs through the megacity of Jakarta (Source: Costa *et al.*, 2016)

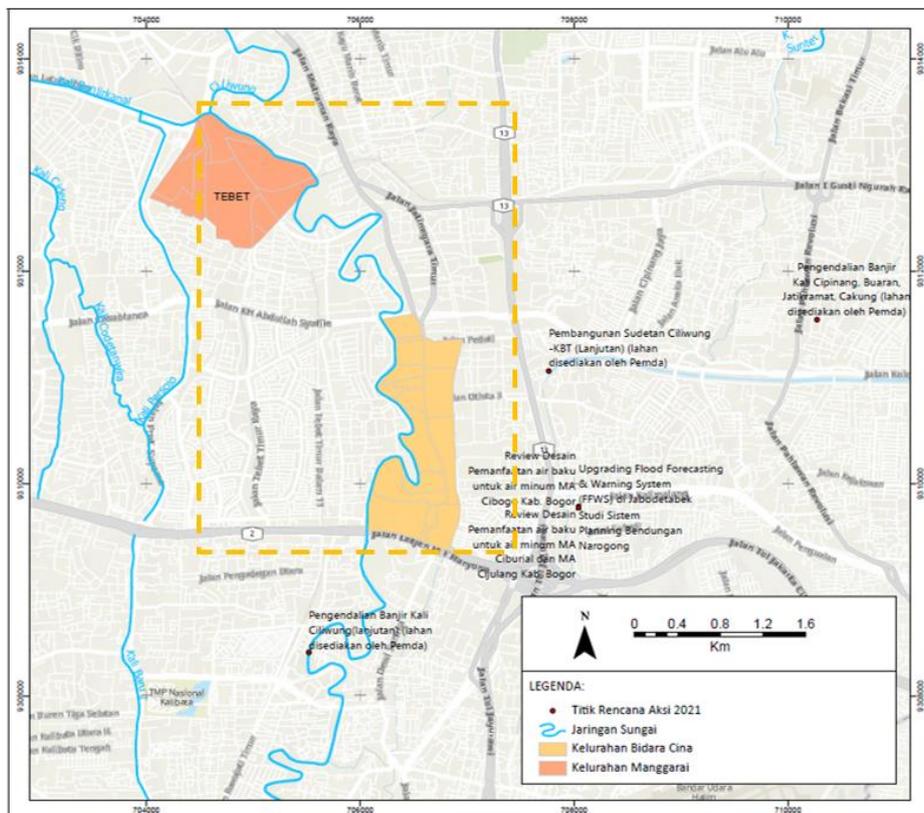


Figure 6. River normalization Kampung Melayu-Manggarai segment located in East Jakarta (Source: PMO Jabodetabek-Punjur, 2021)

4.2. The institutional context

Decentralization in Indonesia began with the enactment of Law No. 22 of 1999, where the central government redeployed its power and responsibilities to the lower level, both provincial and district, in nearly all sectors, including for water and land policy matters. The provinces in Indonesia consist of several districts (Kabupaten) and municipalities (Cities), both of which are at the same level of government, where districts are being rural while cities are being urban. The administrative government units under municipalities and districts are Sub-Districts (Kecamatan). This sub-district consists of several Villages, where for rural it is called Desa, and for urban it is called Kelurahan. The village itself consists of several community units (RW/Rukun Warga) (Simanjuntak *et al.*, 2012). Figure 7 presents the level of government in Indonesia and the structure of the transfer of power and responsibilities from the central government to lower tiers of government through decentralization, co-administration, and deconcentration.

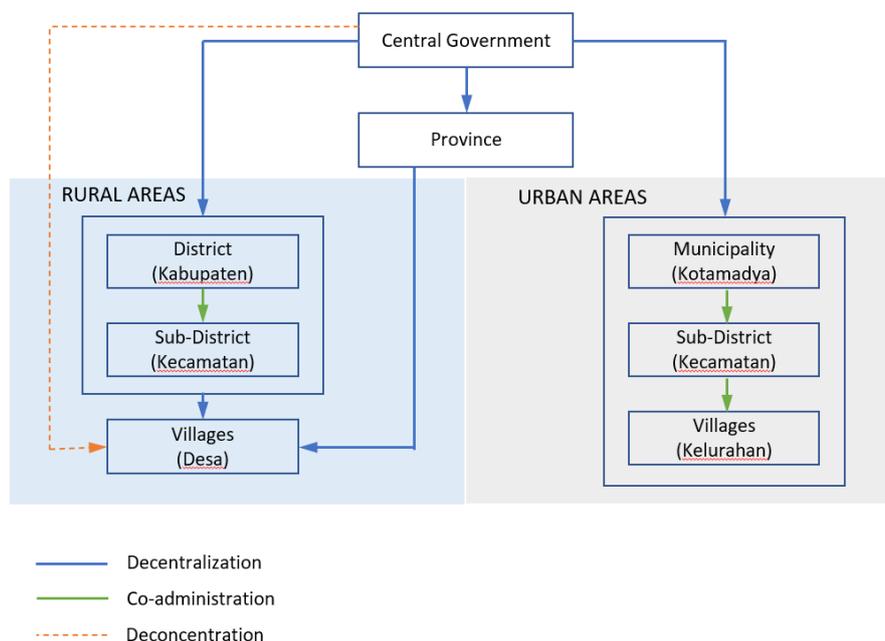


Figure 7. Government structural level in Indonesia (Source: Simanjuntak *et al.*, 2012)

Jakarta is Indonesia's capital city that is also a province led by a governor. It consists of five municipalities (North Jakarta, South Jakarta, East Jakarta, West Jakarta, Central Jakarta) and one administrative regency (Kepulauan Seribu). Due to Jakarta being the centre of government and the centre of the economy, in the event of a disaster such as floods, the government pays special attention to the city because the incidents can have quite a broad impact on various sectors.

Regarding the revitalization of the Ciliwung River, because the Ciliwung river crosses between provinces, namely West Java and Jakarta, the central government responsible for the Ciliwung watershed management, including the revitalization program. Thus, the provincial government only focuses on areas around the river in its regional territories.

Chapter 5: Findings

This chapter elaborates the findings of the empirical data collection and analysis and addresses the secondary research questions of this thesis.

5.1. Flood risks measurement

This section describes measurements in the study area as well as answering the first sub-question of this research, which is *'How do existing policy encourage flood resilience in Jakarta?'* by elaborating the context of Ciliwung river revitalization in Jakarta.

5.1.1. Ciliwung revitalization as flood risk control

There are several measures that Jakarta has taken to manage the flood risks. Mitigation measures such as river restoration, channelization of the river, and river bed dredging have been taken in the Kampung Melayu-Manggarai area, which is the area that has most vulnerable to flood (Costa *et al.*, 2016). Furthermore, the long-term plan includes developing dams Ciawi and Sukamahi dam in the upstream area (Setkab, 2020) and constructing a giant sea wall in the downstream area (Sagala *et al.*, 2013).

The government has attempted several programs to improve the Ciliwung river's condition. The revitalization program has also been included, especially in the area that is most severe to flood. The revitalization of the Ciliwung river is a follow-up action from the government due to the massive flood that hit the city on January 17, 2012. In this program, the central government and the Jakarta Government implement a river normalization program to flood control. This program is regulated in the Jakarta Provincial Regulation No. 1/2012 concerning the Jakarta Provincial Spatial Plan 2030 and the Jakarta Provincial Regulation No. 1/2014 concerning Detailed Spatial Planning and Zoning Regulations. Both regulations were carried out in the times of Joko Widodo and Basuki Tjahaya Purnama's leadership. The project was started in 2013 and stop in 2017 with 16 kilometres long completed from 33.69 kilometres planned, or 45% completion (Haryanti, 2020). The Ciliwung normalization project was halted in 2018 due to problems with the land acquisition process carried out by the DKI Jakarta Provincial Government and planned to be continued in 2020 (Sari, 2020).

Ciliwung normalization is a program that aims to restore the condition of the river's width to 35-50 meters. The river normalization program is intended to increase the discharge capacity of the Ciliwung river by sedimentation dredging and cover the side of the river with concrete. It is hoped that by river normalization, the run-off capacity of the Ciliwung River will increase to 570 m³/second, a rise from previously 200 m³/second (Haryanti, 2020). The river revitalization project stretches from the Manggarai Sluice Gate to the Kampung Melayu Bridge, which is about 4.6 kilometres long and completed in 2017 (Ramadhiani, 2017). However, the program faced a problem with the residents due to land acquisition (Riyan, 2010). Most people in the Ciliwung riverbank lived in informal settlements and refused to leave. Regarding land acquisition for normalization, the Jakarta Government has succeeded in acquiring land and relocating residents in Kampung Melayu and Kampung Pulo to a decent apartment in Jatinegara, which is close to the previous settlement. In addition, residents of the riverbanks in Bukit Duri were relocated to an apartment in Rawa Bebek, also in East Jakarta (Arela, 2018).

5.1.2. Drainage and flood control masterplan

Jakarta has several flood management strategy documents that have been used as references since 1973, namely the Nedeco Masterplan for Drainage and Flood Control, which has been continuously developed (see Table 8). The latest is 7 Quick Wins proposed by Bappenas, developed due to the massive flood in Jakarta in early 2020.

Table 8. Development of drainage and flood control masterplan in Jakarta (Source: Bappenas, 2021)

Year	Document
1973	NEDECO 1973 Initiation of flood control in Jakarta through the construction of two flood ways: West Flood Canal (KBB) and East Flood Canal (KBT), construction of a polder system between KBB and KBT
1991	JICA 1991 Improvement and repairment of drainage channels; repairment of crosses with bridges; pump station construction.
1996	NEDECO 1996 KBT development; maintenance of rivers through dredging and increasing the capacity of large rivers; construction of polders in new low-lying basins due to land subsidence; construction of the Halim reservoir.
1997	JICA 1997 The Ciliwung-Cisadane River Flood Control Project; Manggarai Sluice Repair
2004	WJEMP 2004 Micro and sub-macro channel studies; reduction of inundation in 78 inundation prone areas in DKI; Mapping through geographic information systems; institutional repair and maintenance operations.
2007	Jakarta flood management 207 Making hazard or flood maps; environmental drainage and waste management.
2020	7 Quick Wins Hazard reduction through zero delta runoff policy and waste management; spatial and building management and law enforcement; infrastructure development; subsidence control; flood early warning; strengthening crisis management; regulations and institutions; hazard reduction through zero delta runoff policy and waste management; spatial and building management and law enforcement; infrastructure development; land subsidence control; flood early warning; crisis management; regulations and institutions.

However, as Jakarta is a megacity, the master plan is applied for the Greater Jakarta area. So, cooperation between local governments in peri-urban Jakarta is very much needed to support the implementation of the master plan. Furthermore, the management of the Ciliwung river is part of the Jabodetabek-Punjur spatial plan, where the development of spatial structures is more directed among others at flood control from upstream and tidal flooding due to land subsidence and anticipating floods from upstream and from the sea. These indicate that flood management is also a major concern in this Jabodetabek-Punjur spatial plan. In the regulation, the infrastructure network system plan has also been considered, which includes a water resources network system and an urban network system where this is intended for flood management. In addition, the spatial pattern is also regulated through the determination of protected areas and cultural areas. The determination of the protected zone area is in the upstream Jabodetabek area. Furthermore, the direction of zoning regulations in the cultivation zone is intended to reduce the impact of flooding.

5.2. Institutional flood arrangement

The theoretical framework indicates that institutional flood arrangements can be divided into four categories. This section elaborates the findings of institutional flood arrangements in Jakarta per category. This section also answers the second sub-question of this research which is *'How have the government builds institutional flood risk management strategy in the river revitalization program to*

increase flood resilience? Which reflects Jakarta's current flood institutional strategies in a river revitalization program.

5.2.1. Policy and regulation

The policy direction to increase flood resilience in Jakarta has several references related to spatial planning and flood management strategies. These documents serve as references for the Jakarta government in implementing strategies to increase flood resilience. In terms of vertical integration, most interviewees mentioned that for Jakarta, the existing flood policies are in line with the Mid-term National Development Plan 2020-2024 (RPJMN). Jakarta is one of the cities included in the Priority Project for Safeguarding the Five Coastal Urban in North of Java, where restoration and increasing river capacity in Jakarta are included in the planning (G-8).

"So far, policy integration has been good, especially in relation to Ciliwung, because Ciliwung is included in 15 national priority watersheds in the 2015-2019 RPJMN" (G-7)

Meanwhile, in terms of the context or substance of the flood resilience policy, the existing policies are still fragmented, such as programs between ministries and the city sometimes needs some adjustment due to the policies are not in line. So, based on the substance, the flood management policy has not been well integrated. However, there have been efforts for institutional integration. In a sense, because Ciliwung river is complex. Ciliwung is cross-provincial, which adds to the complexity, so the nuances of fragmentation still exist. Therefore, one of the missions of this PMO is to improve governance. For example, the approach used in managing river problems is different between BBWS at the national level and the office of water resources at the local level.

"What I see is that it is quite fragmented, so for policy integration, we really need to take into consideration many things from the policies carried out by the government, most of them are in the form of quick fixes [...] and not yet integrated." (NG-4)

"One approach to flood management is not enough, so for policy, we need solutions that are interrelated because the source of the flood is not coming from one source, but from various events and is linked to the required policy. So, it needs to be looked at thoroughly. Government policies do not cover it all. Floods still occur because of our lack of intervention." (NG-2)

The issuance of Presidential Decree 60/2020 aims to adjust developing strategic issues by providing space for economic development and urban activity centres in an integrated metropolis and considering environmental sustainability aspects. In this case, the strategic issues in Presidential Regulation 60/2020 related to increasing Jakarta's flood resilience include the determination of spatial structures, green open spaces, north coast and reclamation, and flood management (G-8, G-4, G-1, G-2, G-5). In this regulation, the management of the Ciliwung River is included in the strategy for developing an infrastructure system as well as implementing and strengthening flood and tidal control programs in the Jabodetabek-Punjur Urban Area. These strategies include, among others, paying attention to the development of the upstream, downstream, and coastal Spatial Pattern, especially the development of Cultivation Areas; establish strict rules for development along riverbanks; improve the function of lakes, ponds, and reservoirs; carry out flood control in rivers; controlling river water discharge and increasing river capacity (G-8).

However, some interviewees also raised the issue about inconsistency in policy, in this essence, the consistency in flood control effort as well as law enforcement from the government. Flood in Jakarta occurs every year. From the policy perspective, the inconsistency of policies carried out brings by

the government, especially in the area around the Ciliwung river, has led to irregularities in the management of Jakarta's flood resilience.

“The inconsistency of spatial planning in the revitalization of the Ciliwung river is also one of the causes. The spatial change is a justification for the violation. The action taken was part of the legitimacy of the violation. What is important is the order or regulation, the community wants to be regulated, but law enforcement from the government is lacking. The solution for the Jakarta flood is law enforcement” (NG-5)

Furthermore, most of the interviewees were also concerned about the implementation of the flood policy, which sometimes different between what is on paper and the realization.

“Of course, we try to synchronize the river restoration programs between the ministry and the Jakarta provincial government. Previously, there were different perspectives between the ministry and the Jakarta provincial government. Our goal is actually the same as all of us wanting to control flooding, only that there are a few things that are slightly different in their implementation strategy” (G-5)

To sum up, for policy issues related to flooding, the main highlights were disintegration in flood policy among sectors, especially between the national government and provincial government due to the different approaches of the river restoration project, inconsistency of planning that sometimes lacks law enforcement and weak implementation of the flood policy in the technical level. These things need to be the government's attention in the future for planning, especially in the context of the Ciliwung River, where the existing administration and authority is very complex.

5.2.2. Collaborative process

The collaboration process in increasing flood resilience in Jakarta can be seen mainly from the actors and the networks applied in the collaboration scheme. Surprisingly, all the interviewees mentioned that one of the keys to the success of activities is good coordination so that whatever actions and activities are carried out, they can be executed quickly and well organized (G-1, G-2, G-3, G-4, G-5, G-8, NG-1, NG-2, NG-3, NG-4). Moreover, the leadership and the interest of the political actor is significant for the collaboration process. Changes in leadership will change priorities. Likewise, in the collaboration process, political interest also has an effect. Who has power, of course, will have the authority to decide. So, it is more about who is making the decision. And it could be that the actor has different considerations, different interests compared to the previous one (NG-1).

“In my opinion, the leader's focus is influential; for example, what is the tone from the leader? I don't mean to compare (the leaders), but when our NGO used to carry out activities, flooding was a priority, be it at the provincial or city levels. So, at that time, the coordination with the city quite quickly, for example, with the mayor, coordination with the sub-sector in the city was quite fast and smooth, and that helped us to conduct training, communicate, and carry out activities with the community, because usually they (Jakarta government) already have connections with the community, so everything was fast, for example, if we want to hold activities, the administrative process did not take long, the scheduling too. So, it was quite helped by the tone of the leader.” (NG-4)

In terms of collaboration with the community, community involvement in the revitalization of the Ciliwung River is only in socialization activities (G-1). Although from a planning perspective, the aspirations of the people themselves are for Jakarta to be free from flooding, direct participation in the planning process for the revitalization of the Ciliwung river in the Bukit Duri-Manggarai segment

does not exist because the community was not involved. Consequently, a new issue emerged, which was the relocation of the community around the Ciliwung riverbank. They considered that they were forcibly relocated and then asked for compensation for land acquisition at a high price. However, recently, river revitalization has also been linked to the revitalization of slum or illegal settlements along the river. Many programs are currently bottom-up or self-supporting, where relocation or resettlement is trying to be developed using participation and collaboration, although still in the piloting phase. (G-3).

“There is no involvement for community [...] they are given space for a ceremony only” (NG-5)

However, although the community deemed that they were not involved in the planning process of Ciliwung river revitalization project, however, their active participation in increasing flood resilience is still very minimal.

“So far, the community's involvement still needs to be encouraged. There are still many people who are passive” (G-4)

“Collaboration with the community seems to be still disconnected, and there is no intersection, so the form is still top-down, no feedback loop yet” (NG-3)

In terms of collaboration between governments, most of the interviewees said that the main issue was coordination. Although the existing collaboration is quite good, because the Jakarta issue is relatively complex, coordination needs to be improved. Most interviewees also appreciated the establishment of the PMO of Jabodetabek-Punjur, which is expected to enhance the collaboration process between governments. One of the functions of the PMO is to coordinate and synchronize program activities from the ministry and the regions (G-1, G-4).

“For collaboration, it may be said that it is easy but doing it is not easy. Jakarta is multisectoral. What is certain is that it is related to collaboration with government agencies. We still have to try to get better” (G-7)

“In the classic case between governments, it requires coordination, harmonizing ideas in plans and then following up, but in fact, this is not the case” (G-1)

“If we look at the major problem of managing the Jabodetabek metropolitan, the highest is the problem of coordination” (G-4)

“I see that the government has good coordination, although sometimes there are some obstacles” (G-5)

Summing up, a lack of coordination occurred in the Ciliwung river revitalization project as there are many institutions involved in increasing flood resilience through this project. Although there is a collaboration between BBWSCC and Jakarta government, BBWSCC is dominant in the project. Furthermore, the leadership factor in implementing the revitalization project is also very influential in creating a harmonious collaboration. Moreover, community participation was not seen in the river revitalization project as the community feels that they were not involved in the planning process. However, improvement in coordination is expected by all interviewees, and the establishment of PMO is appreciated as it can become a way to solve the issue of collaboration.

5.2.3. Pre-condition of flood governance

Pre-conditions of flood governance can be seen from the support from the central government in promoting local action in terms of land use function for flood resilience. This is showed from the

division of tasks, where Jakarta is given support in carrying out a flood control strategy in the scope of the structure and spatial pattern, through several elements, such as integration of the upstream-downstream water system; restoration and development of lakes and reservoirs as well as river normalization; improvement of the polder system; implementation of zero deltas; and monitor and maintain channel regularly (G-8). In the Ciliwung river revitalization program, the central government also supports the provision of housing for communities affected by land acquisition.

“Flats for the settlement relocation of Ciliwung river restoration project some are provided by the national government. There are also several flats provided by provincial government”
(G-8)

In terms of resources condition, interviewees from the government considered that information sharing was good between government institutions and the community. This is because the collaboration between government institutions in dealing with Jakarta floods is already quite proficient, although there are coordination issues. For some agencies, apart from maintaining formal relationships, establishing informal relationships can also facilitate information exchange. However, non-government parties mentioned it differently. They think that information to the public regarding flood resilience activities is still lacking. Although, the government has provided several platforms for communication or socialization, such as the weekly Pojok Iklim (Climate Corner) program organized by the MOEF or the JAKI (*Jakarta Kini* or Jakarta Now) website organized by the Jakarta government which combines all the activities of the Jakarta Government that can also be used to share information on services provided, such as floods monitoring and making complaints reports. (G-1, G-3, G-4, G-8).

“We share our data, if Provinces, Bappenas, Ministry of Home Affairs ask us to give the data, we have nothing to cover up. We share all the data information between institutions” (G-5)

“Information sharing is quite good, BNPB data, runoff data, BMKG rainfall data, all are very good” (G-7)

“The community also gets information. We also provide information to the public or media who ask us. There is a website and social media. We also inform our agendas” (G-5)

However, from the community side, they feel that they did not well-informed about government planning and activities for flood resilience, including the Ciliwung river revitalization program. They only receive information through mass media, but they feel that it is only general information, not on the detailed program. Other information they receive is through socialization, where it is deemed insufficient and does not provide space for discussion to the public.

“There is disinformation in the normalization of the Ciliwung River to the public” (NG-5)

In terms of human resource capacity, most of the interviewees considered that the skills and knowledge possessed by the government were generally quite good. However, the capacity building still needs to be implemented because knowledge and comparisons are needed for newer approaches in flood management. In addition, the low budget allocated for capacity building is not included in priority activities and the high turnover of employees in the government so that more time is needed for knowledge transfer (G-9).

“When it comes to human resource capacity, it is already good, either at the central level or the Jakarta government” (G-4)

“What needs to be improved is the capacity [of human resources]. Because in a government office, the turn over of employee is relatively high. For example, when we have done technical guidance on the preparation of climate change adaptation, suddenly the

employee [who received the information] moved. That is what sometimes happens in the policymaking, like it or not, and we have to provide the information again” (G-6)

The division is very clear regarding roles and responsibilities between governments in the Ciliwung river revitalization program. A clear division of roles and responsibilities and good connections of stakeholders could create adaptive flood governance (Driessen *et al.*, 2016). In the context of the Ciliwung river revitalization, because the Ciliwung river is the central government's authority, the task of revitalization is at the national level, which is at the BBWSCC of KemenPUPR. Still, the process of land acquisition around the Ciliwung riverbank is the task and responsibility of the Jakarta Government. As also stated in RPJMN 2020-2024 that the authority of the KemenPUPR in the flood resilience in Jakarta is: Normalization and improvement of Jakarta river capacity; Construction and improvement of sea dikes, breakwaters, and other coastal protection structures in the North Coastal Area of Java Island; Securing the north coast through the PPP scheme; Development of the Ciliwung watershed early warning system (G-8). Meanwhile the for Jakarta, the roles and responsibilities for flood resilience also clear, as stated on RPJMD 2017-2022, that the responsibilities are: Construction of river estuaries; Reservoir construction and river normalization. For the Ciliwung river, the Jakarta government responsible for the riverbank area; Improvement of Water Management (G-8). However, the implementation needs to be improved again to prevent overlapping or vacancies of responsibilities (G-4, G-6, G-7, NG-1).

“The division of tasks is clear. It's just that sometimes the implementation can be improved” (G-5)

“In writing, it is actually clear, but the implementation sometimes overlaps between institutions. For example, waste management in Ciliwung. Sometimes there is a need for synchronization between KemenPUPR and KLHK as not to overlap” (G-6)

To sum up, information sharing related to flood management and increasing flood resilience in Jakarta is quite favourable. Although for the community, it is more about information and socialization than providing input, hence no inclusivity in planning. In terms of resources condition, in this case, the skills and knowledge of government employees in Jakarta to increase flood resilience are generally proficient. However, along with the development in technology and science, capacity building needs to be implemented. The capacity building to develop skill and knowledge is constrained by budget factors that are prioritized for other activities. In terms of tasks and responsibilities among institutions, it is very clear. However, the main concern is related to its implementation, which still needs to be improved.

5.2.4. Contextual institutional factors

For contextual factors that shape planning conditions in Jakarta, sometimes administration is lacking, and the nuances of the bureaucracy are very pronounced so that there are several important activities that need to be carried out which are slightly hampered due to administrative constraints (G-5). As happened in the Ciliwung river revitalization activity, the government wants to revitalize the river but is constrained by the issue of land acquisition for residents living along the riverbanks. Of course, apart from this, for land acquisition itself, some administrative rules and stages must be met (G-5). The revitalization of the Ciliwung river finally stopped in 2018 due to land acquisition problems which takes quite a long time. Thus, this year's normalization of the Ciliwung river will be carried out in several places while waiting for the DKI Jakarta Provincial Government to resolve the land acquisition problem. So, this year's normalization will be carried out in priority places. For 2021,

BBWSCC and Jakarta government have carried out joint checks that the priority area for revitalizing the Ciliwung river is 1.2 Km long in the Cawang area (G-5).

The administrative procedure that is quite complicated also occurs when the Jakarta government wants to dredge the Ciliwung river because of high silt deposits. For this matter, the Jakarta government cannot directly implement dredging because the Ciliwung River is under the authority of the central government, so to carry out river dredging, the Jakarta government must ask for technical recommendations from KemenPUPR, which considered as a very long and difficult administrative process (G-1, G-4).

“Whatever action will be taken against the Ciliwung river, the local government must, of course, coordinate with the central government, in this case, the KemenPUPR or BBWS Ciliwung Cisadane, because they are the regulators who are the authority to manage this river” (G-1)

For values and tradition, the traditional paradigm of government institutions in Indonesia, as well as Jakarta, in dealing with the flood is still very pronounced. In the revitalization of the Ciliwung river, it can be said that the river revitalization program is still very much based on the traditional paradigm. It is showed from the engineering measures that are dominant than non-engineering measures. Government focus is on man-made infrastructures, such as repairing embankments, building higher embankments, constructing culverts, etc. (G-3). The community considers that the government manages the Ciliwung river with an approach that focuses on infrastructure and does not take any other approach. This is because there was no upgrade on flood management, such as the development of eco-hydraulics or the new challenges of climate change. The community assumes that the government's mindset on managing the river still uses the concept of irrigation, where rivers are only considered drainage systems, so how can water flow as quickly as possible with a maximum discharge through infrastructures building (NG-5).

Although flood management in Jakarta still uses the traditional paradigm, in the last 5-10 years, there has been a change from the engineering approach, such as widening, concreting, and cleaning the river, to starting to consider the environmental and social approaches (NG-1). Although increasing flood resilience through nature-based solutions has not yet been implemented in Jakarta, currently, the management of the Ciliwung watershed has started to move in that direction. However, the government, academics, and NGOs believe that technical measures are still needed but combined with non-technical measures. Yet, the traditional paradigm in government institutions is still very dominant.

“Our (Indonesian Government) approach is still classic actually” (NG-2)

There are many policy innovations as well as exposure to new paradigms in flood management in Jakarta, but there are also challenges that are more about implementation. This is because the reforms or innovations are not fully understood by all stakeholders, for example, in Jakarta, where the Jakarta government wants to revitalize the river naturally so that it is more of a nature-based solution approach. However, the challenge is that its implementation is still trapped in the traditional paradigm. For example, the Jakarta Government Irrigation Service manages the river with a technical approach and KemenPUPR which manages water resources by still using the approach of how river water flows quickly into the sea by increasing infrastructure development (G-3).

“If we see, centralized governance is still dominant, concentrated in the KemenPUPR, which is engineering people. Their perspective is still on irrigation, the river is only considered as drainage” (NG-5)

However, it must be admitted that flood management through an infrastructure approach is still a popular policy in the community because they only see flood management from its physical form. Meanwhile, other things that are non-physical in nature are still not popular. Thus, the technical approach is preferred because it is physically seen, while non-technical flood resilience approaches such as socialization and education are still considered nonsense. (G-1)

“But of course what is still preferred by government and community is to build infrastructure, yes, it looks like that, the tacit one, meanwhile, like education, is less preferred.” (G-1)

Furthermore, the tendency for an engineering approach can also be seen from the government budget allocated for flood resilience activities, the larger portion of which is on infrastructure. The community's opinion that the policymaker related to flood management is indeed engineering people or civil engineering people who only understand concrete and make strong and durable buildings (NG-5). In this case, the river is an ecosystem, where the function of the river as a water source, the function of water absorption, and humans are part of the river not visible to policymakers. So that the engineering portion is bigger and flood management with a nature-based solution approach is not balanced, it can be seen from the large budget allocated to the KemenPUPR in this case BBWSCC (NG-5). As it is known that in the government, the assistance of these activities is largely determined by the availability of funds. As mapped by the Ministry of Home Affairs before the pandemic, it will take 34 trillion to control the floods and landslides in Jabodetabekpunjur over the next four years, of which 49% is from the KemenPUPR, while 31% is from the Jakarta government (G-4). Based on the composition of the budget, it can be concluded that the government takes a structural approach or technical measure, whereas to overcome floods, it is not only a technical measure. It is a behavioural problem from the non-technical community, which is also an issue. However, the non-structural approach is also very important and must be worked on (G-4).

“I think it (non-technical approach) is still lacking because our budget is still lacking. Our budget is mostly for physical development, not to mention the budget still likes to be cut. The budget is mostly on physical maintenance, even though we need comparisons for newer methods (for flood control), so far the old methods are still being used” (G-9)

In addition, most of the interviewees perceive the need for innovations in flood management. For handling a flood incident whose impact is felt by the community, its management must consider the conditions that is ongoing and keep changing. Because flooding in Jakarta is something that regularly happens every year, the handling is still business as usual. New innovations are carried out if there is a major flood that has a high economic and social impact, such as the flood in early 2020 (G-1). For the area around Bukit Duri where river revitalization is being carried out, the community itself has tried to deal with flooding by adapting, but because they are used to flooding and consider it not a major issue due to flooding is common in their area, so they do not try to look for innovations to deal with flooding further, they are more leave the flood affairs to the government without taking responsibilities (G-6).

“So, because they failed to see the flood as a complex phenomenon, it ended up being business as usual. Finally, the solution that came out was the common one. The solution that comes out is not a breakthrough” (G-1)

Moreover, from the interviews, it is known that the mindset of the stakeholders is also very influential in supporting the flood resilience program. From the community side, awareness of flood incidents is still very minimal. In the people's mindset, if there is a program from the government for a flood resilience program, such as the revitalization of the Ciliwung river, they consider that it is only a government project. There is no awareness that activities to increase flood resistance are a

shared task and responsibility, where public participation and awareness for environmental management is very important (G-1, G-9). Di Jakarta, one of non-technical measure is a problem of behavior, which the approach is through socialization. However, all the interviewees in the opinion that it is not easy to change people's mindsets. There must be a big movement (G-4). The community's occupancy on the Ciliwung riverbank is also a form of a low level of public awareness about spatial planning and river functions. In the case of the Ciliwung river revitalization program, one of the obstacles is the violation of spatial planning by the community, resulting in the narrowing of the river body and increasing the risk of flooding (G-1).

“So, there is also a need for awareness in the community. There is no need for the government always to intervene, that’s why we need champions, namely people who become examples” (NG-1)

“Because community resilience complements each other physically [...] as well as increasing community awareness, for example regarding land use, etc.” (NG-4)

Furthermore, flood resilience infrastructure in Indonesia often fails or is not very popular because the community does not have a sense of belonging. This is because the community is not involved in the planning process, as is the case with the Ciliwung river revitalization program. However, suppose the community is involved in planning. In that case, they will naturally feel that they have ownership of the infrastructure, which will create a sense of responsibility to take care of the existing infrastructure (G-1).

To sum up, for flood resilience in Jakarta, especially in the Ciliwung River revitalization program, the traditional paradigm still has a very large portion. Although the government has begun to open up space to combine technical and non-technical approaches in recent years, on the budgeting side, it is still seen that technical or engineering activities are still a priority. In addition, innovations for flood resistance have not been well developed. Furthermore, the mindset and awareness of the community towards flood management is still very minimal.

5.3. Impact of Ciliwung river revitalization (the outsider perspective)

The findings for the impact of Ciliwung river revitalization are elaborated based on the categories explained in the theoretical framework. This finding is gathered from the outsider perspective on the impact and performance of the resilience flood policy frame which is applied in the revitalization project. This section answers the question of *‘How can the performance of river revitalization improve flood resilience from the perspective of the community?’*.

5.3.1. Urban district system

For the consistency of river revitalization with the national strategy, most interviewees view that the project was in line with the national plan. Revitalization is one of the mechanisms used by the government as an urban management strategy through physical intervention to preserve its performance (Ramlee *et al.*, 2015). Moreover, river revitalization is a major project being considered by the government, although its implementation is questionable (NG-2).

“By paper must be consistent, because of course, it is in the spatial planning. As for Jakarta, in theory, this must be consistent, but whether the implementation of the construction of houses along the Ciliwung river follows the rules, I don't think so” (NG-2)

For collaboration among government sectors, from the community's point of view, the collaboration in the Ciliwung river revitalization program is not running harmoniously. Especially between the national government and the local government of Jakarta. Where for this river revitalization program, the central government, through the BBWSCC, is more likely to use an infrastructure approach or known as the normalization jargon, while the local government, through the currently serving Governor, prefers to use a naturalization approach which provides more space for water to be absorbed into the ground, thereby reducing use of concrete. This dichotomy causes people to think that there is no harmonious collaboration between governments (NG-5).

To sum up, the impact of the Ciliwung river revitalization in terms of the urban district system is still not satisfactory in the eyes of the community, both in terms of policy implementation and collaboration between government institutions.

5.3.2. Socio-cultural

Ciliwung River revitalization, in general, has fulfilled the public demand for increasing Jakarta's flood resilience; although the process is quite complicated and not easy (NG-2), it has a positive impact on the communities around Kampung Melayu and Manggarai. This can be seen from the number of areas affected and the number of people affected, as reported by Bappeda during the interview. In addition, the acceleration of flood reduction is faster than before, where after the revitalization program, the flood inundation in the area is not too long. The community perceives that the revitalization project helps them for flood resilience and the community's response to the Ciliwung river revitalization program is positive (NG-4).

"There is an impact. People become more aware. It is not negative, but they become more aware after the government activities related to flood resilience are carried out. They are more responsive to what is being done to increase flood resilience" (NG-4)

In addition, the relocation of communities around the riverbanks due to the Ciliwung river revitalization program has beneficial impacts on the well being of the communities. People who previously lived in slum areas were relocated to flats with adequate sanitation and infrastructure, better housing, availability of educational facilities, good transportation connections, and urban farming for social and economic activities (G-8). The central government and the Jakarta government have prepared several flats, such as in Pasar Rumput and Jatinegara, for the displaced people in the Ciliwung River revitalization program (G-1, G-2, G-4, G-8).

However, there is a different opinion from the community. The community perceive that in the long term, the revitalization of the Ciliwung river will worsen the socio-cultural situation of the community because knowledge and the close relationship between humans and rivers are destroyed due to this project (NG-5). Moreover, people feel that their living quarters are forcibly taken, and they forcedly relocated to flats. As they are not used to living on the high floors, their sociological aspect has also changed (NG-3). This is because they cannot make good adaptations and are not prepared by the government for these life changes due to previously they lived on the river banks with a fairly high social space. Then suddenly they should live in multi-storey buildings, which makes them lost that social space (NG-5).

To sum up, in general, the impact of the Ciliwung River revitalization project on the socio-cultural community is still positive. Although there are some issues due to the lack of community adaptation processes, their social life has improved with reduced flood times, adequate housing provision, and good sanitation and infrastructure for the relocated people who previously lived in the riverbank.

5.3.3. Local economy

The impact on the local-economy due to river revitalization that is felt by the community, in general, is that their economic activities are not too disturbed during the rainy season. The risk of flooding decreases, and the flood water recedes quickly. When the flood occurs, their working time is not too disturbed (NG-2). For the case in the Kampung Melayu, where there are many woodworking SMEs, the river revitalization reduces their financial loss as their business is not too disturbed by flood (NG-4).

“Economically, in terms of resilience, they are more undisturbed because their economic activities are not too hampered. For example, in terms of time, in Kampung Melayu, the less flooded they are, the smoother their business activities will be.” (NG-4)

To sum up, river revitalization has a positive impact on the local economy where community activities are not disturbed, so that economic activity can continue, or if there is a flood, economic activity will still run even though it is not optimal. In addition, the financial cost obtained by the community is also minimal with the river revitalization. As Ramlee *et al.* (2015) stated, revitalization gives facilitation for social, economic, and environmental development in problematic urban areas.

5.4. Constraining factors and potentials

Based on the findings, constraining factors and potentials in increasing flood resilience in Jakarta can be seen. This section addressed the fourth secondary research question, which is *‘What are the constraining factors and the potentials of the institutional strategies for flood resilience policies implementation in the city?’*.

5.4.1. Constraining factors

For constraining factors, four main factors are considered as obstacles – i.e. lack of coordination, low technology improvement, lack of social awareness, and weak administration procedure. Lack of coordination in flood governance in Jakarta was applied between government institutions, cross-sectoral coordination, across sectors, and across authority levels. The difficulty of coordination for flood governance was due to the unique context of the Ciliwung river which flows through several provinces and cities. Each of the provinces, city or district has their own priorities, interests, and motives. Insufficient coordination between the central government, local governments, and institutions in providing the expected actions was also a factor that hinders the success of flood resilience (Firman *et al.*, 2011). In the perspective of adaptive governance, a situation governed by separate administrative organizations, as the case in Indonesia which has implemented regional autonomy policy, is the most less adaptive governance (Molenveld and van Buuren, 2019). Moreover, the local communities which was directly affected by the Ciliwung river revitalization project generally have low levels of welfare and education. This fragile local communities also made it difficult to achieve coordination in flood governance in Jakarta (Duit and Galaz, 2008). For the management of Ciliwung river itself, coordination with the watershed concept is still minimal.

Next is a low improvement on flood control technology, especially in the Ciliwung river revitalization program, which focuses on strengthening wall along the riverside. From the resilience perspective, the Ciliwung river revitalization program was robust enough to reduce flood probability, as technical issues considered as a problem solver for flood safety (Molenveld and van Buuren, 2019). Meanwhile, the nature-based adaptation approach as new technology for increasing flood resilience had not been implemented in the project (NG-2). However, the government showed adaptability by

discouraging vulnerable land use and providing warning and evacuation schemes around the Ciliwung riverbank (G-8).

The other factor is social barriers. In Jakarta, flood incidents happen every year, so people do not see the flood as a big problem. Awareness from stakeholders, especially the community, on the importance of a clean and healthy living culture was very lacking in line with the high level of littering (NG-1). This was due to knowledge insufficiency about the importance of protecting the city environment. Besides, they were not involved in flood management planning (G-1, NG-1, NG-2, and NG-3). However, socialization and training from governments were quite intense, so the transformability process was created. Moreover, the government's traditional paradigm is very influential on the policy direction of the flood. Currently, there are more strategies on flood resilience through the development of grey infrastructure and fewer strategies on green infrastructure. In Jakarta, physical or sectoral approaches are deemed more effective than integrative ones, such as the spatial approach. Furthermore, the integrative approach is considered too difficult to be implemented, especially in the upstream Ciliwung watershed where the geographical and social condition are more complex. However, to be resilience, the flood control should be comprehensive from upstream to downstream. In the Ciliwung river case, the problem in the upstream are related to maintaining the land-use condition as a vegetation area, thus overcoming the problem through an area-based approach should be more suitable. Meanwhile, in the downstream, namely the urban area of Jakarta, the problem is more about the water flow issue.

The last factor identified is the weak administration procedure in flood management of the Ciliwung river. In Indonesia, the red-tape bureaucracy that still exists in flood institutions and the short-term period of the governor makes flood management a mess. The complicated bureaucratic procedures based on the findings of this research is the fact that the city government must first obtain permission from the Ministry of Public Works to clean and excavate the Ciliwung river. This reflects the bureaucracy complexity in Indonesia. Moreover, the hierarchical chain of actors, i.e. superior organizations that have the power to determine the activity of others, shows a tight approach in operationalizing the rules in flood safety. This tight approach leads to delays in flood safety implementation. Meanwhile, the loose approach is considered more suitable to the self-organizational type, which is more autonomous and not determined by the organizational chart (Molenveld and van Buuren, 2019). Furthermore, flood management planning often changes with the change of governor. Short term planning and action resulted in the lack of sustainability of the flood resilience program. In this case, consistency and commitment in policy implementation are very much needed. This is due to the political year (governor election) in Indonesia which happens every five years that relate to the period of policy implementation. This to be said that the problem is in the context of policy integration and consistency. The short-term planning approach do not have a sustainable impact.

5.4.2. Potentials

The potentials to improve the flood resiliency of Jakarta can be seen from the aspect of political support, financial capacities, and the networks that the Jakarta government poses. In terms of political support, the establishment of the PMO Jakarta is proof of government support in improving coordination and spatial planning for the Greater Jakarta area, and this shows the transformability of government (Olsson *et al.*, 2006). As Walker *et al.* (2004) stated, adaptive governance shows the ability to develop a substantially new system regarding the contextual conditions of a system. In terms of urban revitalization, increased coordination as a means of improving urban renewal

policies has the potentials to enhance the quality of life and increase the urban image through the use of urban space (Ramlee *et al.*, 2015).

The establishment of the PMO is a breakthrough that has great potential in improving the governance of Jakarta's flood resilience in the context of the Ciliwung River. The uniqueness of the Ciliwung watershed which crosses several districts and cities in two provinces, means that the authority is not in a specific region, but belongs to the the national government. Furthermore, at the central level, the authority over the Ciliwung River is also not only in one ministry but also in KLHK, KemenPUPR, and BNPB. So, the authority is very complex. Therefore, innovations such as the formation of PMO and Jakarta flood management team are part of the effort so that flood management is not fragmented. Therefore, it is expected that the handling is not only from the disaster aspect, or only physically, but from upstream to downstream, so that it can be more holistic. PMO provides an opportunity to develop a well-designed Ciliwung watershed that potentially enhanced the interconnected green infrastructure system that delivers natural ecosystem services and values and creates a sustainable economy and environment (Ramlee *et al.*, 2015).

The other potential is financial resources. As the center of economy, Jakarta provincial revenue is the highest among other cities or provinces in Indonesia (Fauzia, 2020). The large budget allocation for the river revitalization program also showed the robustness of flood governance. Furthermore, adaptability measures can also be seen from the government by supporting adaptation, and risks-based approaches, although funding for adaptation is not as big as for infrastructure. From the urban revitalization perspective, prioritizing urban renewal will potentially open a window opportunity to adjust the urban revitalization process and adapt to changing conditions (Zevenbergen *et al.*, 2008). It also paved the way to enhance strategies for more adaptable and resilient urban spaces. Consequently, it can increase the economic value for the revitalized area (Zevenbergen *et al.*, 2008). Moreover, prioritizing urban revitalization on green infrastructure gives opportunity to provide mitigation and adaptation to climate change and reduce the risk of flooding as well as restore environmental services and improve socio-economic functions (Ramlee *et al.*, 2015).

Furthermore, the extensive networks that Jakarta have can be considered as the main potential in urban revitalization. Jakarta governments have good networks with NGOs, such as UNDP and Wahana Visi Indonesia (WVI), business sectors, and many communities concerned with the Ciliwung River (G-8). These multi-scalar informal actors are regarded as the ones who socially construct the urban redevelopment policy-making (Zhao *et al.*, 2021). Support from the government for these inter-disciplinary networks shows the transformability of flood governance. This extensive collaboration shows that Jakarta is adaptive enough to open itself up to multi-stakeholders in order to adaptively manage the city (Folke *et al.*, 2005; Schultz *et al.*, 2015). For example, collaboration with WVI in developing the knowledge about early warning systems and applying the knowledge by creating adaptive action plan for floods demonstrates the ability to deal with flood uncertainties (Schultz *et al.*, 2015). Effective networks with diverse actors and capacities can make urban regeneration and planning better serves the community (Zhao *et al.*, 2021).

Chapter 6: Discussion and conclusion

This chapter addresses the main question of this thesis: *'How can urban revitalization enable institutional transformation for resilient flood risk management in Jakarta, Indonesia?'*. It presents through the discussion of the findings and theoretical framework in Chapter 2.

6.1. Discussion

Flood resilience is a fuzzy concept related to evolutionary resilience since it can be seen from a socio-ecological perspective and is connected to the nature of the system, which could change over time and is able to adapt, self-organizing, and transform (Davoudi, 2012). Based on the findings, it is clear that urban revitalization is proven to increase flood resilience and enable for institutional transformation. However, in the case of Ciliwung river revitalization, it is clear that physical protection alone is not forceful enough to deal with a massive flood (Firman *et al.*, 2011; Restemeyer *et al.*, 2015). Therefore, for cities facing flood hazards, robustness or technical measures must be combined with other strategies to be resilient. In the case of Jakarta, improving flood resilience through the Ciliwung river revitalization program is complex due to the uniqueness of the Ciliwung watershed. The cross-provincial condition causes the management of the Ciliwung river to become the authority of the central government, while the authority of the provincial government is only on areas outside the river. In this regard, good coordination between administrative authorities is needed so that the revitalization in the upstream and downstream areas can be successful. Therefore, solving the Jakarta floods requires the best efforts of all parties from the central and local governments as well as the active role of the community in flood prevention.

6.1.1. Institutional transformation for flood resilient through urban revitalization

Urban revitalization enables to transform institutional arrangement for resilient flood risk management in various ways. Institutional transformation for increasing resilience is certainly a challenging and convoluted process involving various stakeholders with their interests, motives, and power relation across scales, spatially and temporally (Carpenter *et al.*, 2001). In the Ciliwung river revitalization, there is a good vertical and horizontal collaboration. The prominent aspect for revitalization to occur was the collaboration of governance and participation of stakeholders (Vasab, 2016). However, the management of the Ciliwung river is very thick with the nuances of competition between sectors or ministries that emerged from the past and are still carried over to this day. Rivalry between regions has emerged since the existence of regional autonomy in Indonesia in 1999. This rivalry greatly hinders the collaboration process between sectors and levels of government. Consequently, the coordination of increasing flood resilience cannot run well. For the management of the Ciliwung river, the implementation of the watershed concept is also an issue. Thus, cooperation scheme to enhance collaboration are very important for flood resilience.

Nowadays, the most important collaboration problem is between the central government and the Jakarta government. The existence of a dichotomy or differences of opinion regarding the approach taken for the restoration of the Ciliwung river resulted in a less conducive atmosphere of collaboration. Moreover, the issue of this dichotomy has been raised in the national media. On the one hand, the KemenPUPR has chosen a normalization approach, which focuses on hardening riverbanks with concrete materials. On the other hand, the Jakarta government has chosen a river naturalization approach that takes ecological-based adaptation strategies on flood management, which is river management through the development of green open spaces by considering the storage capacity of flood control, conservation, and socio-economic functions. Limited land in the

middle of Jakarta is the main reason the central government chooses a technical approach to the next Ciliwung River revitalization project. Actually, national government has also started to discuss the nature-based solution approach that will be carried out in the upstream Ciliwung river. From an institutional transformation perspective, the government's focus is actually gradually begun to shift from a 'protection-and-reaction' strategy which is by not only strengthening riverbanks but also combining the strategy in which flood control is carried out through risk management and strengthening resilience (Molenveld and van Buuren, 2019). Adapting to flood risk requires socio-ecological systems that are more resilient to deal with unexpected disturbance.

Another issue with collaboration is that although the communities were involved in flood management, such as developing action plans, they were not involved in the planning process. This is what is lacking in the Ciliwung revitalization project, as adaptive governance requires participation in coordination to reduce the lack of information (Molenveld and van Buuren, 2019). Resistance from the community at the beginning of the project implementation showed that there was no good cooperation between the government and the community. Inclusivity was not reflected in this project. However, the positive response from the public to the impact of the Ciliwung river revitalization proves that the goal of urban renewal has been achieved. River revitalization creates cities with good environmental quality and appropriate socio-cultural facilities and to improve quality of life (Ramlee *et al.*, 2015).

Next, the different approaches to institutional transformation for flood risk management in Jakarta are also influenced by the leadership of the flood institution. Shared vision and leadership have a major influence on flood policy. The leadership also determines the direction of flood control policies in Indonesia. Change in leadership can lead to change in policies. This causes flood control policies in Jakarta to tend to be short-term and unsustainable. This is also related to the commitments that will be made by flood institutions. Zevenbergen *et al.* (2008) stated that revitalizing urban infrastructure is one way of adapting to long-term changes and increasing flood resilience for cities. This means that Ciliwung river revitalization is aimed at long-term flood protection. However, the way the project is implemented and the approach used may vary depending on the leadership and commitment of the actors. This also affects the knowledge and information sharing process of flood institutions. Actors with strong leadership and vision stimulate institutional transformation to enable a learning environment which are required by adaptive governance systems (Folke *et al.*, 2005). Folke *et al.* (2005) mentioned the importance of developing knowledge systems and experiences from social networks groups to stimulate self-organization of flood institutions in creating adaptive governance, by which it is institutional transformation. From the interview, it is known that information regarding the revitalization of the Ciliwung River reached the community through mass media and socialization. However, although the community feels that the information provided about the project and flood management is still lacking, the Jakarta government already has an integrated information system, namely JAKI (Jakarta Kini/Jakarta now), which provides all information about Jakarta, including flood information

Furthermore, another institutional transformation for flood risk management through urban revitalization is through change the tradition paradigm on flood institution and raising stakeholders' awareness. In the case of Ciliwung river revitalization, the traditional paradigm still dominates. For centuries, technical measures were believed as the ultimate way to solve the food safety issue (Molenveld and van Buuren, 2019). The focus on strengthening the Ciliwung riverbanks for flood protection demonstrates the robustness of flood institutions (Restemeyer *et al.*, 2015). However, this also shows that transformation management has not been created. Furthermore, the paradigms and mindset are important things to consider because both affect behaviour and awareness of flood management. In the context of urban resilience, it is important to have paradigms and mindsets that

the river is a place that has an ecological function and is part of the urban liveability. Through this mindset, it can raise awareness in society. In addition, community involvement in planning is also needed, because community participation can increase the sense of belonging to existing flood resilience programs, including river revitalization programs, which can then create a sense of responsibility. The adaptive governance requires institutional transformation, instead of using traditional command and control method with an emphasis on probability reduction through flood defence measures, the paradigm shifts to consider complexity, uncertainty, and unpredictability when dealing with the flood (Davoudi, 2012).

6.1.2. Urban revitalization for resilient flood risk management

Urban revitalization gives positive impact to the institutional arrangement for resilient flood risk management in terms of urban system, socio-cultural, and local economy. The case of Ciliwung river revitalization program showed that the area around the revitalization project is less vulnerable to flood. Based on the outsider perspective, the social life of the community in the riverbank has also improved and the community showed the adaptation process to flood hazard. Moreover, the economic activity also less disturbed during the rainy season. The financial problems that often arise during the rainy season are also much reduced. This condition making local economy less hampered. Thus, the community become more resilient. Urban revitalization increases resilience by facilitating urban areas in social, economic, and environmental aspect (Ramlee *et al.*, 2015).

6.2. Conclusion

In general, to increase flood resilience by applying urban renewal needs a specific institutional transformation. As in the case of Ciliwung river revitalization in Jakarta whereas specific institutional arrangement is needed to increase flood resilience. However, beside the controversy, the Ciliwung river revitalization is able to reduce the intensity of flooding and the lower time of inundation. It also has a positive impact on the social and local economy. Furthermore, scholars in flood resilience agree that there is no “one-size-fits-all” solution for the institutional flood arrangement.

This research focuses on institutional transformation for resilient flood risk management through urban revitalization. In this case study, the contextual factors of the natural condition of the river system in Jakarta, socio-cultural dimension, and institutional context are significant in determining institutional flood arrangement that direct the way the government adapts to the situation (Driessen *et al.*, 2016). The river revitalization project in Jakarta shows that although the technical approach has succeeded in reducing flooding and showing positive performance on the socio-cultural and economic aspects of the community, in the long term, institutional arrangement needs to be reframed to increase resilience. Moreover, to be resilient, enhancing the adaptation and transformation of flood risk management in Jakarta is significant. As Folke *et al.* (2010) mentioned, adaptive governance embraces change as an essential part to persists.

Based on the findings, it can be seen that the elaboration of the four elements of the institutional flood risks arrangement can contribute to the successful revitalization project that aims to increase flood resilience. The study showed that the elaboration of those elements able to show institutional transformation for resilient flood risk management can be created. First, the integration of the flood policy with the development or revitalization planning is important to increase resilience. As in the case of Jakarta, the policy of river revitalization program for flood resilience is well integrated with the National Plan (RPJMN). However, the issue of inconsistency and implementation of policy become crucial factors that challenge the revitalization process. Second, the element of the

collaborative process indicates that showed in the research defined that the collaboration networks significantly contribute to the successful implementation of revitalization for resilience. As in the case of the the Ciliwung river revitalization program, although there is collaboration between BBWSCC and Bappeda Jakarta, however, the collaboration is not equal since the national government is dominant in the project. Thus, the research found that coordinating agency is crucial for the collaboration process. As in the case study, the establishment of PMO Jabodetabek-Punjur is believed will increase collaboration among institutions. Furthermore, the diversity of participants in collaboration and open and voluntary participation becomes the indication of adaptive governance which create institutional transformation (Molenveld and van Buuren, 2019). Third, information and knowledge sharing related to flood management is crucial for revitalization to flood resilience to be occur. The most important lesson from the study is that the community should be involved in the urban revitalization project so that the resilience agenda can run well with their participation. Involving the community since the planning process will accelerate the urban renewal process. Moreover, knowledge dissemination and capacity building on flood safety are needed for the community and institutions for the successful of the resilience agenda. Lastly, it is important to set a paradigm that is focus on achieving urban resilience. The research showed that paradigm contribute to the institutional transformation. However, it is very contextual and moving out from traditional paradigms certainly takes time and involved awareness from all stakeholders, especially the government and community.

Furthermore, the urban renewal can contribute to the urban resilience which can be seen from the impacts of the urban renewal itself. The research shows that urban renewal shows positive performance in socio-cultural and economic aspects. The most important thing that should be take into consideration when performing urban renewal is that the involvement of community during the process of revitalization and the collaboration process. The research showed that community deemed that they were involved in the revitalization process, although they feel the positive impact of the revitalization, such as reducing floods, delivering adequate housing provision and sanitation, and minimizing economic loss.

To conclude, it is clear that institutional transformation for resilient flood risk management through urban revitalization is very contextual. However, the research found that coordination in urban revitalization in terms of institutional arrangement plays a significant role in increasing flood resilience. The uniqueness and complexity of the Ciliwung river makes coordination between government levels and between sectors is crucial factor to the success of flood resilience. The establishment of PMO Jabodetabek-Punjur become an opportunity for enhancing coordination in flood management. Moreover, increase coordination and diversity of actors (institutions) in open collaboration shows the institutional transformation and adaptive capacity of flood governance (Molenveld and van Buuren, 2019). Collaboration also includes inclusivity in development planning. Thus, improve collaboration through a good coordination is important.

6.3. Policy recommendations

This research provides valuable lesson for Jakarta and other urbanized regions in developing countries to enabling institutional transformation for resilient flood risk management through urban revitalization. Analysis of institutional arrangement in river revitalization program in Jakarta to become flood resilience shows that a more polycentric governance approach based on the idea of Ostrom (2010), which is enabling many actors to develop ideas and take actions to flood reduction, seems not applicable in the context of Jakarta. Maybe, as a developing country, different institutions in Indonesia have different priorities due to limited resources (intellectual capital, financial capital,

and social capital) availability. Thus, the monocentric governance approach or nuance of the top-down approach in flood governance is still needed to make a coherent vision and actions in achieving the goals of flood resilience. However, the bottom-up approach, which enables participation, should also be considered as Indonesia is a democratic country.

The revitalization of Ciliwung river as flood protection measure, along with the controversy behind the project, shows that reframing the issue is important in the adaptive governance for institutional transformation (Molenveld and van Buuren, 2019). To transform institutional arrangement for resilient flood risk management, the normative notion of the existing paradigm, which focuses on flood prevention, needs to be shifted to flood risks reduction, which means considering the probability and consequences of flooding. Including changing views on the implementation of river revitalization projects that only focus on strengthening riverbanks with concrete materials with a more adaptive approach to change or disturbance, such as applying mixed methods which combine both engineering and non-engineering measures.

To become more adaptive and resilient, four factors are considered important and need to be improved in institutional arrangements in the river revitalization program. First, improve coordination of flood institutions in Jakarta. The development of “bridging organizations” that connect various institutions in flood governance can encourage self-organization and frame adaptive co-management efforts (Folke *et al.*, 2005). However, in terms of the Ciliwung river, the uniqueness and complexity of the river makes coordination between levels of government and between sectors crucial for the success of flood resilience. The existence of regional autonomy in Indonesia which has lasted for 20 years with all its attributes shows that although a bottom-up and collegial approach is an opportune, a top-down touch is still needed. With the Presidential Decree No. 60/2020 and through the formation of the PMO Jabodetabek-Punjur, it is hoped that the collaboration between governments can run satisfactory, both vertically and horizontally. This political approach is to combine top-down and bottom-up approaches. In the case of the Ciliwung river, national political power is very much needed to create good coordination. In this case, the president as the main actor to encourage coordination, , so that lower levels, both ministries and provinces, can comply with the existing cooperation framework and silos between institutions can be eliminated.

Second, increase the commitment of all actors in flood governance. The commitment of political leaders to the implementation of flood control in Indonesia is still an issue. This generally occurs in line with the change of regime or leadership, then the rules and regulations regarding flood risk management in Jakarta towards a more flood-resilient city also changes. The commitment of all actors to the implementation of the development plan is crucial so that flood management can be more focused. Moreover, adaptability requires strong political and financial support (Davoudi *et al.*, 2012). In Jakarta, political support can be seen from the inclusion of flood-prone areas in the provincial development plan (RPJMD) and the issuance of a Flood Contingency Plan. However, the termination of the river revitalization project in 2017 more or less shows the lack commitment of government to increase flood resilience. Although it is understood that the revitalization project was stopped due to the issue of land acquisition on the Ciliwung riverbank, further action was not taken by the government until there was a major flood in 2020.

Third, raising awareness from all stakeholders is necessary for flood resilience. As awareness of flood risks and knowledge of socio-ecological perspectives increases, this encourages the transformation of systems to deal with floods. (Restemeyer *et al.*, 2015). Raising awareness is as important as building an extensive network, because the existence of social networks encourages the creation of adaptive capacity and increases transformative resilience (Brown *et al.*, 2020).

Interdisciplinary networks and the desire to learn new knowledge become ability to transform (Restemeyer *et al.*, 2015). The biggest factor causing flooding is the lack of public and government awareness of the importance of protecting the environment. In Jakarta, littering is very common. Moreover, illegal occupancy of the Ciliwung riverbanks is also an issue. These actions cause the loss of river functions and flooding. Raising awareness is very important because it requires the cooperation of various actors and takes a long time. This can be started by changing the mindset of actors on the importance of protecting the rivers and perceiving water as a resource that needs to be conserved. This public awareness is a benchmark for the transformation process of water management towards flood resilience in Jakarta.

Fourth, there needs to be a holistic and long-term approach. The current condition of government institutions (both in the national and local level) that deal with flood problems is that they have not seen flooding as a complex phenomenon with holistic problems and many factors involved. River revitalization as an effort to flood control requires a holistic approach that involves power and politics (Davoudi *et al.*, 2012). With a holistic approach, it is hoped that it can encourage the integration of increasing flood resilience and eliminating the silos. Because, in general, to create a sustainable city, the idea is not only to overcome economic losses due to floods or reduce the affected communities, but also to look at the environmental aspect and maintain urban biodiversity.

Furthermore, a paradigm shift is needed in flood risk management (Restemeyer *et al.*, 2015). Jakarta needs to move from short-term reactive, civil engineering solution, and top-down manner policies to a long-term structural change in a society or culture. For river revitalization, it is hoped that there will be innovations and new approaches in its implementation. For the Ciliwung river, the watershed approach that considers the upstream and downstream areas is an important thing to do in increasing flood resilience. Furthermore, sustainability in watershed management is the main factor, so consistency in long-term planning is needed.

6.4. Research contribution to planning theory and practices

This research gives several insights which contribute to the planning theory as well as planning practice. Case study approach used in this research provide in-depth information which is valuable for the analysis. Furthermore, the empirical insight from the research combined with the literature review can provide generic lessons. In planning theory, the transformation of institutional arrangement is certainly needed to flood resilience. However, it is clear from the study that enabling institutional conditions for resilient flood risk management through urban renewal can be created by increasing the quality of collaboration among institutions which can be enhanced by creating coordination that significantly can contribute to successful implementation of urban revitalization. It is clearly explained that PMO, as a coordinating agency, plays a significant role in increasing the collaboration. Thus, coordination should be the main priority in institutional strategy and the role of coordinating agency should be more elaborated when exercising urban revitalization and resilience. However, based on the main findings of the research question of this study, it is discovered that the difficulty of collaboration is between the sectoral ministry and the city itself. Thus, there are still many areas for improving the revitalization practice that is in accordance with flood institutional arrangement, especially in the collaboration aspects. For planning practice, it is important to reflect on the processes through which the revitalization project able to involve practitioners and communities together to transform institutional arrangement for resilient flood risk management.

6.5. Recommendation for further research

This research only includes one study case of urban renewal for flood control, which is very narrow and focuses only on river revitalization. Therefore, the ultimate suggestion for further research is to study other aspects of urban renewal in increasing flood resilience as flood control, for example, park development and restoration. The findings of studying several urban renewal projects could potentially contribute to other disclosures which support the results of the analysis made in this study.

Another interesting factor to dive into research is the organization of PMO Jabodetabek-Punjur as a coordinator for the issues in Greater Jakarta. The effectiveness of coordination is worth exploring because the flood problem requires adaptive governance with strong collaboration, both vertical and horizontal collaboration. As the finding that occurred during the interview showed that coordination is a crucial factor in flood management. This research did not elaborate more on the effectiveness of coordination activities; hence this gap needs further research.

Chapter 7: Reflection

In this research, the most challenging part is to formulate the theoretical framework. Finding relevant theory for the research is found difficult for the researcher. Then to integrate and write the theoretical framework which guides the research objective need much more time than expected. This becomes a valuable lesson learned for the researcher to allocate more time to reading more research papers to understand what is required for research, how the relevant theories are selected, and how the theoretical framework is written. Another important aspect is understanding how the research and writing flow is so that it becomes a well-structured storyline and does not fragment.

Other parts that should be anticipated during data collection of the research, especially if the data collection uses the semi-structured interview method, is that several things need to be considered and that several things happen outside the plan. For example, in selecting participants to be interviewed, the researcher needs to consider who the resource person is relevant to the research carried out. Then, when the researcher has arranged the interview schedule and the research timeline, the availability of interviewee time is an important thing that needs to be considered in conducting the research. As is the case in this study, where out of the many institutions targeted for interviews, several institutions did not provide answers or even refused to be interviewed for various reasons. Of course, this is beyond the researcher's control and has a significant impact on the previously prepared research timeline. The main challenging time is when BBWSCC and Bappeda Jakarta, the main institutions in this research, took a long time to reply to an interview request letter from the researcher and appoint who the interviewee will be.

Finally, another challenging area was developing the evaluation criteria for the interview process. First, create questions for interview guidelines and connect them with the research focus. Then, share the same understanding of the questions and topics both from the researcher and interviewees. Different backgrounds and experiences between researcher and interviewees would lead to a different perspective on a subject. Building connections with the interviewees is also an important factor for information disclosure during the interview process. This cannot be done in this study because the researcher and all the interviewees only met when the interview process took place. However, despite all the challenges in presenting this research, delivering critical work is the main priority.

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Appendix I – Interview guidelines

A. For Government Institution (insider perspective)

Introduction

- Please introduce yourself and your role in the institution.
- Can you explain your institution role in flood resilience?

Policy integration

- What measures (Policies, standards, rules and strategies) are being taken in the national/city level to stimulate flood resilience strategies and initiatives in relation to urban revitalization?
- To what extent the policies related to spatial planning and flood management well-aligned in your institution?

Collaborative process

- To what extent the national, city, and municipalities collaborate in the flood management initiatives, especially river revitalization?
- To what extent proactive participation of stakeholders applied in the river revitalization for flood resilience in Jakarta?
- To what extent political interest or the leadership of the policy actors applied in flood management?
- How is the network between the institution and multi-level governance applied in flood management?
- How are networks between government, private, and public applied in flood management?
- What are the pros and cons of this collaboration? What are the benefits, but also what is missing in the collaboration?
- How to improve the collaborative process in flood resilience?

The existing condition of Institution

- To what extent is national legislative support for encouraging local action?
- How does your institution enable information sharing and knowledge communication between government sectors related to flood resilience?
- How does your institution facilitate public access to flood management program information?
- How clear are the role and responsibilities between national, city, and municipalities levels on flood management in the revitalization program?
- To what extent do staff in government have skills and knowledge about flood management?
- How to improve the existing condition of the institution to increase flood resilience?

Contextual factor

- To what extent is your institution administratively and politically coherent with other institutions in dealing with the flood?
- To what extent the traditional paradigm or values still being maintained by your institution (for example focusing on technical measures for flood protection rather than adaptive measures)?
- How to improve the current institutional situation in flood management?

B. For community, NGO, and academics (outsider perspective)

Introduction

- Please introduce yourself and what is your concern in the river revitalization program?

Performance of the river revitalization program

- Urban system
 - Do you think river revitalization is consistent with the policy related to spatial planning and/or flood management?
 - To what extent do you think the collaboration among institutions in the urban revitalization program?
- Socio-cultural impact
 - To what extent river revitalization meet public demand?
 - In the process of river revitalization, which stage or activity includes consideration for the community, for example, how far to move, what is the economic potential.
 - Is there any improvement in service and welfare due to the river revitalization program?
- Economic impact
 - To what extent river revitalization improve the local economy?

Policy integration

- What do you think about the policy in river revitalization program to flood resilience?
- To what extent, in your opinion, are policies related to spatial planning and flood resilience well-aligned?

Collaborative process

- To what extent did you participate in the Ciliwung river revitalization program?
- To what extent are cities or municipalities open to community participation in Ciliwung river revitalization programs?
- To what extent political interest or the leadership of the policy actors applied in flood management?
- How are networks between government, private, and public applied in flood management?
- How to improve the collaborative process between government and communities in flood resilience?

The existing condition of Institution

- To what extent is national legislative support for encouraging local action?
- To what extent did you have information about river revitalization programs for flood resilience before the program started? And how you get the information?
- Are there any special personnel/staff from the city government who informed you about the river revitalization program?

- Do you think the role and responsibilities between national, city, and municipalities levels on flood management in the revitalization program is clear enough?

Contextual factor

- To what extent exactly does the river revitalization program look like within the community?
- To what extent the traditional paradigm or values still being maintained by the community on tackling the flood issue (e.g. still focusing on technical measure rather than adaptive approach?)
- How do you think to improve the current institutional situation in flood management?

Appendix II – Transcrip of the interview

Code of interviewee: G-1

Institution : Directorate of Water and Irrigation Development, Ministry of National Development Planning/Bappenas

Function : Staff of irrigation development and vice head of PMO Jabodetabek-Punjur

Relevance : Responsible in planning of water and irrigation development and actively involved in PMO Jabodetabek-Punjur

Date of interview: May 20, 2021

Researcher: To what extent the policies relate to spatial planning and flood management well-aligned in flood institution?

Interviewee: So, it's very suitable, actually first for policy integration, I will tell you about the 2020 flood. The 2020 flood in Jakarta is quite severe. I had time to make a tweet about the 2020 Jakarta flood, which was pretty easy to explain about the flood because at that time the Jakarta flood was nothing if it wasn't A and B's fault. In fact, the flood is not a political problem at all, but a technical problem that we can solve. Not because of the leader. Whoever the leader is, if we do the same way or business as usual, we will be flooded. At that time, I tried to tweet and was notified by Mr. Sofyan Djalil, Minister of ATR. I was called to appear. Please explain to me in more detail. Then I explain. Then I was challenged to come up with a solution for any Jakarta floods, a week I was told to face it. Then together with friends at Bappenas, we gave birth to 7 quick wins to reduce the flood risks. So, as long as there is rain, there will always be flooding. We only reduce the risks. For quick wins, the first is about reducing threats. So, hazard reduction. If hazard is added later, vulnerability is reduced by capability, so it's a new risk, right. So we start with hazard reduction, namely by implementing a zero-delata run-off policy. So, rainwater that falls in housing wherever possible must be absorbed or channeled at the same time. Then build rain gardens, which are dry gardens that turn into gardens, but if it rains water from the surrounding area collects there it will not be absorbed or flowed into larger waterways, which must be held there first so that the water does not flow into larger waterways. which has the potential to cause larger waterways to become over capacity. Or green building or green design like the roofs of houses planted with all kinds of things. So, the water that falls either absorbs first or slows down. So, we first reduce the water that will enter, or we reduce the runoff that will occur in many ways, such as absorption wells and all kinds of things. That's what we call threat reduction, or hazard reduction.

After we carried out hazard reduction, there is one more problem in Jakarta, namely we have to control land subsidence because one of the causes of flooding in northern Jakarta is land subsidence. The land is already lower than sea level and the basins, so it is raining and there is no good pumping system, like in the Netherlands the polder system is good, if the polder system is good then northern Jakarta will be relatively safe. It's just that there are some places where the polder system still needs to be perfected. And we must provide clean water for the people in the north. Because one of the causes of land subsidence is massive groundwater extraction. Extraction by apartment mainly. But it turns out that for this solution, it is a bit difficult because we need infrastructure for providing clean water and all kinds of things. But the point is that we are trying to get there.

The third is the arrangement of space and buildings. So often the areas that experience flooding are indeed natural areas of flooding, so the natural areas of flooding are morphologically flood plains. So, it is the duty and function of the area to be flooded, why wake up there? Whose fault is that? So we are trying to form or create a risk reduction based spatial plan. By the way, if the condition is now, whether now we audit the existing spatial layout and then revise it, or if the existing spatial layout is correct, it means that we only have to control and control the existing spatial layout. For example, there used to be an area, then the residents filled it up, then we tried to clean it up, and we put it back in there. In my opinion, this is very important, but this is most often in contact with the community and people don't necessarily like this, this is what I think is very difficult. But if it's the developer who violates it, well, I'm excited. In fact, if you've heard of the Lippo Kemang case in Krukut River, then the developer was accused of violating it, well, there's a lot of people there. Only if we want to be honest, 90% of those who violate spatial planning, developers are only 10%. So even if all the developers are obedient, there is still 90% that still needs to be improved, which is the community.

Then also about buildings, so we are trying to communicate with REI, with architects, so that we prioritize water sensitive design and green design so that in building buildings in the future we can put forward the zero delta key principle. For as a continuation of the first quick wins.

The fourth one is new infra development. This infrastructure development includes embankments, polders, dams, such as in Ciawi and Sukamahi or what we are currently conceptualizing is a mini dry dam. So, the Ciliwung river is to discharge, so that from upstream to downstream the debit is getting bigger because more and more recharges from the tributaries of the river. we have discussed it with PI. There is a concept that we keep the discharge at the limit we want, so that even in flood conditions it does not run off to Jakarta. He stays on the discharge let's say it's not flooded. it's for infrastructure development.

The fifth is EWS. EWS is very important because the community doesn't know when to evacuate, when to save things. Right now, if we get SMS or information from BMKG, it will rain, it's only limited to whether we bring an umbrella or not. But if we find out, this area is flooded, move your car immediately. Because there are so many people whose cars will get stuck, and all kinds of things. So, we need to strengthen this EWS. Together with friends from KemenPUPR and BMKG, we are in the process, friends from JICS are also helping in the process.

Then the sixth is the preparation of preparedness. In many cases of flood events, as soon as the flood came, we immediately went down, I personally and all kinds of things went down. Then we asked if anyone had come from the government yet. Nothing yet, so it's only been a few hours. Where the community actually needs a rubber boat for evacuation, it requires officers in the field to help the community evacuate. It's still very bad, yes, is there a shortage of people or what, but we also need to pay attention to that. Also related to the asynchronous operation of the polder pump. So, for example, the pump should be integrated into one system so that if it is downstream or upstream of the pump, it has loading in the middle, so it's not the pump. The essence is an increase in coordination in preparedness earlier.

The last one is the most difficult, in fact, regulations and institutions. Regulations and institutions, if we are all convents, we must first see that the regulations allow us to do all of that. Impossible? We have to try. Because we can say that regulation is an enabler, we must also check whether there are regulations that hinder the programs from 1 to 6 that we want to run. That means it's our job to solve it. Then there is the institutional problem. Now this is interesting, because there is already a Cooperation body, but BKSP is only between local governments, whose chairman is replaced every year, between the governor of Jakarta, the governor of Banten, the governor of West Java. But the problem is, let's talk about flooding. The

flood occurred in the Ciliwung River which is under the jurisdiction of the central government. So actually, for rivers with the authority of the Central Government, the central government should have the authority in any action in the river. So, if the Jakarta government should not care about the flooding that occurred in the Ciliwung river, it does not violate the rules, because the river is the authority of the central government. But it is impossible for the DKI government to remain silent, what does he want to do with the community? He was finally able to take action, which of course had to be coordinated with the government c.q. the Ministry of Public Works, c.q. BBWS, Ciliwung Cisadane, because they are the regulators who are the authority for managing this river. But yes, it is proven that the BKSP cannot complete its functions properly, especially in solving cross-sectoral and cross-regional problems, as well as at the administrative level, because it is only the local government. The question now is whether there is a coordination team or a coordinating body that combines central government with the local government, the answer is not yet, then the Minister asked, you know, how to handle it? When coordinating the central government and the regions, in this case the ministries and institutions with the regional government. Oh, it's easy, sir, then we'll just form a coordination team. Because if it's a body, Jokowi's apk is allergic to the formation of a new body. It's okay if that's the case, just try it. Well, then I drafted, the chairman was the Minister of ATR, then the deputy was the National Development Planning Agency, the members were the PUPR, the finance minister, the transportation minister, the TNI commander, the National Police Chief, and 3 governors. So that team. Spatial planning coordination team. The Minister asked that this concept be included in the concept of Presidential Regulation 60 2020. Coincidentally, at the same time Presidential Regulation 60 discussed ATR KSN Jabodetabek-Punjur, it replaced Presidential Regulation 54 of 2008. Then the Minister said that this team should be included in the Presidential Regulation, until it was made a clause or article which states that in order to carry out the function of spatial planning and all kinds, it is wrapped in spatial planning, but in fact our function is to deal with flooding, one of which is to form a coordination team whose members are as we proposed. After the Presidential Regulation was promulgated, the coordinating team emerged.

After I met the Minister as well, then Pak Tito through the Director General of Regional Development, he also had the initiative to synchronize programs at the local government and in the local government, now this is in line with what you asked, is it already there, means the answer is yes. It was carried out by friends of the Ministry of Home Affairs, Directorate General of Regional Development, we also participate in the synchronization process. On June 2, 2020, it was signed by all the Ministers and regional heads involved. Then the synchronization of activities is wrapped through these 7 quick wins. So, the local government was asked to have any programs, to be included in this quick wins. But this is just a new entry. This means that it is not yet at the level of a policy that is innovation in nature, etc., so this is really just synchronizing between programs from the central government and in this case both the provincial and district/city governments. Already available. It has been integrated and has been tapped on June 2, 2020.

Researcher: To what extent the national, city, and municipalities collaborate in the flood management initiatives, especially river revitalization?

Interviewee: This collaboration process will only be carried out by the coordination team, which I said earlier. From the coordination team, a PMO was formed, like a small team that works every day on behalf of the coordination team. Incidentally, the power sits there too, so the chairman or the PIC we call the program director, PMO director. I was the deputy director there. Mr. Wisnu, this day the director, I focus on strategic issues, especially floods. In this PMO, our principle is that coordination is an expensive item, because of the silos. And no one is

coordinating, so let's just fill the gap, we do that, we coordinate between silos. It's really hard for us to admit, because we don't know if it feels right, etc., but let's try our function as one debottle necking of the problems that have arisen between these institutions. As an example, there is Depok who complained to us, to the PMO team. The claim is that the Ciliwung River is under the authority of the Central Government, including the lakes and lakes in it, including the authority of the Central Government. Then there is a case where there is a lake in Depok that has experienced severe siltation, causing flooding of the surrounding houses. If the people don't want to know who owns this place, what they are demonstrating is, of course, the Depok government. One day the Depok government dredged. So the findings of the BPK. Because spending a budget on something that doesn't belong to you. You can't, you can't dredge this unless you have permission from the PUPR Ministry. Okay forgiven, for not knowing. Because at that time, the Depok administration knew that it had to be dredged so that people wouldn't be angry. Next year, they will write to KemenPUPR. For permission. What I love about KemenPUPR is that it has a very bureaucratic style. KemenPUPR replied, saying yes but you first send your design, your plan. Well, just worry about it, you have to make a series of technicalities. Wow, Depok is dizzy. Why do you want to dredge this up, but it's only been a year to collect technical data, for consultants and all kinds of things, then when do you want to dredge it up. Well, studies are made and all that. Then Depok submitted it again to KemenPUPR, and KemenPUPR was rejected, wow this design doesn't meet our standards, repeat it again next year, well, when is the problem. I mean this. Then the complaint is this, they complain about this when we can dredge up if the PUPR Ministry is always like that. So, in the end, after we heard Depok people say that, we went to our friends from the PUPR Ministry there and we said that you already have standards.

It means this, when there is technical data from the region, here is a picture, this is all kinds of data, once he receives it and then he judges, that's right, he should already have guidelines, already have standards. My question at that time was to my friends from the Ministry of Public Works and Public Housing, why don't you just take the standard that you go to Depok, so that Depok can make it according to your standards. Why are you even bothering friends in the area, why does the area seem to be being played with. They are silent, yes, but according to the rules, well, if you have lost according to the rules, it means you have lost the debate but are hiding behind the rules. Well, it means that while the status quo is in place, then we will report to the Minister that this is the case. Okay, the main thing is that you do a proper study first so that what I say to the Minister of Public Works is not valid. That's why we are currently drafting the streamlining of licensing in this field, and then the Minister of ATR as the head of the coordination team conveyed to the minister of the Ministry of Public Works and Public Housing that it should be like this. I mean, that's one of the things that, in my opinion, as a debottle necking, is only one of the small problems out of many cross-governance problems, problems across central and local government. So the PUPR Ministry made that standard, so it's actually like this, if the previous rules were applied to developers, then there's also a developer who changes the flow of the river, what is he? It doesn't matter if the developer is treated with many conditions, it's okay, because the goal is not to let this developer harm the community. This developer really implemented a technical design that makes this even better. But right here the government has a mission for the greater good. The government is the time when fellow governments are concerned. In fact, if the government is naive, the goal is to prosper the community. That is one of the conditions yes like that. At the same time, it answers the existing institutional conditions. Until now, it is still a kind of silo. But through this PMO, let's try, if the Javanese term is *"ing madyo mangun karso"*, so we bridge between local governments.

Researcher: To what extent political interest or the leadership of the policy actors applied in flood management?

Interviewee: So it's like this, what I feel is that this collaboration process is actually happening more at the bureaucratic level. So when it comes to political will, I think it's lacking, because we are mostly at the bureaucratic level. At the bureaucratic level, it means that we only run it, not because there is something. But what I feel is that, and we have already cleared this, namely between the governor, Anies and the Minister of PUPR, regarding the dichotomy of normalization and naturalization. We have finished that, Pak Anies, in quotation marks according to the concept of the Ministry of Public Works and Public Housing, so we no longer mention normalization versus naturalization anymore. Anyway, we will do the best measurement to overcome the flood. because not all parts of the Ciliwung river are good for naturalization, but if we say we can, we will do that. But, Pak Anies said that there is a Kalang River river in Singapore, it can be done, yes, only 1 km is naturalized, the rest is still in concrete. In Jakarta, if you want naturalization, there is only one problem, namely land, there is no land. We just want to normalize it already half dead. So finally agreed that we do not have a dichotomy. Even Mr. Anies has agreed to carry out land acquisition, that he does not want to evict but shifts. It's just that maybe it's been the last two years, so that's okay. Finally, he also agreed to carry out land acquisition, and the money has been lent through the National Economic Recovery (Pemulihan Ekonomi Nasional/PEN) program, the national economic recovery, from the Minister of Finance, has handed over IDR 1 Trillion money for normalization of land acquisition and several reservoirs in Jakarta, more or less like that. So, when it comes to political will, that's one of the interesting cases about political will. It's just that at the director general level, at the government official level, we do our best to work for the community.

Researcher: How was the collaborative process and citizen participation in the project?

Interviewee: This is what PMO is also trying to facilitate. I went to Japan in 2020, and found a participatory planning mechanism that was extraordinary, where there was only one complex designed, the residents were asked to design it themselves. So now that's the case, if the Rukun Warga? RW and all kinds of things are top-down and participatory, yes, there is no public consultation and they are asked to evaluate, but they are not asked to do that in the planning. We also want to try to bridge the active participation of the community through this PMO, where we have also established relationships with UNDP, which incidentally UNDP is conducting inclusive resilience research, so disaster resilience but inclusively involves the community. We are also in contact with communities, so that these communities can at least build awareness in the community. I think that any infrastructure in Indonesia, especially flood resilience infrastructure, often fails or is not very popular because the community does not have a sense of belonging, because the community is not involved in planning. Because when people are not invited in planning, they feel they don't know anything about the object, so now I'm just protesting. but if the community is invited in the planning, then automatically they feel they have ownership of the infrastructure. With a sense of belonging, a sense of responsibility automatically emerges to take care of the existing infrastructure. Now that's what we want to try to mainstream, both in the regional government and in the central government. So I am in a position at Bappenas, I want to include this point in the Government Work Plan, so that the PUPR Ministry or in any infrastructure development there is always a participatory process like that, so that people are asked first, what do you really want, because 90% of infrastructure in Indonesia is The top-down approach that the community actually only knows about the benefits is later after the infrastructure is in place. So, there is the construction of a dam in Bogor. The purpose of the dam is to reduce flooding in Jakarta. Then the people in Bogor were angry. So, the land acquisition was carried out by the local government of Bogor Regency. There is a protest from Bogor citizen. Including the regent, he asked why I have to pay for land for infrastructure that doesn't protect the people of Bogor but to protect the people of Jakarta, the residents of Bogor can't do anything. We get something there; it means that the Bogor people must be

involved. Is that in the development process we absorb local workers. Will that be after the dam is finished, there will be an area around it, we will build a tourist area that involves the active role of the people there. What is certain is that so that people there do not have possessions so that they do not take care of them too, it means that there must be a process of involvement from the beginning. That's what we're trying to mainstream in the government's 2022 work plan, it's still a long way off, but we'll start the process from now on.

So yesterday I was also invited for a discussion by friends from the Legal Aid Institution (Lembaga Bantuan Hukum/LBH). I said yes that the government did not participate. Because it is true that the government does not actively participate, for example in the reclamation case of Anul Island in Jakarta Bay, the reclamation island. The people who want to reclaim the land are located in North Jakarta, but the DKI government held the event in Serpong for consultation, it's not connected. That's kind of it. Those are things that, up to now, I think participatory have only become mere formalities that shouldn't be, we should listen to the community. In fact, by involving the community, the process of educating the community will also work.

What is normalized is a participatory process which I admit is lacking, but the people there are now feeling the benefits. So, if I interview now the people there are happy, because it's true that they are no longer flooded there. In fact, areas that have not been normalized are now asking for normalization, because they see that their normalized floods are not flooded. But in the hills of thorns there are people who sued the DKI provincial government and won. So, there is one segment that they don't want to be evicted at all. They want a floating village to be built. They talk to the DKI Provincial Government, and the DKI Provincial Government is okay. Only in the matter of normalizing Ciliwung, the ministry of the Ministry of PUPR is the ministry of the ministry of normalizing Ciliwung, because the Ciliwung river belongs to the Ministry of PUPR. The task of the DKI Provincial Government is to acquire only the land. Does the PUPR Ministry want to carry out the concept offered by friends in the Malay village, the answer is clearly no, the reasons are many, technical reasons, but the point is this, the PUPR people are like that, they will not accept ideas that are different from what they have unless the order comes from the minister, and that's the nature of the Ministry of PUPR. And in my opinion, Mr. Basuki is also quite good at technical matters. So, I don't think that will happen until KemenPUPR agrees to the concept. So even though the DKI Provincial Government has supported it, DKI is only the land acquisition, which will be designed by the Ministry of Public Works and Public Housing. Besides that, my last contact with the PUPR Ministry said that we don't want the Kampung Melayu area to be made like that, why, because later if the Kampung Melayu is made like that, all the other areas will protest. So, let's just try to make them want this.

The community was not involved in the planning, obviously not. That's unfortunately what happened. What happened was just socialization. But socialization is not participatory. Participation, the community is invited to decide what kind of design, to determine what I want to do after this

Researcher: How does flood institution enable information sharing and knowledge communication between government sectors related to flood resilience?

Interviewee: If I feel it myself, so there is a difference. If I ask for data using the Bappenas flag, it's easy, because Bappenas has the power to budget, so they give it in the no time, that's fast. But if I ask to use PMO, even though it's clear that we are a team headed by the minister and all kinds of things, it's still a long time, it's a bit difficult. So yes, if I ask for data and I use the signature of the director at Bappenas. Actually, the data is there and there are lots of them, it's just a silo, it's just a matter of whether they want to give it or not. I'm currently working on a data sharing collaboration between Bappenas and BMKG. The BMKG insisted that they could not

provide data, for fear of being sold or something. Because some institutions, the data is PNBP, so the data is important, actually if you open it to someone else, you have to pay. So, the data can actually be easily exchanged but there must be a memorandum of understanding process between institutions, so it's actually easy, only a memorandum of understanding is needed. But the formation of a memorandum of understanding that takes time. It takes about 3 months, because for MOUs and all kinds of things it takes. But actually, now it's relatively more fluid. Especially since Corona, everything is all online, so their tone is slower in terms of data, which is what I experienced.

Researcher: How clear are the role and responsibilities between national, city, and municipalities levels on flood management in the revitalization program?

Interviewee: True, there is overlap, there is a gap. I think there are overlapping institutes, which are horizontal in nature, but at the level of pussies. For example, managing the river is actually the domain of 2 ministries. Namely, the PUPR Ministry to take care of the river, but PUPR must also invite the Ministry of Environment and Forestry to take care of the water catchment area. So, I mean, do I think whether to make the ministry of water or the ministry of water resources a matter of conservation and control of destructive forces that we can combine. Because so far KLHK has its own way, and PU has its own way, so in my opinion there is overlap in dealing with this river problem and the two coincidentally don't want to get along. Then there are some things that are not taken care of by anyone, we are PMOs who are ad hoc trying to come in for things that no one has taken care of. But it's true that there are actually a lot of overlapping experiences. Not to mention the overlap between the ministry of ATR which manages land rights and forestry or later with agriculture as a land user and all kinds of things. Like the case at the peak, suddenly a lot of land that should not have been certified suddenly has a certificate, that's another problem.

Researcher: To what extent do staff in government have skills and knowledge about flood management?

Interviewee: When I was in Japan, the concept of Indonesian people was not inferior to Japanese people. One thing that distinguishes the Japanese is fiscal capability. our fiscal capabilities make us have to prioritize, and sometimes the priorities are wrong. But if the Japanese don't, if the Japanese have this concept, everyone wakes up, immediately wakes up, so the problem is solved. If we want to normalize the river, how many years will it take, so it won't solve the problem, not to mention if the governor changes, he doesn't want to be evicted. In my opinion, multi-year projects, especially those that are over 5 years old, have the potential to change leadership again. So, to be very honest, Indonesia has become a country for 5 years. Every 5 years changing modes, changing policy tastes. That's what I really love. It's like we're not very sustainable in any program. So, when the leader replaces everything from the old product, it is revoked, even though the old one is also good, but it seems as if the old one is bad.

The government, for capacity building, infrastructure is the priority. Why? Because it's real stuff. And they are happier that way, because they can be re-elected by the community. Instead of capacity building which is educational in nature. In my opinion, education, intelligence, and habituation to the community are as important as building infrastructure. Now if we build infra, but the people's lifestyle is still inadequate, they still throw garbage and all kinds of things, the infrastructure will not be useful, right. But of course, what is still preferred is to build infrastructure, yes, it looks like that, so what is tacit, like education, is not even this. But yes, again fiscal capacity. If all of us have unlimited fiscal capacity, I think we all want to do it.

Researcher: To what extent the traditional paradigm or values still being maintained by your institution?

Interviewee: Well, in line with what I said, I prefer a technical approach, why? Because there's stuff. If the approach is socialization, education is considered bull shit. Then, because the method of socialization, it is not packaged with other methods, so it's just the same bullshit different people. Like the Ministry of Public Works, for example, we ask for a green infrastructure design, but they are pro on the grey infrastructure. They haven't gone that way yet, because it's cheap, isn't it? Maybe a little bit. I don't know that's my negative thinking. We have submitted it to the Ministry of Public Works and Public Housing, please help us build a green concept, but yes, concrete is again like that. It means that the approach is always technical, always infra-infrared, PU, the reason is always that it is more effective. But that contextually the priority is still physical infrastructure.

Researcher: How to improve the current institutional situation in flood management?

Interviewee: So, what I have experienced is that we have often met with various ministries and institutions dealing with floods, both in the local government and the local government. If we look at the existing capacity itself, not many people are able to understand the flood as a holistic problem or a problem that actually has an extraordinary number of factors. Flooding is actually a complex phenomenon. Not just throwing garbage, not just because of the rain. It could happen that there is an area where garbage dumps diligently into the river, but it doesn't flood, why? There may be a reason. So far, what I have seen friends in the area always think that the flood is a shipment. The flood is because of the community, so the community is again to blame. So don't see the flood as a complex phenomenon. So, because they failed to see the flood as a complex phenomenon, it ended up being business as usual. Finally, the solution that came out was that. The solution that came out was not a breakthrough. So, what happened was that there was another flood. Although not all regional governments are like that. Although not all local governments are like that. If it's DKI, I think it's smart. DKI is also smart because it is supported by salary. the salary is good, they are prosperous, so they don't have to take care of the bankroll anymore. But to other areas, I think the project orientation is still going to the local government, but is it because the salary is not enough? If so, I think yes. If the salary for local governments outside Jakarta is not enough. My suggestion is that the government there, certain individuals are still project oriented. But have not thought about which projects can really have an impact on the community. Anyway, the project that is being banned. That's hard truth but that's what happened. I still see it to increase capacity means that actually what makes the capacity of a good regional government institution is that of course we must have good human resources. Then, how do you get good human resources at this time? If I see how start-ups can progress because the human resources are good. Why? Because the smart people who go in there. Why do smart people go in there? Because the incentives given are good. Well, I think there is an improvement in the welfare of the state apparatus to improve the performance of the state apparatus. I think that's the basic problem. If we talk about training, it's not. At least a week, but after the training, it's back again. I mean that the problem of capacity building is that the human resource capacity must be correct first, what about it, yes, the basic needs have been met, so don't think about anything else. I mean, if we talk about this, it becomes an increasingly complex problem, what do you mean you can limit it to improving the quality of human resources, what is that? later how with what incentives. That's okay, but in my opinion, when it comes to civil servants and the problems that are routine and rooted in them, the problem of the welfare of civil servants comes back again.

Code of interviewee: G-2

Institution : Directorate of Spatial Planning and Disaster Management, Ministry of National Development Planning

Function : Staff of spatial planning

Relevance : Responsible for spatial planning direction in Jakarta

Date of interview: May 7, 2021

Researcher: To what extent the policies related to spatial planning and flood management well-aligned in your institution?

Interviewee: Integration is mainly related to irrigation, so the integration between rivers is a coordination between the KemenPUPR and the Ministry of Agrarian and Spatial Planning (KemenATR). Then with the Ciliwung and coastal areas, coordination with the KemenATR and KemenPUPR, because the coastal spatial plan is by the Ministry of Marine Affairs and Fisheries (KKP), while on land by the Ministry of ATR. However, the law mandates only one document. But when it comes down to a technical level it turns out to be not that easy. First, the terminology is different. In the coastal sub-districts, it is regulated twice, by the KKP and the mainland by the Ministry of ATR. The level of detail of the maps used is different. The ocean is rougher, because the sea is large, so there is no need for detailed scale maps, while for the land for the Ministry of ATR the detailed scale maps are up to 1:5000, especially for watershed areas it can be up to 1:25000, so that investments can easily be located. But in the ocean, most are homogeneous ocean bodies. So, when you want to be integrated, the potential for unsynchronized boundaries, the coastline is as visible as possible. For example, Bandar Lampung, it will build a toll road above the sea, the discussion in the inter-ministerial committee is confused about which coastline. But for rivers, the problem is not planned, because the identification of disaster-prone areas, protected areas, conservation areas has been done. But the challenge is in the Copyright Act (UUCK). It must be admitted that UUCK is more simplistic, so there are consequences of harmonization elements, eliminating duplication, but there is also an element of simplification, namely the consequence of a shorter timeline, so now the total time for the preparation of the Design and Spatial Plan (RDTR) cannot be more 18 months until its stipulation. In the past, the long-time had expired for an agreement with the environment, now there is 20 days for it to be done, otherwise the old one is considered valid. So some ministries are confused about what if at the same time they have to review several regulations at the same time, namely the availability of human resources. Then the Strategic Environmental Assessment (KLHS) itself is no longer a separate activity. In the past, KLHS was a requirement, if it was finished, it could go to the next stage. It is now integrated in the process of preparing technical materials for Spatial and Regional Plans (RTRW) and KLHS. That's a challenge too, because for the RTRW during the process of preparing the technical material, it will continue to move. For example, if there is a proposed indication of a new program, there are priorities that must be accommodated, or the next meeting will come with a new ministry/institution that was previously absent. The standpoint of the Ministry of Environment and Forestry must be able to anticipate that, because during the preparation process it is very dynamic. Previously, they did not move, there was a draft first, then they did a separate KLHS, meaning that they analyzed objects that tended to be fixed. What's not right now, being one with the process of technical material being out, with cross-sectoral forums, with technical consultation, that is the challenge. So, coordination is clearly needed due to a lot of relaxation

and a tighter timeline. Opportunities exist, for example, with this zoom, we can meet every day, in the past it was difficult to arrange the time, now it can be scheduled.

Researcher: How to improve the collaborative process in flood resilience?

Interviewee: In the watershed context, the dimensions are not only horizontal across ministries/agencies but also vertically, there are two provinces, and there is another city government. So, the governor of DKI Jakarta deals with the mayor, the governor should deal with the governor, but there are two governors and several mayors. And it's happened several times. This is the same case with the Jakarta waste. It was between the governor and the mayor of Bekasi who demanded a review of the transfer money from DKI to Bekasi to provide solid waste services. For Bogor DKI also pays for the transfer of conservation assistance. In developed countries, the concept is water trading. But if in Indonesia the concept is still being negotiated or still facilitation, so it's not really based on the truth, how much do you consume and how much you pay. So, for example, if there are indicators, for example Bogor has good conservation, for example the number of days in Jakarta is reduced, then DKI has to pay. But we don't have that yet, so it's really an institutional setting. In the labour market, there is an institutional witch, which is not determined by the market but based on an agreement, usually in the agricultural sector and the informal sector, especially family workers. So, he is paid not based on expertise or based on the number of hours worked but based on an agreement or institutional setting. Likewise with the compensation issue related to this flood, so it is still in the form of an agreement or institutional setting for several parties, so it is not based on the aforementioned indicators in the context of trade. It should be mutually beneficial. So, for Jakarta, especially Ciliwung, the complication is cross-sectoral coordination, across ministries/agencies, and also across levels of authority, so there are national authorities, provincial authorities, city authorities, each with different interests and motives.

For the revitalization there is always a contestation of two concepts. For KemenPUPR, the concept is more to normalization, but if the DKI Regional Government is more to naturalization. If naturalization is expected, the riverbank will remain like a natural river, so there will be no embankments, while normalization will still use the engineering concept, there will be construction of embankments, and this includes the relocation of residents around the river.

Researcher: To what extent the national, city, and municipalities collaborate in the flood management initiatives, especially river revitalization?

Interviewee: Collaboration across sectors and levels of government must exist. At Bappenas it is at the Directorate of Waterworks. Including the last time they proposed a presidential regulation on flood management, because they are the work partners of the Directorate General of Water Resources at the PUPR Ministry. But if the coordination is certain, because I have also been invited several times, the last time the Gorontalo flood was cross-sectoral, all those related were identified, especially for Ciliwung.

Researcher: How to improve the collaborative process in flood resilience?

Interviewee: So far, when we talk about flood management, etc., the priority is the division of responsibilities. Actually, now there is a new perspective that must be promoted, namely in addition to burden sharing, it must also be benefit sharing. So in the concept of coordination, it was agreed first, what this area could get, so that from the start each region had needs. It's different if burden sharing seems as if each region has an obligation, so the perspective of benefit sharing is important. Especially in some places in Bekasi, there is a need for development. The industrial area has now started to leave Jakarta, because it has become expensive for industry, now the direction is to Banten Serang, or Bekasi Cikarang, including the

area close to the East Flood Canal. So, actually they have interests, namely there are benefits, because the industrial area is now along the coast. When there was a pandemic in Wuhan, there were several waves of exodus from these companies, not exodus in the sense of “*bedol desa*” (moving together, red) from Wuhan not all of them, but they began to decentralize not only in one location. So, some of the leading automotive, electronics and technology companies are trending like Wuhan, like Honda, in Southeast Asia, only Thailand is left. Now because of the pandemic they are starting to scatter again. Indonesia has a big opportunity because the domestic market has a big opportunity, although our purchasing power is not as strong as Malaysia, our number of rich people is still more than Malaysians, but it should not be measured by the percentage. As soon as there was the Wuhan case, several companies immediately flooded the BKPM, including some who were received directly by the president. It turned out that we took too long, they couldn't take too long so that the money could be immediately diverted for the determination of the location, in the end we got nothing for the first wave, 23 of the 30 multinational companies went to Thailand, then the rest went to Vietnam and Cambodia, the president, right? angry, so now prepared in Subang, Brebes, and the most ready that already have investors in Kendal and Batang. For Bekasi, they have an interest so that areas that are relatively close to BKT will still have an attraction, otherwise people will go east earlier because now there is a toll road. So the advantages that previously enjoyed by areas around Jabodetabek because they are relatively close to ports and there is a toll road are now less relevant because the Trans Java toll road has been connected and there are several ports there. So, it's really a challenge with a new approach, there will be benefits for Bekasi to involve. In the perspective of the benefits, flood management should be seen as an investment for the Bekasi City Government because the return will be in the Regional Revenue and Budget, employment creation income, increased purchasing power, which is an indirect impact as well as an impact triggered if they can offer an industrial area that is relatively safe from pollution. flood. That's what we promote, so we don't just share responsibilities but also share benefits.

Researcher: How does flood institution facilitate public access to flood management program information?

Interviewee: Actually, there have been innovations in the spatial layout, if previously the spatial layout documents were in printed, bold and stored form, if you want to see them, you must have permission. If now there is a platform called GISTARU. The point is that all spatial planning products must be stored there, share knowledge, be open, everything is there. The challenge is that previously all spatial products were in digital format, especially the maps. The Regional and Spatial Planning (Rencana Daerah dan Tata Ruang/RDTR) is the main basis for Online Single Submission (OSS) system investment licensing, which has been completed with data as of February, nationally our target is 1838 RDTR for more than 1800 regions because 1 Regency can have more than 1 RDTR, until February which has been completed by only 78. Meanwhile, out of 78 compatibles with OSS system or digital format, it's only complete, so the product that was determined last year is still being printed out. That's why there are currently many who are in the process of technical material, all of which we standardize must be in digital format, otherwise there will be no effect on OSS and the area will not benefit, and people can't access it on GISTARU or SISTARU, on the ATR website that's an innovation already a lot. Our agreement is that there must be knowledge sharing that helps their local government if they compile it step by step, then the image can be stored there, in fact the knowledge sharing is there, it was accelerated During the pandemic, digital transformation took a very long time, but because of this pandemic it became fast. People who have investment interests definitely need it and there are interests, they just have to match it and can be guided by the system. Information is already open, the law also supports it.

For communication media, there are inter-ministerial committees, especially for strategic areas such as KSN (national strategic areas), there are several, such as Environmental KSN, Economic KSN, Defense KSN, Disaster-Prone KSN, almost all of which are usually decreed. It's all related there identified. With the Copyright Law, the provincial Strategic Areas and Regency Strategic Areas no longer exist, because they are complicated. So now they are integrated directly into the RTRW, only the arrangements are made, so it's just a matter of those who want to be secured in the spatial layout, so the number of Spatial Plans is less, with this Copyright Act, but the content is more complete. But for the environment it is still at the national level.

From a media perspective, the point of coordination is still in the form of meetings, physical or teleconferences. Take care of the WhatsApp group. In some strategic areas there is now a discourse to form a PMO. That is the direct technical manager. Non civil servants can be there, so they can organize day to day. If now it's ex-officio, I'm not specifically dedicated to Ciliwung, but if the PMO was really formed to help the inter-ministerial committee, it would be at the most technical level. But it is limited to Jabodetabek, because Jabodetabek is complicated.

Researcher: How does flood arrangement in your institution?

Interviewee: We are from pre and post, if the pre is now required delineation and identification of areas that have a disaster risk must exist, the map must be part of the multi-criteria analysis, so if it is overlaid it is visible. Now for that disaster there are 3 variables that we look at, vulnerability, risk and capacity. If the disaster map is already part of the multi-criteria analysis, we can immediately calculate the potential loss if an area is flooded. So, our approach is first from the Hazard side, the map has to be clear which areas are the most dangerous, somewhat dangerous. The two vulnerabilities are how many people's activities or investments are in the vulnerable areas. Finally, capacity, namely what needs to be prepared there, both in terms of the capacity of the institution assigned to handle it, then how to control the use of space, how to educate the community, including the early detection system, for example the height of the dam is so high and the information must be reached immediately. downstream area. There is modelling for these 3 factors with a grant from NZ. So, we have an assessment of where the potential loss is, so we prioritize mitigation there. If a disaster occurs, it will be different, for high submerged areas but there are no settlements, it means the losses are low, some may be submerged 1.5 meters but there are schools and shops, it means that economic activities have stopped, there are residents who have to be evacuated, there are houses. damaged, that's what we're developing the model. So, we have two helps. First, the Swiss grant, they helped us with urban planning tools, this is based on spatial data, with MCA we have two features, suitability tools and urban performance tools. Suitability tools are spatial modelling that help us to determine the most optimal location for investment, to build public facilities based on the algorithms that we set, for example distance from the road, the density of the surrounding population, the distance from the riverbank, slope, etc. We have also tested it in three cities, Semarang, Denpasar, and behind the board. The features of this urban performance tool are relevant to flooding. City development scenarios, later from spatial data, land openness data, etc., will later be assessed on the risk aspect, later there will also be aspects from the benefit side, for example, it will have an impact on agglomeration in the area. Then there will be a scoring. We are developing it.

Researcher: To what extent do staff in government have skills and knowledge about flood management?

Interviewee: The need for capacity building for government human resources will never stop. There are always new challenges. Of course, it needs to be flexible. What is needed now is some, namely from technical skills, from managerial skills such as coordination, completing tasks,

collaborating, and the point is that for each ministry/institution, my portion is different. For example, the Ministry of Agrarian Affairs and Spatial Planning (KemenATR) is more technical about GIS, or Bappenas is more about managerial skills and substance. We don't only think about floods in the technical context of natural phenomena, but also in terms of their impact on the regional economy, on human development, impacts on regional development, externalities, etc. so the perspective is to coordinate, while the KemenPUPR may have to have skills for execution such as dredging, embankment construction.

Researcher: How clear are the role and responsibilities between national, city, and municipalities levels on flood management in the revitalization program?

Interviewee: The division of roles and responsibilities is actually quite clear. However, for the oldest river near the estuary, the potential for overlap between the institutions is high. For example, there is a port in the estuary, whether it is under the authority of the Ministry of Transportation or entered into the Ministry of Marine Affairs and Fisheries (KKP) because fishermen use it more than transportation, including the authority for dredging. It always overlaps, occurring in some cases of major rivers. Is it by Pelindo or by KemenPUPR. That's often an issue. It still happens in some places. Indeed, there are also interests, for example issues of authority, resources, or revenue, the approach should be casuistic not general.

Researcher: To what extent the traditional paradigm or values still being maintained by your institution?

Interviewee: At the discourse level, we have stepped into collaboration, because these technical approaches have been proven unsuccessful. On the banks of the rivers that flood every year, residents have made adjustments, they have made adjustments in terms of house design. It has been mitigated for the height of the plugs; the tools are stored on the 2nd floor. This means that from a technical approach they have made some adjustments. A further approach, in terms of collaboration, is that the approach must be made sure that it is not just that, it must be long term, days are wasted if isolated, there is human capital loss, impact on health, things like that must be educated, the approach cannot but must be collaborative. In some places, there have been many community-based organizations for disaster mitigation, especially for areas around tourism. So, they are not just a social action, but they can also get returns such as sponsorship from it, because there are benefits too, for example they get intensive if it is maintained. It's a discourse, but the operational form of how it is still difficult, because there are still two opinions, whether this needs to be generalized, it has been tried and it turns out that whether it is implemented or not is different for each region. That sends a message to us that the approach should be built around local needs. Only if it is locally specific, of course, patience cannot be instant.

Researcher: Where does the initiative related resilient flood risk management usually comes from?

Interviewee: Usually when there is a big flood, everyone talks about spatial planning, but if the conditions are good, we don't want to talk about spatial planning. We are still talking abstractly. We must have technical documents and communication documents. For example, which area you want to push, etc. Which is easy to understand and what we feel every day. Because the president's direction also has to be to the point and touch millennials, because they are aware of up-to-date information.

So far, the approach of Bappenas is still technocratic, planning, coordinating, so less heard, but the current Minister's approach is more direct to the field. So, there are immediate needs for short-term, medium-term, and long-term handling. So, when I returned to the office, I had identified which ones went to the national level, which ones went to the regions, so that it is

clearer. But if it is physically visible, it is the KemenPUPR that is dredging. But sharing roles is important.

Researcher: How to improve the current institutional situation in flood management?

Interviewee: The challenge is what I mentioned earlier, because there is an element of externality, so it's as if there is an area that causes an area to suffer. So, it's blaming each other, so it's necessary to share benefits. Apart from flooding, Jakarta also needs water from Bogor. So actually, if Bogor can conserve, Jakarta will receive benefits in terms of raw water. That's why I think there should be clearer incentives, such as water trading. So, we can internalize environmental services into the market.

Ideally there should be a market. If there is a price we must think efficiency. That's part of the logic of efficiency. The logic of quality, it's clear the incentive if there is a market. So, encouraging benefit sharing needs to be encouraged. Meanwhile, our regulations are more for responsibility, not for profit. What can help Bappenas to promote its potential benefits? For example, how many flood-free days can the area generate GDP, if it is flooded, how many people cannot work.

Code of interviewee: G-3

Institution : Directorate of Regional Development, Ministry of National Development Planning

Function : Team of urban affairs

Relevance : Responsible for urban affairs and develop direction of national urban policy, involved in development of "Kota Berketahanan" (Resilience Cities) in Indonesia.

Date of interview: May 17, 2021

Researcher: Can you explain your institution role in flood resilience?

Interviewee: The role of our directorate is more on a macro scale. We developed the National Urban Policy (Kebijakan Perkotaan Nasional/KPN) which contains general principles of urban development.

The national urban policy compiled from 2011-2018 revised the National Urban Development Policy and Strategy (Kebijakan dan Strategi Pembangunan Perkotaan Nasional/KSPPN) so it was only a general framework, where should urban development be directed. KPN has a vision to build sustainable cities. For that there are five main missions. (1) Regarding a balanced and just urban system. It is more to the order of the urban system. How is the relationship between urban and rural areas, namely how urban areas are as a system; (2) Realizing livable, inclusive, and cultured cities. More to the liveability aspect of the city; (3) An advanced and prosperous city, from an economic point of view; (4) Green and Resilient Urban. That resilience supports this fourth mission; (5) Realizing transparent, accountable, intelligent and integrated urban management compliance.

These five points are expected to be able to create a resilient city in 2045. The implementation framework is regulatory, institutional, and financing instruments. The hope is to realize inclusive urban social conditions, a competitive economy, but the environment can also be green and resilient.

On the fourth mission. One of them is increasing the resilience of cities to climate change and disaster risk. Including floods, natural and non-natural disasters, including pandemics.

From an institutional perspective, there are many issues as well, where many cities now cross administrative boundaries. Our concern in the fifth mission is how this urban governance or institutional setting can be integrated, not only transparent, accountable, smart, but also integrated between sectors, between levels of government, and regions.

In the second mission there is also a link, namely, how to improve a safe and peaceful urban environment and decent residential areas for all. If the issue of flood normalization, river normalization, or increasing the resilience of settlements is related to that, how will these programs have an impact on resettlement, such as evictions, improving the quality of settlements, how people can live in safe settlements including being safe from natural disasters. Our role is to provide a corridor for the direction of urban development in general.

For the coordination itself, there is PMO Jabodetabek-Punjur which is the coordinating agency for urban area management after the Presidential Regulation 60/2020.

Researcher: To what extent the policies related to spatial planning and flood management well-aligned in your institution?

Interviewee: Regarding the national urban policy, we describe it through the Government Work Plan (Rencana Kerja Pemerintah/RKP) every year, specifically for Jabodetabek-Punjur there is a cross-ministerial team for handling the Jabodetabek-Punjur floods.

Regarding the Jabodetabek Development Cooperation Agency (Badan Kerja Sama Pembangunan/BKSP), it is not very active, so it is very dependent on DKI Jakarta, so it is unable to carry out what is directed from the Jabodetabek-Punjur National Strategic Area Spatial Plan (dari Rencana Tata Ruang Kawasan Strategis Nasional/RTR KSN), so the Jabodetabek-Punjur PMO was formed as a replacement.

Another issue discussed in the urban team is in terms of financing. So far, they still use the conventional method, namely transfers between regions, but the relationship is not balanced, so far there has been assistance from the Regional Revenue and Expenditure Budget of the DKI Jakarta Provincial Government to districts/cities around DKI Jakarta through proposals for financial assistance. From a watershed perspective, it should be more about the environmental service reward, namely how the upstream part of the watershed can be encouraged to conserve the upstream or middle part of the watershed, so that there is no flooding downstream. The practice of paying for environmental services is still poorly explored in the Jabodetabek management. In the future, such a mechanism or scheme could be encouraged. So how can there be incentives in the middle or upstream areas of the river to conserve the environment and the downstream areas can pay according to the agreed conservation programs to be implemented in order to maintain the sustainability of this watershed so that it is more resilient.

Coordinator for the management of Jabodetabek-Punjur, for the watershed, there is an ad hoc flood response team. The Jabodetabek-Punjur PMO is cross-ministerial and cross-governmental. Regional Disaster Management Agency (Badan Penanggulangan Bencana Daerah/BPBD), City Government, Regency Government. PMO Jabodetabek-Punjur is based on National Cooperation (Kerja Sama Nasional/KSN).

Researcher: How was the collaborative process and citizen participation in the project?

Interviewee: Of the five aspects, for participation in the 5th mission, collaboration and community participation are expected to be encouraged in the 5th mission. For policies related to flooding, it is more focused on residential housing, because it is related to the revitalization of slums or illegal settlements along the river that are most affected if floods come. There are many programs that are bottom-up or self-supporting, such as relocation or resettlement that are trying to be developed using participation and collaboration. Indeed, this stage of revitalization is still in the form of a regular program of housing assistance or self-help, which is related to urban revitalization, which is still largely piloting and will be carried out in depth in the Directorate of Residential Housing. For the urban scope in general, in our policy, we hope that collaboration from actors not only the government but including the community and the private sector can chip in as well into the strategy for implementing this urban policy, so how to realize resilience and resilience to disasters is not only done by the government. For example, there is an application at BNPB. When there is a flood, you can directly report how high the flood is. The data can be directly collected and get data anywhere the flood point. In Jakarta, it looks like that, so the emergency response assistance can be more real time because it can be tracked and mapped where the areas are more at risk of flooding.

Our directorate is more concerned with policy in general, so for collaboration from parties such as the community, we don't go there, because it is usually directly with the sector directorate at Bappenas who is involved with non-government institutions and other parties. Because these various sectors are also involved in measuring the achievement of the SDGs and one of the

things that needs to be involved is non-governmental institutions including the community, so collaboration can be done there and also to help achieve the SDGs targets, including disasters.

Researcher: How does flood institution enable information sharing and knowledge communication between government sectors related to flood resilience?

Interviewee: Regarding the report, petabencana.id is a non-governmental organization, a Foundation supported by USAID, not only for floods, but also for multiple disasters not only in Jakarta. Initially, because there was a flood in Jakarta, this platform was developed. In the past, in DKI there was also a deputy governor who was specifically in charge of Jakarta's defense. So they already have a master plan for DKI Jakarta province. There, it is very detailed on how to handle it, mitigate it, collaborate with the community and government

Researcher: How does your institution facilitate public access to flood management program information?

Interviewee: With the community, there is not yet a channel that is specifically open between communication between stakeholders and the community directly, for the central government. In Jakarta, there is JDCN (Jakarta Development Collaboration Network). There are several topics, one of which is environment and resilience, the scope is urban in Jakarta, involving the central government as well. It has a website, there are monthly, bi-monthly collaboration forums, and there is a digital collaboration platform. Media collaboration or partnership, for example if there is a community that has the initiative. This is the scope in Jakarta, if the central government itself does not exist.

There is none in our own Directorate, because we operate in the field of urban planning on the national side. If it is directly related to the community, it can be directly confirmed to the local government. For the smart city Jakarta website, one of its products has a super cap to mix everything up. His name is Jaki, it's to share services, one of which is flood monitoring, which may also be connected to flood monitoring. For West Java itself, Mr. Ridwan Kamil (Governor of West Java) there is a smart city movement, one of the focuses of which is flood management, in collaboration with DKI Jakarta. For related directorates, the Directorate of Housing and Settlements has a website that can be accessed by the public. The Directorate of Environment has a website related to the Low carbon initiative which more or less mentions climate change, including flooding, on their website they also provide information on development programs.

Researcher: What are the pros and cons of this collaboration? What are the benefits, but also what is missing in the collaboration?

Interviewee: Before there was a PMO it was very fragmented. Das Ciliwung passes through more than one province, so the authority is not only in one area, at the center the authority is not only in one ministry, it is in the Ministry of Environment and Forestry, KemenPUPR, BNPB, so the authority is very complex, so breakthroughs such as the DKI flood management team decree, then PMO, it is an effort so that the management is not fragmented, so the handling is not only from the disaster aspect, or only physically, but from upstream to downstream, so it can be more holistic. In the past at BKSP, the problem was because it was only a regional cooperation secretariat, and the power was reserved in each region, so the agreement formed at BKSP would go back to each local government, because the budget, the program is in the plans of each region or each ministry, so what is there In the BKS agreement, it can't be implemented immediately, that's a weakness, so hopefully with the Jabodetabek-Punjur PMO it can be better. Until now, it is still the only urban form that crosses provinces, crosses districts/cities, so its management is not like other cases, so the challenge is there for current management.

Its handling cannot be limited by administrative boundaries but needs to be fully integrated, especially from the perspective of ecological unity, namely from upstream to downstream. Then what is also important is that the commitment is the same and also in line between all the local governments involved, this includes prioritizing activities that are important for disaster resilience for Jabodetabekpunjur for the short, medium and long term, so whoever the regional leader is, there seems to be an agreement on the priority activities. what needs to be done first to deal with disasters, especially floods in Jabodetabek-Punjur.

For cities, in general, there is a coordination platform at the central government, namely the the national urban development coordination team (Tim Koordinasi Pembangunan Perkotaan Nasional/TKPPN), but that is the nature of coordinating urban issues, not specific to one region, not specific to one locus or sector. The coordination of TKPPN is across ministries, for example, for the development of urban revitalization.

This TKPPN platform has been developed for a long time, changing over time, until the 2000s its name became TKPPN. Since 2018, there has been a determination of the TKPPN by the Minister of National Development Planning, but the implementation has not been perfect, we hope that this coordination team can be active, so for example, urban issues can be discussed there. We are still revitalizing this TKPPN so that TKPPN can truly become a platform for coordination of sharing information and solving problems related to urban areas, one of which is about institutions, so for now there is no product, but we will strengthen this. Currently we are still using a Ministerial Decree, but because this is a cross-ministerial cross-sectoral, we hope it can be in the form of a presidential decree or a higher form of determination, this is what we feel why the coordination is still lacking

Researcher: To what extent political interest or the leadership of the policy actors applied in flood management?

Interviewee: Regarding political interest, a few moments ago there was an increase in the media regarding the difference in policy directions related to normalization and naturalization, that is what we are challenging politically the most. This is because the central government tends to normalize because PU leads more to infrastructure, but from the provincial government it is more to naturalization because it is the current governor's political promise. Based on discussions with the Ministry of Home Affairs and the Ministry of Public Works and Public Housing, the bottleneck is because the communication between the provincial government and the Ministry of Public Works is not smooth. So, the concept of naturalization that is expected by the provincial government, the Ministry of Finance does not know but in authority for rivers that cross borders, the administrative authority is not in the province, but at the centre, so the conflict of authority and political conflict affects this case, where the naturalization plan that our province wants has not yet seen a form. what is desired, so in the end the actions or programs that are carried out are limited to programs that have been carried out so far, so that rivers deepen, etc. So far, what is seen is the extent to which political interest affects collaboration between stakeholders.

In terms of authority, the watersheds that cross the province are in the central area, this is also the provincial side regarding the Specialty Law for DKI Jakarta which they want to revise, where this specificity can be extended to the authorities they want to handle but so far it is limited because that's the central authority, while the centre of its affairs is not only the Jakarta area. However, since there has been a plan to relocate the State Capital, so that the revision of the DKI Law is on hold, so that it is also delayed how the reconfiguration between provincial and central authorities, including the revitalization of the river, has also been hampered due to the revision of the special law on DKI Jakarta as the capital city. That's in general, but for a stronger role

regarding river revitalization, the Directorate of Irrigation can be directed, if in terms of revitalization of residential areas, it can be referred to the Directorate of Settlement. Because we only monitor from a macro scale how the government exercises its authority in general.

Researcher: To what extent the traditional paradigm or values still being maintained by your institution?

Interviewee: In Bappenas itself, because we are exposed to new good theories or practices, especially flood management in urban areas, such as sponge city, where we can make room for water room for water, so how to restore the natural structure of the river, create space for flooding, the direction is more there, actually from the theory or practice that we get from the studies so far. That is what we encourage in other urban projects, for example related to grants, how do we actually implement nature-based solutions, because the benefits of having a policy that focuses more on NBS are not only flood control but also revive urban biodiversity, so the benefits are not only for humans but also for people. also for urban ecosystems, in fact there are many general policies that we want to direct there, but because of the problem, we are still fragmented in its management, and also each ministry that holds the budget for implementing its programs may still be stuck in regular activities to operations and maintenance that have been they do it for flood management so the implementation is not too smooth nor is the implementation, for example in Cipta Karya there is currently a Minister of Public Works Regulation regarding green buildings, there are directions where buildings have rainwater harvesting, where rainwater does not go directly to the drainage but is accommodated in The building, actually, if the thread is drawn, there are many directions to mitigate this flood disaster, including the green building. It's just that it's his job to create works, so it's like they're not connected. So, there are many policy innovations with new paradigms in flood management, but the challenges are more on implementation, because the reforms or innovations are not fully understood by all stakeholders, for example, like Jakarta, where the province wants to naturalize, but the challenge is from the irrigation service which may have been handling it all this time. like that and from KemenPUPR maybe because the one who handles it from the side of water resources is how to get the water into the bay quickly, so the handling is still stuck in the traditional paradigm.

There is a study from the Directorate of Irrigation and Irrigation which is an aid from the World Bank, it's actually not in Jakarta but in our opinion, it is a form of holistic handling, where flooding is not handled only by hardening the drainage but also how the program is to increase the capacity of the community, how is the community's preparedness if it occurs. disaster, then also from the arrangement of residential areas through the application of nature-based solutions, the case in Bima, Pontianak, Manado. The case is quite good as a pilot for handling urban floods. Because the hope is that we can encourage the integration of snacks so that they are not silos but can be integrated, because on a large scale to realize a sustainable city, the thinking is not only how to overcome economic losses from floods, or how to reduce the affected communities, but also how from an environmental aspect, how Urban biodiversity can be maintained, because handling through structures is good, but with hardening along riverbanks it will create isolated islands that are not in accordance with their natural functions, it is hoped that they can be applied with various innovations and new approaches.

Code of interviewee: G-4

Institution : Project Management Office Jabodetabek-Punjur (PMO Jabodetabek-Punjur)

Function : Program Director of PMO (former Director of Space Utilization Control, Ministry of Agrarian Affairs and Spatial Planning/National Land Agency)

Relevance : Involve in facilitating program coordination of flood management in Jabodetabek-punjur area

Date of interview: May 17, 2021

Researcher: Can you explain your institution role in flood resilience?

Interviewee: Talking about PMO Jabodetabek-Punjur, we must talk about institutional arrangements. Jakarta is one of the few metropolitan areas traversed by many rivers. Almost all metropolitan areas are crossed by rivers, whether it's London, New York, Paris, Tokyo. All rivers are traversed, but no metropolitan area is traversed by as many rivers as in Jakarta, the Jabodetabek total has 19 rivers, but beyond Jakarta there are 13 rivers. The river crosses the province. Some are pass through to Banten and DKI Jakarta, and some are in West Java and DKI Jakarta. If you look at its authority in Law No. 17 of 2019 concerning water resources, it is a new law regarding river regulation. it can be seen that the authority of the river that crosses the province is the central authority. But the rivers cannot be handled by the central government alone, because river matters especially in Indonesia or in developing countries in general, these rivers are in direct contact with issues of illegal construction, informal housing, where the permits are in the hands of the local government. In this case in DKI. Even though there are river problems, garbage problems, border issues or riverbanks, it must be coordinated. Judging from the question of why there has always been a dichotomy, about flooding in November, December, January and February there is always a debate about the dichotomy of flood management in Jakarta, so the central people blame DKI, DKI people blame the centre. This PMO organization should be a catalyst in this dichotomy. This means that PMOs must ensure that local governments if they want to be involved in river management do not experience difficulties.

When it comes to flooding, it's not just rivers, but also there are 300 reservoirs around Jabodetabek which also play a role in flood management, it's also unclear what authority is between the local government and the central government. If DKI wants to dredge the river, it must go through a licensing process. Because that's the central authority, so if the region wants to dredge a river, or there, it must submit a technical recommendation. Even though the matter is clear, this is what we are proposing to KemenPUPR, please give some of the authority to the regions, including reservoirs. Of course, with research first. There is a decision from the Directorate General of Water Resources regarding the matter of obtaining permits to obtain technical recommendations. It's the same from small matters, for example to dredge up the developer to make sheet piles on the banks of the river so that they don't slide, it's the same business, even diverting the flow of the river is the same as just picking up trash. All technical recommendations. The technical recommendation is only one type. This is what we will simplify, we organize, we classify. So, this way, there is a definition for the roads, the roads connecting the provincial capitals are national roads, the roads in Jakarta are also under the authority of the central government. It has been fought for in the past. Some of the roads in Jakarta were handed over to DKI Jakarta. It may or may not be part of the authority over river affairs that is handed over to the local government.

In the institutional arrangement, the issue of authority must be clear. Because rivers and lakes are like no man's land. So, the centre is not able to monitor all rivers and lakes in Jabodetabek, while the local government feels that it is the authority of the centre. So, it's other people who take advantage of it. So, this should be clarified. A lot of the certificates were issued for the lakes, it was because many people at BPN did not understand that certificates of ownership were issued to the bodies of water there. That's not allowed. Because lakes and rivers must be open access, they are public property, they must be common property and cannot be controlled by individuals. The ownership of the reservoirs itself is not clear, so many developers get building rights, then stockpile etc. Many reservoirs were built in the Dutch era, because the Dutch knew that Jakarta was on an alluvial plain, with high rainfall, water from the mountains, so it had to be accommodated there. Well, this is not continued by the next government, after independence it is not clear. His authority is clear, by law is clear, but it is not measured by management capacity, in managing it all over Jabodetabek. KemenPUPR is the spearhead of BBWS CC which is in direct contact with DKI or Jabodetabek, it is impossible, its authority will be limited. The one who can control the most is the territory. If the local government has a sub-district area, it is the kelurahan that can be given the authority to supervise. And it's not used. Because of that many rivers are not managed, many people build it feeling they don't have a permit. So, it means that the initial focus was on institutional arrangement, in dealing with flood management in Jakarta.

The second is about the strategy, actually there is a strategy on how to prevent and overcome floods in DKI Jakarta, so there are BKB, BKT, making water drains, etc. But it is not enough, because the land use in the upstream area changes very quickly to become uncontrollable so that the area that becomes the catchment area is greatly reduced, so it is not sufficient. Therefore, there needs to be a strategy, and we have seen that most of these projects are downstream, such as the river normalization process, the construction of the Pluit reservoir, the Rio-río reservoir, all of which are in the downstream area. The downstream area does not provide a solution to the main problem, which is more preventive in nature, it should be upstream and in the middle. Namely by preventing the conversion of land into non-green areas, or settlements must be reduced, controlled. Then planting trees upstream. In the middle, the lakes must be maintained, and also make small dams that can reduce the flow of the river downstream. Now there are huge dams upstream, Sukamahi and Ciawi being built on the Ciliwung River. But it is only very small, only one river is the Ciliwung river, even though the source of flooding in Jakarta is not only from Ciliwung, but there are also many other rivers that have the potential to contribute to flooding in Jakarta. Therefore, what is made is to make only small dams. Learning from America, there is Tennessee, in the middle of America. When the Great Depression occurred, President FD Roosevelt, thought about how to arrange this opportunity to grow jobs, so the Tennessee Valley Authority (TVA) was created. Tennessee is not 1 big dam, but 29 small dams are made from the tributaries to control flooding. with the same thing to do it. It could actually help the flood again.

So, the technical strategy is that from a civil engineering perspective, or in terms of area development, the area is developed in the middle, so the investment of the existing funds is for river dredging, so that the lake is not threatened. There were many threats, namely physical and non-physical threats, a lot of occupations around which eventually became small, both by individuals and developers. It was a physical threat that reduced the volume of the river. Another threat is in terms of water quality, Keramba Jaring Apung/KJA (Floating Net Cages) are built on it so that the quality becomes bad, waste pollution, no one cares about. Those who can teach are local government, central government will not be able to reach outreach for such matters, it must be given to the local government. Then non-physical threats, namely being given rights, because of the lack of clarity, that it should be open access, that control should not be. And must be a common property. But someone has to take care of it. It doesn't mean that the

national government belongs to everyone so that everyone can do anything there. But if the local government is expected to be more caring, the national government should only provide checks and balances, reminding that this cannot be like this, it cannot be like that. But if the puss as a regulator as well as an operator will be difficult. Let the operators be in the regions, the regulators are at the centre. That is the strategy.

The problem of urban revitalization, we are identifying slum areas and most of the slum areas in Jakarta are located around the banks of the river, except for the one in North Jakarta, which is near the port, there are lots and lots of lands by the DKI government which are illegally inhabited by people, and this requires a special strategy. There are many slum settlements on the banks of the river, therefore we have prepared a strategy in which revitalization can be started from the slum villages on the banks of the river, so that we can reach many goals in one tap. So eradicating slums, reducing flooding through reducing residential occupancy on the banks of the river. this vertical land consolidation is to replace the houses whose plots are replaced with flats, so that we get the green open space area, the absorption is more abundant. This is a very high social problem. First, the issue of land status, this is not clear between the owner of the house and the claimant to own the land, this is very unclear, even though clarity is very important so that there are no legal problems in the future. Therefore, this effort must be carried out by mapping the problem. Identification of P4, control of ownership, use, and utilization. Its use as a building but can be used as a shop or used as a house. Ownership in legal status. So, starting with the identification of P4 first. This is very important because each of the compositions has its own strategy. For example, one land owned by A is owned by B, but it is used for a shop, the other is used for a house, the treatment is certainly different. And this needs to have a certain strategy so that steps can be taken to carry out demolition so that flats can be built. Revitalization is very important. The housing problem in Jakarta cannot only be solved by Jakarta and vice versa. Jakarta does not solve the problem in the territory of Jakarta itself, for example, the problem of housing in Jakarta can be solved, for example, by moving people along the river to the Citayam in Bogor Regency, but placing them on the side of the train, so that if you want to work, you can take the train, you can sell on the street. It has economic calculations. It is necessary to strive for revitalization to occur.

Researcher: To what extent the policies related to spatial planning and flood management well-aligned in your institution?

Interviewee: Still very fragmented, still not integrated. Therefore, one of the missions of this PMO is to improve governance. For example, the issue of river affairs is different between BBWS and the Water Resources Agency in the regions. It has to be integrated. So, the essence of the metropolis must be one unit, and that is what we are trying to do.

DKI Jakarta before the pandemic had a large budget, the revenue was planned to reach IDR 80 trillion, once the 2020 pandemic occurs it can only be IDR 10 trillion, so the drop will be 15% of the revenue that should be. This is a huge drop. Therefore, it loses momentum. When the revenue is large, the authority should be given greater, otherwise it will go nowhere. Whereas revitalization of this river is very, very expensive. Because if you are able to manage one Indonesia, just open DKI. Therefore, DKI, which has more funds, should be given more funds so that they can get the opportunity to take advantage of these budgets. I think this is very important. Improvements to governance must include such things.

The revitalization is only a patch, only part of it, even though if we learn from Singapore there is the Kalang river, which is approximately 10 KM long, compared to Ciliwung Panjang which is 120 km. there is a reservoir in the middle of the river, there is a kind of lake and it flows the river to the marina. The river is neatly arranged from upstream to downstream, properly

arranged. And there can be park. Its position is approximately one-third upstream. It's an issue of normalization and naturalization. So, the Kalang River, which is moving downstream, is normalized, given the embankment on the right and left, and there is a key (the road on the right and left of the river) has pedestrians up to the marina. But towards the upstream, naturalization was carried out, including in Bisan Park, previously the river was walled with concrete, then now it has been remodelled to be natural, so the water is spilling everywhere. But if we look at the Bisan Park, the area where the settlements are far away, so if the water rises it's okay it won't inundate the housing, but if it can't be downstream, it still has to be normalized. So, the whole river cannot be naturalized, there must be parts that are normalized. We want to initiate naturalization to be carried out in Bogor Regency for Ciliwung, in Depok, as in Singapore. Naturalization means that it gives more space for water to seep in. So, it takes an effort, we have to conduct talks with all stakeholders with DKI Jakarta, Depok, Bogor regarding this authority. So, regarding this governance, it is very important that we organize to unite Jabodetabek.

This PMO becomes a facilitator and catalyst, we have no money, only a little money, the money is with stakeholders, local governments and ministries. We only facilitate, we do activities that are not carried out by all, such as collaborating with the community, inviting the community to plant trees upstream, taking care of waste, we ask the SDA offices, the Regional Environment Service to invite them. In the near future we will ask for cooperation with the Indonesian National Army (TNI) to help local governments, I think the TNI becomes a force in mobilizing people for example cleaning up trash, etc., being equipped with equipment, etc., will be quite effective in helping local governments and the Ministry of Public Works and Housing.

The PMO was formed based on Presidential Regulation Number 60 of 2020, why is Jabodetabek an administrative area, but there is a peak area which is a functional area. What Cianjur took was only those at the top, there were 5 sub-districts. So, if rain falls on Puncak Cianjur, it flows to DKI Jakarta or Bekasi, because our approach is an ecological approach.

Researcher: To what extent the national, city, and municipalities collaborate in the flood management initiatives, especially river revitalization?

Interviewee: Each has their own problems. One of the functions of the PMO is to coordinate and synchronize the program activities of all, from the ministry and from the regions. For example, KemenPUPR made the arrangement of the Cisadane river which passes through Jakarta and Tangerang, we could tell the city government or the Tangerang regency government, if the drainage was adjusted to the conditions of the KemenPUPR project which was making a naturalization or normalization project for the Cisadane River. That is so that every year we can measure the excess water in Tangerang through the drainage in Tangerang so that it can be channelled to the KemenPUPR project. Like the *sodetan* (water short cut) thing. The path for the Ciliwung River to enter the East Flood Canal was DKI Jakarta which acquired the land, while the project was carried out by the PUPR Ministry, the PMO coordinated. Likewise with garbage. That power also exists in society. There is so much that the community can do. That's what we do, namely filling the gap. That is, things that are not done by the local government, we will initiate. Indeed, we have constraints regarding the budget, to recruit people, etc.

Researcher: To what extent proactive participation of stakeholders applied in the river revitalization for flood resilience in Jakarta?

Interviewee: Revitalization must involve the community. Participation is very important. Because there are forces or ways that are not recognized by the government or the bureaucracy that can be done by the community. We have built relationships and identified dozens of NGOs and communities. If it's an ex-situ NGO, if it's an in-situ community. We can find the

communities where he lives, for example the Cijambe caring community. That's what we encourage participation. We also involve universities, because universities have the resources to make many studies for us to involve. There are so many things and how we try to divide the tasks, complement each other, we orchestrate so that our mission goes well. All can be involved and not blame each other, involved together.

Fill it with PMO if Ki Hajar Dewantoro, in the middle, *"ing madyo mangun karso"*. How in the middle of this is facilitating, encouraging, initiating, paving the way, giving examples, bringing together individuals or institutions to be able to work together, that's our function.

So far, the community's involvement still needs to be encouraged, there are still many people who are silent. This pandemic has had a huge impact. Local government budgets are very limited. For example, Bekasi Regency, it actually has a lot of potential to become rich, because there are so many developers, industries, but because of the pandemic the revenue is very small, only 200 m2. It's too small to manage that. We want the entire budget to be spent on development, not just on personnel matters. We will not go into that area, but we want to encourage what activities need to be carried out in districts/cities, to be effective. This is not an easy job. We need big data, information. Just building big data is not easy. In Jakarta there is one Jakarta, but that's only in Jakarta, we want to upscaling, replicating it into regencies/cities around Jakarta that also have the same integrated system, that's very important as our first step to carry out programs.

Researcher: To what extent the leadership of political interest or the policy actors applied in flood management?

Interviewee: The important thing is that we work on a scientific basis. Based on reason. That if this is not resolved in cooperation, it cannot. Therefore, information management is very important. So, everything is scientific based. This is very important, and it is important to be published up front. So that this mutual cooperation, sharing and caring work can be grown, that they care for each other and share with each other to build togetherness so that everything can be resolved.

Political interest must exist. Definitely needs some momentum. If we follow it on TV, the problem of flooding is always a dichotomy. But let's look at it logically, scientifically. That the solution is in the middle for dam2, of course upstream as well. This event hasn't happened yet.

Researcher: What are the pros and cons of this collaboration? What are the benefits, but also what is missing in the collaboration?

Interviewee: There is the strengths. I talked to several regional heads, for example, Mayor of Bogor, Bima Arya, and Mayor of South Tangerang, it's very clear that everyone wants the process to be correct. There are certain dictions that have political nuances, but we don't pay attention to that. But there are certain strengths there.

The weakness is the communication pattern. At the local government, it's part of the program. That's just silo2 horse glasses, how to spend the existing budget this year. That's our challenge at PMO, where we can offer and it's not easy because there needs to be studies. So, what we need to do going forward is that we are one step ahead of them that we offer ways because we see a helicopter view. The threat is that the political interest, which continues to be clear, will greatly disrupt scientific-based work. If you talk about politics, you will definitely be biased. But it exists, but we must manage it.

The opportunity is that the pandemic is our chance to hold back, here the lack of money is extraordinary. Of the IDR 80 trillion budgeted revenue in 2020, which was compiled in 2019,

the revenue was only IDR 10 trillion. it means that after we wake up from this pandemic, we will work back with the available funds for us to use more important things, and the opportunity now is how we prepare those plans as well as possible, so that the helicopter view can be obtained. We only take certain issues that are strategic and integrative in nature, such as flooding, garbage, drainage problems, if there is already a transport that handles itself, namely the Jabodetabek transportation management agency, we will also communicate.

Researcher: How does flood institution enable information sharing and knowledge communication between government sectors related to flood resilience?

Interviewee: It's good enough, for example, every year DKI gives grants to the surrounding area, for example in Depok to dredge it, in Bekasi to manage waste, DKI can be quite large, because the waste in Bantar Gebang is managed by Bekasi, the community each month gets 600 thousand. This is a good pattern. Because the metropolitan must do so, payment environmental services (PES). So those who have to maintain environmental balance, areas whose development is suppressed because of their position in the upstream area must receive compensation from downstream areas which are freer to develop. It became the general standard. The whole of Indonesia should be like that. It has not been included in our laws and regulations. There is law 28/2009 concerning regional taxes and regional levies, it should be regulated that not only per region but also cooperation between regions, it must be regulated by the Ministry of Finance, how is it standardized that it is mandatory for upstream regencies/cities to assist districts/cities in upstream related to environmental service fees. Patterns like this need to be done. So, externalities from local governments to other governments must be compensated. Like at the edge of the gate. These patterns must be developed for other matters, such as housing, not all working people in DKI Jakarta live in DKI Jakarta, it can be in other areas outside Jakarta. This is very important so that we can solve these problems one by one.

Researcher: How does flood institution facilitate public access to flood management program information?

Interviewee: For DKI Jakarta it is very good, there is a Jaki, the Jakarta one platform, there is drainage, etc. The most advanced is Jakarta. Usually if there are open discussions or webinars. I think there are many in the architectural and planning community in Jakarta. So, the information is very open.

Researcher: Do you think the role and responsibilities between national, city, and municipalities levels on flood management in the revitalization program is clear enough

Interviewee: Not overlapping, but rather ambiguous, or ambiguous. This ambiguity makes it difficult to make decisions. By law, in fact, the powers are clear, but in practice they do not pay attention to the management capacity in implementing the law. The river is the controller, but if there is a problem it is often blamed on the local government, it shouldn't be like that, it must be clear, this is what we mapped out. That's what we have to do.

Researcher: To what extent do staff in government have skills and knowledge about flood management?

Interviewee: If we list the big problems in the management of the Jabodetabek metropolitan, the highest is the problem of coordination, the problem of clarity of authority. When it comes to good capacity, at the centre or the regional government of DKI. But there is no communication, there are silos this is a big problem. So, HR is good, like we had a meeting with DKI, echelon 2, echelon es 3, it's good, at KemenPUPR there are also teams that can quickly carry out

assessments. but there are frameworks and silos that we have to dismantle so they can work together, communicate, and I think that's starting to go well. Capacity building is also supported. Now that we don't have the luxury to use external learning funds, the budget is difficult. Capacity building is important to look at in many countries, but it's not just one side, but with an integrated team, there are supervisors, there are local governments, for example in the Netherlands, in Singapore with Marina Bay. Raw water in DKI is also a threat because it is increasingly difficult to get water. Because from Jatiluhur and Kalimalang it is limited with decreasing quality. This is what we should try to do. In Singapore, the Kalang River ends at the marina barrage, the water is thrown away after a long time, the bay becomes fresh, salt water is dammed so that it becomes fresh after a while, it is managed to become clean water, the term is washed, we have to prepare it like that, from the perspective of the future we have to see.

Researcher: To what extent the traditional paradigm or values still being maintained by your institution?

Interviewee: We know that the assistance from the activity is largely determined by the availability of funds. This was mapped by the Ministry of Home Affairs before the pandemic, that it took 34 trillion to overcome floods and landslides in Jabodetabek-Punjur over the next 4 years. 49% of the 34T are from KemenPUPR, while 31% are from DKI. If the composition is like that KemenPUPR, the approach is very structural, technical measure, even though overcoming flooding is not only a technical measure, but also a behavioural problem from non-technical communities. The non-structural approach is very important and must be worked on. The PUPR Ministry is very dominant because the funds are large, while we must direct it to educational activities. If we learn from Japan, it is very strong, non-technical measure, how people don't throw garbage, etc., this is something that everyone knows but the practice is very small. These kinds of things have to be resolved; these paradigm shifts have to be implemented. Also, this flood problem, the arrangement of this slum problem contributes especially to Bekasi, this garbage comes from slum areas. Many people throw garbage into the river. The problem of non-technical measure is a problem of behaviour, the approach is through socialization, it is not easy to change people's mindset, there must be a big movement.

Researcher: How to improve the existing condition of the institution to increase flood resilience?

Interviewee: The theory is that change starts from consciousness, namely self-awareness. Self-consciousness in the sense of awareness of decision makers, awareness of related institutions. So, the first thing to do is campaign about this awareness, that's the main step that must be done. Coordination problems, silos, programming problems are serious problems. The program should be part of the solution, we often find that these programs are not connected to solving problems in the field, the problem is where does the money go. That's what we have to work on. It's not easy.

Code of interviewee: G-5

Institution : BBWS Ciliwung-Cisadane (BBWSCC/Public River Basin Management Organization of Ciliwung-Cisadane), Ministry of Public Works and Human Settlement

Function : Head of water source network implementation

Relevance : Responsible for the construction, management, operation and maintenance of river revitalization in Ciliwung and river infrastructure in Indonesia in Ciliwung-Cisadane

Date of interview: May 24, 2021

Researcher: Can you explain your institution role in flood resilience?

Interviewee: Our institution is responsible for the construction, management, operation and maintenance of river revitalization in Ciliwung and river infrastructure in Indonesia in Ciliwung-Cisadane.

Regarding flooding, we at the Ministry of Public Works have BBWS Ciliwung-Cisadane, we are UPT (technical service unit) who manage water resources in the Ciliwung-Cisadane river area. Its working areas are DKI Jakarta province, Bekasi city and district, Bogor district city, Tangerang district city, South Tangerang city and Depok city.

So, we always coordinate with Provincial Government of DKI Jakarta. There is a *musrenbang* (national planning discussion), then there is a field check together. Of course, we are trying to synchronize programs between the ministry and the DKI Provincial Government. Before, there was a difference between the ministry and the DKI Jakarta provincial government. But now it's in sync again, leading to cooperation.

Researcher: To what extent the policies related to spatial planning and flood management well-aligned in your institution?

Interviewee: Our goal is actually the same to control floods. it's just that there are some things that are somewhat different in the implementation strategy. And there is a division of labour. So, like the normalization of the river, the central government is the physical construction, the DKI Provincial Government is the one who acquires the land. Then there is the making of a drain on the Ciliwung river, the bridge for the eastern flood canal. It also works closely between the centre and the DKI provincial government. So, we want to free up land in Cipinang Gading, Cipinang Melayu, it's the DKI Provincial Government that helps outreach to residents. The support from the provincial government of DKI is very good, we are very grateful.

Researcher: How was the realization of the Ciliwung river revitalization project so far, especially for Bukit Duri-Manggarai segment?

We are the ones who are being proposed again this year, so we have checked. Together with the DKI provincial government, the priority is set in Cawang, which is 1.1 km. If the Cawang sub-district is 800 m, the Rawa Jati area is 300 m, so the total is 1.1 km. that's what we propose in 2021. So, the DKI Jakarta provincial government will free up the land there. So far realized 16km.

Researcher: How was the collaborative process and citizen participation in the project?

Interviewee: The community is involved in socialization. If the planning is indeed their aspiration so that Jakarta is free from flooding, so indirectly they have been involved in

planning. So, if they don't want to control the flood, we won't do the project there. We haven't worked on the Bukit Duri-Kampung Melayu segment. Due the project stopped in 2017. So, it's not all finished yet.

Researcher: To what extent political interest or the leadership of the policy actors applied in flood management?

Interviewee: There is not any. If I look at whoever is the president and the leader, their interest is how to reduce flooding. Because nationally, if the flood is reduced, it means they are successful, so for their benefit too, if the flood is not reduced, the image will be bad. Normalization of naturalization is actually the same, just different on the implementation process technically.

Researcher: How is the network between the institution and multi-level governance applied in flood management?

Interviewee: With Bappenas, we will continue to coordinate. Yesterday, during the 2020 flood, there was an agreement between 6 ministries. Time for the coordination meeting (special coordination meeting) for flood control in Jabodetabek-Punjur. So, six ministries, then there are also three governors, and nine regents/mayors. One of them is the Ciliwung River. The agreement in 2020, for the Ciliwung River, starts in 2021, but everything else is already running as usual.

Researcher: What are the pros and cons of this collaboration? What are the benefits, but also what is missing in the collaboration?

Interviewee: I see that the government has good coordination, although sometimes there are some obstacles. What I see is the obstacles from the community, often they refuse with all kinds of considerations. They think they are not flooded, but why are they being relocated. Or they don't want to be relocated, or the problem is the price they ask for unrealistic compensation, or they don't have the origin of the rights, or legal evidence to pay, so they don't have a certificate. Then if we just pay for the trees, they want to pay for the land too, but the problem is that there is no certificate. So, the main obstacle comes from the community, land and community problems. Land acquisition is to normalize the tasks of the provincial government, meanwhile, for *sodetan* (water shortcut) is the task of the ministry.

Researcher: How to improve the collaborative process in flood resilience?

Interviewee: So, flood control cannot be a one-on-one sector, so there must be many sectors and a lot of effort. We also built the Ciawi dam and the Sukamahi dam in Bogor, so as not to flood in Ciliwung. However, there is a normalization of the Ciliwung river, with the DKI Jakarta provincial government. Then make a drain from the Ciliwung to the east flood canal. Then downstream, the DKI Jakarta provincial government also builds retention ponds, polders, etc. So, it is true that the flood management cannot be handled immediately completely, so there are indeed many sectors, so we must continue to strive.

Researcher: How clear are the role and responsibilities between national, city, and municipalities levels on flood management in the revitalization program?

Interviewee: The division of tasks is clear, it's just that sometimes the implementation needs to be improved. But don't think negative, for example one of the actors is not serious. But indeed, for example, if one of the actors' budget allocations is not fulfilled, or for example, their organizational capacity is limited. That's not easy. Or there are also regulatory obstacles, for example, we want to free land quickly, but the regulations have stages. Even though it's free

land, we can't work because it's already the end of the year, I think it's the same in other countries there are also bureaucratic obstacles.

Researcher: How does flood institution enable information sharing and knowledge communication between government sectors related to flood resilience?

Interviewee: When it comes to information sharing, we are open to this by sharing our data. Such as land data that has been freed or not. Other institutions such as the Province, Bappenas, the Ministry of Home Affairs, if they ask for data, we will certainly give them, we have nothing to cover up. Information sharing does not hinder the coordination process either because it has been going well. We share all the data information between agencies.

Researcher: How does your institution facilitate public access to flood management program information?

Interviewee: People also get information, people or the media who ask us are also open to information. there is a website, there is social media. We also inform our agenda.

Researcher: How to improve the existing condition of the institution to increase flood resilience?

Interviewee: In my experience, the most difficult part is the execution of land acquisition. If the land is available, it can be worked on immediately, so it goes back to the community. It's a classic story, but that's the truth. So, the longest revitalization stage is the land acquisition stage. For example, the Sukamahi dam, it's been since 2016, but it can't work, it can only work in 2018, so 2 years we free the land. And now we are still chasing to get it done. Because if the land is still owned by the community, we want to measure the outside of the land and everything related to the land cannot be done. So, we can't just measure the land. That's our trouble. So how do you plan? While they (the community) want to be free first, then we can measure the land. Even though it also takes time. For example, the Bukit Duri segment was stopped because the land acquisition problem had not been completed.

Researcher: To what extent the traditional paradigm or values still being maintained by your institution?

Interviewee: The Indonesian people, wherever they go, they have the greatest bond with their home, so that is the most serious problem. So, openness, socialization, etc., are theories, and in the end, if they can choose, they won't want to move. If they want to move, they ask for a high price, so that they can move to a suitable place according to them. But we can't legally pay arbitrarily. If the land is on the edge of the river, we have assessed it, then the price is like this, that is, according to the law, we can pay, which is often rejected by the community. So, whether there is any action, whether they want to be involved in planning, it has no effect on them, because in the end they want to be paid high. The theory is beautiful, participation, etc. Participation is for scientists, if those who are there want to be paid. If you have a certificate, it's easy, it's difficult if you don't have a certificate. This is the characters of people in third world countries. If in the Netherlands, we don't have a certificate, we will definitely accept it. But here it's hard. So that's the mindset of our society. That might be the finding of your thesis.

Researcher: How to improve the current institutional situation in flood management?

Interviewee: Previously in Jakarta, I worked at Citarum Bandung, then at Bengawan Solo, before at Ciliwung-Cisadane. Work here far above other places. We're all out. So, if I see our work is at its maximum. Our communication with other agencies, both vertically, between ministries and with the local government, has also been good. Disclosure of information, then we are participatory, socialization has also involved all communities, academics, NGOs, and even law

enforcement officers so that our steps for land acquisition do not violate the law, according to the corridor rules. It's just that it's back to the people. The community is not wrong, but that is the real condition of our nation, because the community's property is their home. The problem is there. If the mindset of our nation is like that of a developed country, maybe the process will be much faster. Not only KemenPUPR projects but other projects, such as the transportation agency, railways, are all hampered.

Code of interviewee: G-6

Institution : Directorate of Climate Change Adaptation, Ministry of Environment and Forestry

Function : Section Head of ecosystem adaptation planning

Relevance : Responsible for adaptation and mitigation plans for floods

Date of interview: May 18, 2021

Researcher: Can you explain your institution role in flood resilience?

Interviewee: The Climate Change Adaptation Directorate is responsible for climate adaptation and mitigation plans.

Researcher: To what extent the policies relate to spatial planning and flood management well-aligned in your institution?

Interviewee: Is it specific for the area around the Ciliwung or nationally? Because in the Ministry of Environment and Forestry (KLHK) it is at the national level. So, if it connected with climate change, it is in Law 32 of 2009 concerning Protection of Environmental Management, if it is related to flood control, it is sectoral in nature, so there are many in the PUPR Ministry. In terms of integration, because we are coordinators, the regulations or policies that we issue are more coordinated. So, for example we have a National Determine Contribution (NDC), there is economic resilience, social livelihood resilience, landscape ecosystem resilience, each institution is all involved in the implementation of the NDC, so each institution has its own program and activities, the results of which are the achievements of the NDC which we will later report to the UNCCC. So, in terms of policy integration, if it is sectoral in nature, each sector implements itself, but in national coordination it is reported to the monitoring of NDC achievements, there is a committee or task force. When it comes to controlling the Ciliwung flood, each area in the Ciliwung watershed also has their respective roles from upstream to downstream. For the Jakarta one, the adaptation plan has actually been included, because the Rencana Aksi Daerah/RAD (Local Action Plan) was prepared before 2016, while we have regulation on adaptation No. 33 of 2016, so there is still no procedure for the preparation. climate change adaptation action. But at the moment it is being reviewed, and included in the RPJMD, well it has referred to the Regulation of the Minister of the Environment Number 33 of 2016, and flooding is included in one of the priority sectors. So even though it is enough to have the NCD, it is integrated even though it is working on each one and also included in the RPJMD.

Researcher: To what extent the national, city, and municipalities collaborate in the flood management initiatives especially river revitalization?

Interviewee: For Ciliwung, it is good enough, because when the area or those in the Ciliwung river, such as DKI Jakarta Province, when they prepare their adaptation plan, they invite the Ministry of Environment and Forestry for discussion to provide assistance, so that the adaptation plan they are preparing is sufficient in accordance with the Regulations. Minister Number 33. So, the collaboration has been very good. We also have a vulnerability index data system that is also used to see the extent to which areas in Jakarta, or along Ciliwung, especially in DKI Jakarta are prone to flooding. from the RAD that they compiled, it already referred to the vulnerability index data in the index data system.

Researcher: How come the network between institution and multi-level governance applied in the flood management?

Interviewee: Because so far, only DKI Jakarta has prepared the adaptation plan, in 2019 they compiled the monitoring and evaluation, then in 2020, Jakarta compiled the RAD. And that will also include what will be included in the climate action program for a resilient Jakarta, one of which relates to climate security as a result of the RAD that they compiled into the document. Because the Jakarta floods are not only caused by rainfall, but also from shipments from upstream. That is also our input for Jakarta so that it does not only look at the rainfall, but also the upstream area, it needs to be done for projections. Because Jakarta is mostly flooded with shipments, so if you only look at the rainfall, it doesn't seem like it can represent it.

Researcher: To what extent proactive participation of stakeholders applied in the river revitalization for flood resilience in Jakarta?

Interviewee: I am in the Directorate of Climate Change Adaptation there are four fields. One is about identification and assessment of climate change vulnerabilities, then I am in adaptation planning, there is the Sub-Directorate of natural ecological adaptation to ecosystem-based adaptation, then there is artificial adaptation. So, we actively involve the community through the climate village program. So not only from the government side but from the community directly. So how do they mitigate and adapt to climate change, if in the area along the Ciliwung river there are several climate program locations as well. But if the climate program is not just for flood control, but also for controlling drought, landslides, then waste treatment because it is related to mitigation, reducing greenhouse gas emissions, then how about the institutions, because this is related to the sustainability of the location of the climate program. So far, there have been many activities carried out by the community that we can also take as one of the efforts to control climate change.

Researcher: What are the pros and cons of this collaboration? What are the benefits, but also what is missing in the collaboration?

Interviewee: The relation with the Ciliwung with the DKI Jakarta province has been quite good so far. It's just what DKI Jakarta province wants, maybe we also don't know what it's like, so during mentoring there may be some things that need to be synchronized. From a policy perspective, there are no problems, DKI Jakarta has already referred to what the KLHK has issued, if it's related to local government like that. What needs to be improved is the capacity side. Because in a government office, the speed of employee transfer is high. For example, we had done technical guidance on the preparation of climate change adaptation, then suddenly he moved. That's what sometimes makes the policy, like it or not, we have to provide information related to the arrangement again. That's from a policy or regulatory perspective, so far there has been no problem with collaboration. So, it's more about capacity.

Researcher: How to improve the collaborative process in the flood resilience?

Interviewee: With the community, it is more about capacity building as well. Because the perception that exists in the community regarding adaptation actions is not in accordance with what is in the city. For example, in the field, if infiltration wells have a standard, there is a ministerial regulation, there is also a ministerial regulation for bio pore. The people themselves did not know, so they thought that they would only make holes for bio pore, thus it is important to increase the capacity of the community.

Researcher: To what extent proactive participation of stakeholders applied in the river revitalization for flood resilience in Jakarta?

Interviewee: As for the climate program, we cooperate with local governments as well as with companies through their CSR, which will be carried out later from the local government and from the company as the person in charge of CSR, then later we will see in the field whether the location they propose is in accordance with the program criteria. climate. So, if it is related to coaching, we develop starting from the local government, the company and from those who will go down directly.

Researcher: To what extent the leadership of the policy actors applied in the flood management? Or is there any political interest in the collaboration?

Interviewee: No, because whoever the regional leader is, it is our obligation to provide assistance. So, whoever the governor is has no influence. So, if the KLHK is not affected.

Researcher: How does your institution enable information sharing and knowledge communication between governmental sectors related to flood resilience?

Interviewee: So far, information from KLHK is always open for anyone to access. Then the relation to flood control, such as the specifics in Ciliwung, because of its implementation in the regions, if we need information, they will also provide it. In the Directorate of Watershed Management and Land Rehabilitation, they also have regulations that require areas that are prone to flooding, then landslides, there are regulations. Each of these areas is required to report to the KLHK which areas are prone to flooding. So far, if we ask for data from the regions, it is very open. Because KLHK is not only a formal relationship, but also an informal relationship, especially with the Environment Agency.

Researcher: How does your institution facilitate public access to flood management program information?

Interviewee: With the community itself, we usually have some kind of socialization or webinars, for the Ministry of Environment and Forestry that deals with climate change every Wednesday, it's called the Climate Corner. There, they share information and resource persons from the government, from non-government institutions, and the community itself, which anyone can participate in every Wednesday, and the topics are always changing but still related to climate change. For the information system itself, for climate change, we are developing the name Climate Change Adaptation Window. So, information related to climate change will be entered in the web portal. It could be in the form of a vulnerability study or data, or also the results compiled by the local government, which will go into it later. But now still in development process, maybe will be ready around July. From the Ministry of Information, we are also asked every few months in relation to information disclosure, so we must comply with the existing rules, we must convey and open the information.

Researcher: How far your institution supports local actions?

Interviewee: The actions related Ciliwung is at the Directorate General of Watershed Management Control and Land Rehabilitation, because for watershed management there is itself, but if it is related to climate change, for example, we determine whether a watershed area is vulnerable or not vulnerable to climate change in the future, later we do the study. So, for the action itself is carried out in another Directorate General in the KLHK.

Researcher: How clear are the role and responsibilities between national, city, and municipalities levels on flood management in the revitalization program?

Interviewee: In writing, it is actually clear, but the implementation sometimes overlaps between institutions. For example, waste management in Ciliwung. That is sometimes between PUPR

ministry and KLHK there needs to be synchronization as well so as not to overlap. Mostly because of mutual ignorance of the main functions, that's why they overlap. But the implementation is quite clear. For example, from the DKI Jakarta provincial government or from the Environment Service or from the PUPR Ministry, then the PUPR Ministry is also for the control of watersheds. Before, the provision of land was from the province, the construction was from the PUPR Ministry, and there were delays due to land acquisition issues from the provincial government. That is the issue, but in writing the division of tasks and responsibilities is clear.

Researcher: To what extent do staff in government have skills and knowledge about flood management?

Interviewee: In terms of capacity building, it must be done. In terms of the capacity of local governments, maybe because they are used to dealing with floods, they already have their own SOPs or policies for dealing with floods. As for capacity, I don't dare say it's adequate or not, but when it comes to flooding, because Jakarta has frequent and routine activities, their capacity is already adequate. Maybe in terms of policies that must be improved again so that there is consistency in flood control efforts.

Researcher: To what extent the traditional paradigm or values still being maintained by your institution?

Interviewee: Very influential, because the handling of an event whose impact is felt by our society must look at the conditions that continue to run and continue to change. It doesn't mean that because it's routine, the handling is business as usual, it's not like that either. So, it may need innovations as well. For those in Kampung Melayu, they are trying to deal with flooding, if so far, maybe the EWS is not working well, or maybe the people are used to flooding so they don't make any further efforts to deal with it. Yesterday, in the Kampung Melayu area, it was used as a model for the houses to be made on stilts. So, the house is now being renovated by the provincial government into a house on stilts, currently there are about 50 houses in progress. So, in the dry season it looks like a terrace that can be used for business, for example selling, then if there is a flood, they just go up to the second floor.

Researcher: What about the communities affected by the revitalization?

Interviewee: There are some who do not want to evacuate. Incidentally, the governor's policy yesterday during the campaign did not want to evict, so whether they want to or not to fulfil their campaign promise they must try how not to carry out evictions, but the area can be controlled for flooding, maybe it can't be eliminated 100% because the area is lower than the river. So, they made a house on stilts.

Researcher: To what extent is your institution administratively and politically coherent with other institutions in dealing with flood?

Interviewee: It should have been implemented, but also seen in the field, but still refers to the existing regulations.

Researcher: How to improve the current institutional situation in flood management?

Interviewee: Because I'm from climate change, so if I look at the planning process for its development, I have to look at the climate projection first, so it has a scientific basis or basis, so the construction can adjust the flood projections in the future, so the utilization of the information system is not optimal. So they are just compiling a development plan like what has been going on so far, although in the preparation of the RPJMD they carried out a Strategic

Environmental Study (KLHS) and KLHS, one of which contained levels of vulnerability, adaptation capacity. So far, we have studied the regional RPJMD, the average for climate change has not yet been included in the KLHS. At the time of the preparation of the RPJMD there were no projections for what it would look like in the future. Like climate investment, climate-related investment has not yet been considered by local governments. Maybe the provision of climate information data formats is still lacking, or they don't understand. Seeing the gap, it's the use of climate information data. The point is coordination. It is very important that there is a synchronization between what is developed by the central government and local governments so that there are no contradictions in its implementation.

Code of interviewee: G-7

Institution : Bappeda DKI Jakarta (Development Planning Agency at Provincial Level)

Function : Functional staff of Sub-Directorate Control and Management of River Watershed, Directorate of Planning and Evaluation of Watershed Control, Ministry of Environment and Forestry

Relevance : Responsible for planning, evaluation of watershed control and management

Date of interview: June 1, 2021

Researcher: To what extent the policies relate to spatial planning and flood management well-aligned in your institution?

Interviewee: So far, policy integration has been good, especially in relation to Ciliwung, because Ciliwung is included in 15 national priority watersheds in the 2015-2019 RPJMN. So indeed, from the KLHK side, the Ciliwung watershed has a very strategic position to implement a program to overcome the problems that exist in Ciliwung. Especially for floods, our directorate cooperates with other directorates and even with other ministry/agency to deal with floods, not only in Ciliwung. We are more involved in providing data, then in data analysis, then why does the flood occur, then when it is collaborated with other ministry/agency there are several programs that can be taken or carried out by echelon 1 PEPDAS and protected forests. In terms of the directorate itself, we have many UPTs throughout Indonesia, there are 34 UPTs, namely the Center for Watershed Management and Protected Forests. Each UPT has drawn up runoff and landslide maps. This runoff map is the first database when we will analyze further related to flood events. This runoff map describes the level of vulnerability of an area to runoff. Because our unit of analysis is a watershed, the map is a watershed. Related to Ciliwung, it is in the Center for Watershed Management and Citarum Protection Forest and Ciliwung which is located in Bogor City. From there, if there is a flood event, we will analyze it based on the data we have in the form of a desk study supported by the team at the center through the monitoring and evaluation section. Later the results of the analysis will be submitted to the Minister. If the flood has a major impact, it will be held in meetings with other ministries, usually with BNPB, PU, BIG from a spatial perspective, they will support each other for these activities. If it is necessary to implement a program for this incident, then our echelon 1 will plan and implement a program to overcome the flood, for example by land rehabilitation, other technical civil construction, such as retaining embankments. So, it's well integrated. So, in the field, those who still carry the names of their respective agencies are less integrated, but for major events and national concerns, the handling is already integrated.

Researcher: To what extent the national, city, and municipalities collaborate in the flood management initiatives especially river revitalization?

Interviewee: The collaboration so far has been good. The central government has analyzed what causes the flooding and what actions must be taken, then informs the local government about what needs to be done with the support of the central government of course. It's just that local governments are less aware of environmental conditions in their area. Data related to the BNPB flood vulnerability map has made a flood risk map, even the directorate of adaptation has also adapted and mitigated related to the flood, but the government is not very aware if the event/disaster has not occurred, so the local government acts per incident and does not prepare

beforehand, maybe this that need to be socialized so that local governments can increase their awareness so that the area is more resistant to flooding. So, we only do it when there is a flood, but there is no what next, or longer term, even though the BNPB data is complete. For flood risk data, the complete level of exposure is available at BNPB.

Researcher: To what extent proactive participation of stakeholders applied in the river revitalization for flood resilience in Jakarta?

Interviewee: For the Ciliwung watershed, there are several communities that are concerned about river problems, but many focus on waste problems. Among other things, the Ciliwung Caring Community, the Ciliwung Watershed Forum tries to help the central government to connect the programs that exist in the ministry/central government to the local government. It's just that its role has not been maximized, because it is constrained by many things. One of them is the funds for the Ciliwung watershed forum itself, because the funds depend on APBN funds, but even though the funds disbursed in the APBN through PEPDASHL are not so much. For the general public, many communities care about rivers, moving more towards cleaning the river, at least it has been able to parse the rise in water level/discharge in Ciliwung, because the river is clean, the effect is not that big, but only in the form of communities like that and not comprehensive. community elements. Moreover, Ciliwung, which is near the river, has become a built-up area, so it is complicated, because it is not only environmental issues that must be put forward, but also social and economic issues. As long as the Ciliwung area contains all built-up areas, so if you want to plan a 50-meter border, it's a bit difficult because everything is already built.

The Ciliwung Watershed Forum was initiated by the central government through PEPDASHL, so this forum invites competent parties, including academics, government, community leaders, so they will help PEPDASHL to develop programs that will be implemented by the ministry to local governments that exist in their respective work areas, and it is also contained in the Government Regulation on Watershed Management, namely community participation in watershed management. Even though the forum is initiated by the central government, later when it is running, the watershed forum itself will move to assist watershed management in its area. As for community involvement in the planning process for the normalization of the Ciliwung river, I do not know, but for the preparation of watershed management planning, the community will be involved. Because river revitalization is more of a task and function at the Ministry of PUPR. If we take more care to protect the watershed ecosystem. For the Ciliwung watershed from upstream to downstream and not limited to administration, from its upstream in the Bogor district to its downstream in Jakarta, for this watershed forum it manages the entirety of a single watershed unit from upstream to upstream, the land area from the ridge whose function is to maintain and collect rainwater and drain it into the river. sea, so integrated from upstream to downstream.

Researcher: To what extent the political interest or leadership of the policy actors applied in the flood management?

Interviewee: In fact if the activities in our agency continue. For example, for the Citarum Harum activity, Doni Mutardo, the head of BNPB, went all out to the field. The leadership figure for the level of policy making is not too influential, because if the KL has worked according to its duties and functions, according to the institution. but at the site level it is possible, for example the village head or the sub-district head, will have an influence, because those at the community level still have that view, that kind of patron.

Researcher: What are the pros and cons of this collaboration? What are the benefits, but also what is missing in the collaboration?

Interviewee: In the collaboration process, if there is a penta helix to solve environmental problems, there must be academics, government, mass media, the community itself, and then there are non-governmental organizations as well. The first is that there is no collaboration between each other, especially for non-governmental organizations that should be able to support the program launched by the community, they are actually disturbing, even though they should be able to connect activities that will be carried out by the government to the community. Then the second there is still the ego of each ministry/institution. So, if there is an incident, KLHK makes an analysis, then BNPB makes an analysis, then BMKG makes an analysis, even though the core of the analysis is the same and the recommendations produced are on average. Most of them are the same, but each of these ministries still has its own ego. Actually, what the president did when Citarum Harum was good, was through a presidential regulation combining the relevant agencies. It is in a place through the Presidential Regulation to address the Citarum problem. So it goes straight to the target, so there is no ministry ego but in one framework, namely Citarum Harum.

Then for the benefit of the collaboration process through a complete database and analysis that has been supported by experts who are competent in their fields, everything is good. Then for this collaboration, it is necessary to increase awareness from local governments, that local governments really understand the situation and natural conditions in their respective regions. For example, in terms of topography, the biophysical conditions have been given, for example a flood inundation area but how come housing is made, here the role of local government is very important, it must know the conditions of each area very well. So that local governments can develop plans for developing their areas properly and accurately by taking into account their natural characteristics.

For sharing information, it is good enough, BNPB data, KLHK runoff data, BMKG rainfall data, all are very good. So, we can know what factors influence a flood event, for example because of rainfall or because of the biophysical conditions that are in alluvial plains.

Researcher: How does your institution enable information sharing and knowledge communication between government sectors related to flood resilience?

Interviewee: Regarding data, there are terms data producers and data guardians. For the Ministry of Environment and Forestry, the data is in the directorate of forest resource management inventory, we are the producer of data for watershed boundary maps. Several times, when there was a flood, the data exchange process for institutions was very good and mutually supportive.

Researcher: How does your institution facilitate public access to flood management program information?

Interviewee: So far, our institution has been good, up to the local government. At our institution the program of activities is also assisted by the local government, then we will go to the field together to inform what program will be carried out, for example the community nursery program, will be built a retaining dam and then we will socialize and ask for community feedback.

Researcher: To what extent do staff in government have skills and knowledge about flood management?

Interviewee: Institutional capacity is quite good

Researcher: How to improve the existing condition of the institution to increase flood resilience?

Interviewer: Actually, what needs to be in the institution is a commitment to each agency that we will improve flood resilience along the Ciliwung River from planning to evaluation, although changing leadership is still required that commitment. Especially in regional governments where the dynamics of local government changes are fast, so commitment is important. Second, from the community side, education and education must continue. Because it is true that the flood problem now, especially in Ciliwung, is not only an environmental problem but also an economic and social problem where it is necessary to find the right solution from a social and economic perspective related to the community along the river border. From the community side, it is also important to be more aware of flood events, if there is a program from the government for a flood resilience program, do not think it's just a project but that the project is for all of us, for them too. Because many people think it's just a project. So, people's mindset is important. Even though it cannot be separated from the government as well as both the central and regional governments, sometimes when carrying out these activities the echo is just a big start, so it is necessary to increase commitment.

Researcher: To what extent the traditional paradigm or values still being maintained by your institution?

Interviewee: Our paradigm related to flooding for example in the watershed management plan, especially for soil and water conservation, there are two things. Soil and water conservation can be vegetative or civil-technical. It could be vegetative only, or it could be civil-technical alone, or it could be a combination of both. The vegetative means planting trees, for civil engineering it is through the construction of technical buildings, for example the construction of gabions or retaining dams. In our building, the physical purpose is for soil and water conservation.

Researcher: Are there any specific flood management in Bukit Duri-Manggarai segment from your institution?

Interviewee: If not specifically, our institution is more focused on how to protect the upstream area for a better and healthier environmental ecosystem or watershed, that is, how to avoid flooding. What if there is a flood, how do you minimize the occurrence with soil and flood conservation programs, but when the incident is not in the KLHK's domain. For the Ciliwung test case, it is not only related to the KLHK, but also has an influential Spatial Planning aspect, it is a more urgent issue related to spatial planning. Because for Ciliwung itself the problem is complex, and spatial planning is very influential, that's why there is Jabodetabek-Punjur, so spatial planning and cross-administration, so the problem is very complex.

Code of interviewee: G-8

Institution : Bappeda DKI Jakarta (Development Planning Agency at Provincial Level)

Function : Subdivision Head of Water Resource Management and Environment

Relevance : Responsible for water resource planning and development in Jakarta

Date of interview: June 9, 2021

Researcher: To what extent the policies relate to spatial planning and flood management well-aligned in your institution?

Interviewee: I will start with presentation on flood risk management in Jakarta. Regarding the policy, the reference document for the Jakarta control strategy from the first is the Nedeco Masterplan 1973 and this is constantly being updated. The initiator of flood control in Jakarta through the construction of two floodways, namely the West Flood Canal (KBB) and the East Flood Canal (KBT). Even though there is a Cengkareng drain and a Cakung drain as well, so there are two more, there are four floodways.

Then there is the Regional Regulation No. 1/2012 concerning Spatial Planning (Rencana Tata Ruang dan Wilayah/RTRW) 2030, here is a flood control strategy in the scope of spatial structures and patterns, namely integration of upstream-downstream water systems, restoration and development of lakes and reservoirs as well as river normalization, improvement of the polder system, gradual implementation zero delta Q, and monitor and maintain the channel periodically.

Then there is the Regional Regulation No. 6/2012 on RPJPD 2005-2025. This is about flood prevention through strengthening water management and drainage systems, maintaining water bodies from garbage/waste and maintaining the area of water bodies. So it's related to the spatial arrangement.

Regional Regulation 1/2018 regarding the 2017-2022 RPJMD. Here we have 3 programs related to flood and abrasion control, namely the construction of the Sea Wall and River Estuaries, the construction of reservoirs/naturalization and river normalization, and the improvement of Water Management.

Furthermore, for the direction of Jakarta flood control policies and programs. Especially when it comes to Ciliwung, we have a Central-Regional Cooperation with spatial planning and flood control in Janodetabek-Punjur, so upstream there is the construction of the Ciawi Sukamahi dam, then downstream the focus is on incentives and disincentives to strengthen rows for conservation in 13 watersheds and the construction of river basins. Ciliwung River and KBT.

Then the next step is alignment with the central government, namely with the latest RPJMN, the 2020-2024 RPJMN. Here, for PUPR's authority, there is the normalization and improvement of river capacity for DKI Jakarta and the development of an early warning system for flooding in the Ciliwung watershed.

Regarding alignment with Presidential Regulation No. 60/2020, we must pay attention to building spatial patterns, related to development regulations along rivers as well as improving the functions of lakes, reservoirs, and reservoirs, controlling floods in rivers; and controlling river water discharge and increasing river capacity.

In addition, there are several agreements or collaborations for controlling the Jakarta flood, such as this in 1994 which regulates river management, and the floodgates, then the 2015-2018 Ciliwung action plan regulates the acceleration of the normalization development of the Ciliwung river, then this commitment is new if I'm not mistaken. In June 2020, the Jabodetabek-Punjur commitment was initiated by the Ministry of Home Affairs, in collaboration with 6

Ministries, 3 Governors, and 9 Regents. The last one is related to the cooperation with PUPR and DKI related to the coastal embankment.

So here there are already divisions of tasks to regulate the acceleration and authority of the ministry or the provincial government of DKI Jakarta for development for each segment of the embankment.

We can see how the community can access related to flooding, especially floods, so this is an SOP implemented by the Water Resources Service, and in collaboration with BPBD, so here there is social media, there is a command center that can be accessed by the community because we now have the latest application which is SEJATI, and also related to spatial data, there is also Jakartasatu. In Jakartasatu there is also a flood related to it. So, there are several accesses that can be achieved by the community or by the public.

Regarding collaboration, maybe the 2020 flood, this is a step from the DKI provincial government, and this will still be continued for the next several stages. It can be seen here that collaboration is not only with the internal provincial government but also with the private sector, this is what we identified during the 2020 flood at that time. This is one of them through CSR.

For the distribution of authority, there are several agreements, and this is the chart for the distribution of authority for the 13 rivers. Including Ciliwung, including the authority of the central government. When it comes to river management, we usually have the authority related to land acquisition and dredging.

Related to the matrix for the flood control action plan. This is data from the Water Resources Service, which divides the authority between the PUPR Ministry and the DKI Jakarta Provincial Government and the implementation target, this is still indicative, so it cannot be used as a reference. This also includes the construction of special embankments for flood control, indeed there is more for waste control and clean water.

For infrastructure cooperation, it explains how much capacity the DKI Provincial Government has and explains how much water discharge that needs to be accommodated by DKI Jakarta.

For the flood control scheme, in the future it will focus on 9 polders, 4 reservoirs, and 2 river revitalizations. Then it is related to spatial planning, in accordance with Presidential Regulation Number 60. The problem in DKI is that there are still land conversions along the watershed. So, this is indeed our suggestion to the central government, regarding green space, we have 30%.

Regarding the impact on river revitalization, whether it is in accordance with the needs of the community, or whether the revitalization will improve the economy and the welfare of the community, that is yet to be answered.

As far as I know, the revitalization has not yet been measured whether it fulfils the needs of the community or considering the revitalization of the community so that the location of the workplace is further away, whether the revitalization improves the welfare of the community around the watershed, and this focus is on the Ciliwung river.

When it comes to policies, there are some that we are still referring to in the original document, indeed Nedeco, but there have been some updates. There are also several good collaborations with the central and regional governments, both in spatial planning, as well as mid-term, national and regional planning. Then also this is just an affirmation that there is now a presidential regulation No. 60 which is related to the Jabodetabek-Punjur spatial planning, flooding is one of the strategic issues that must be carried out in the Jabodetabek-Punjur arrangement. That may be from a policy standpoint. And recently, related to flooding, there was an upstream-downstream integration agreement that was agreed to until 2024. And it was agreed by 6 Ministries, Governors, and several regional leaders, in the Ciliwung-Cisadane watershed. For Ciliwung as the main river that passes through DKI Jakarta, which is 600 km, almost all of them when viewed from the layout are fully built. And the position of Jakarta,

which is downstream of the watershed, is a bit difficult for us, in a sense, there is rain from upstream, there is rain from local, and there is a rise in sea level. And that's what we're trying to analyze. For DKI Jakarta, we can't even afford local rain at this time with the existing conditions. Previously in 2021, we were less than 1000, which is the difference in calculations between our abilities and the difference in rainfall. Like it or not, it can't only be from DKI Jakarta. For DKI Jakarta, the first strategy is to normalize or naturalize existing water bodies. Then the second one, like it or not, we have to make reservoirs for temporary water parking. Many of these functions have changed, such as the names that have turned into swamp names cannot be separated from their history. Whereas in terms of the direction of the Jakarta floods, from the last calculation, our distance capacity is less than 2000, this is when we talk about rainfall.

For this, we inevitably need a strategy in DKI Jakarta itself, make a reservoir, we can absorb it, in the north like it or not the pump system is like in the Netherlands, that's also the system engineering that applies. We also still need a lot of improvement. That's why I explained earlier that 942, 9 polders are to be built, 4 reservoirs, and 2 rivers which are our authority. It might be internal. It also needs to be pushed from the top. Hulu is talking about Ciliwung. It really helps if the Ciawi Sukamahi reservoir can be cut by 11% for the discharge that enters Ciliwung. If the drain can be 60 cubic meters, it can also be shared with KBT, so that the load on the KBB which will go to the north will be slightly reduced by the Pluit reservoir which will be pumped later. It's the same at the end in a cool river area, because of that there are a lot of population, lots of fishermen, etc., so there is bottle necking when the water goes to the sea, so the water can't be fast either. So, we have several, if we talk about Ciliwung, we want to upgrade the 9 polders, one of which is in Kamal. Ciliwung is straight, some are old canals, some are connected via BKB. And we are pushing for normalization or revitalization, the target is the central government in the TB Simatupang to Manggarai areas, there may be a lot of homework that needs to be normalized.

Yesterday in 2020, we had quite a fight. In 2020 there will be more flooding in the north-west direction. Yesterday, we were able to carry out more security measures, the mitigation was dredged and emergency suction was a bit tolerable, yesterday in 2021 on the upstream side, which was affected by flooding. so we still need to do. But we normalize it is not easy, a land condition that is just like that, and we have made liberation. The release of just 1 year can reach almost 1 trillion. Therefore, the hope is also to encourage the center to help reduce the peak flow of discharge. Yesterday, when we carried out the revitalization normalization project, there were several things, actually because the community was already occupied, we hope that the community can be moved to a flat to be free from flooding, because the option is that if it is not moved, the community must adapt to the community who comes every year on February or March, so like it or not, it's a consequence, but we will still carry out our obligations to plan for disaster response. Regarding the policies that have been discussed regarding the agreement, there are several items that we must improve. One of them is spatial planning, while others are physical problems. If I'm not mistaken, Bappenas has made 7 quick wins, including both for mitigation and adaptation. The adaptation is to increase the building, if for example a disaster occurs, let alone what must be prepared. the EWS. So, actually to try to concentrate on that so that at least we can reduce the impact of the people affected by the disaster.

From what we have said, Jakarta is already pretty good if you look at the statistics from the number of areas affected, to the number of people affected, and the acceleration of flood reduction is quite good. but it's not possible only with that approach, there must still be a structural approach. Again, the hope is that the river can return to its ideal condition, its capacity can be sufficient, so that its impact can be reduced. Although the financial calculation in 2022 is a calculation from Bappenas. One of the solutions is that people can move to flats. Several flats are indeed prepared for the people around Ciliwung, such as Pasar Rumpit, Jatinegara. The process is not easy, but it is one of the options that the government is trying to actually improve, reduce the impact of floods, and make people's lives better in this case. Because in the flat we have prepared many things, in terms of sanitation, it is also better, in

terms of housing feasibility, there are also many things, in terms of education, there are also many things, in terms of work, actually there are SME, urban farming, and transportation connections. which makes it easier for us. If there are flats that are provided from the center such as Pasar Rumput, if from the provincial government there are several. But if there is something that can be arranged, we will try the area, like now part of Ciliwung in the aquarium village, which we are trying to organize, but we can't do all of it. If the Ciliwung area is Ciliwung, its function is to control flooding, so we also need to organize the banks.

Researcher: How clear are the role and responsibilities between national, city, and municipalities levels on flood management in the revitalization program?

Interviewee: If it is related to the distribution of authority. There are several divisions of authority that are the duty of the regional government, some are the task of the regional government. When it comes to water, because the Ciliwung river is crossed by two provinces, the authority lies with the central government, but we help with land acquisition. For ideal conditions it is not possible, but we can help with land acquisition up to 35 m, it is possible. Then we also help to arrange the border or riverbank area. We are also trying to arrange that where the river area becomes a third space for the people of Jakarta, for example, if we make Ciliwung near the station, we make places to take photos, we are trying to make water a bargain for our lives. That the river can be a good place, it is hoped that with this the community can know better that the river is part of our lives, can take care of it, and can know its function. So, the term is that we will not all be from the government, so citizen is welcome to do initiative actions.

Researcher: To what extent the national, city, and municipalities collaborate in the flood management initiatives especially river revitalization?

Interviewee: If it's collaboration, they might say it's easy, but doing it isn't easy. Jakarta is multisectoral. What is certain is related to collaboration with government agencies, we still have to try to get better, as we had previously agreed to handle floods and landslides in Jabodetabek-Punjur. From there then from the community. We try to clean Jakarta, we also become the chairman of Water Resources Management (Pengelolaan Sumber Daya Air/PSDA). It contains more or less agencies and NGOs around Jabodetabek-Punjur. There we discuss about what we can fix or improve for functionality issues, usability issues, and faulty power control issues. So, we try to collaborate with all elements, both from the local government, and with the government in the Ciliwung River Basin River area. Other collaborations with the private sector also exist. There are some related to disasters as well, friends from BPBD are also trying to communicate or socialize about emergency response. That several things, for example if a disaster occurs, the community must be relocated here, the community must also be aware, so the EWS is running. Although we are still building the EWS system. Now, we know that from Katulampa high it will take about seven hours to get ready to evacuate, we hope that it will be even more advanced, maybe if the Netherlands has used forecasting, like using satellites. We're not like that yet, but we're trying to make things like that more or less. We also carry out socialization of the development process and encourage the community to be relocated.

Regarding collaboration, we also have a TKPSDA forum, and its members are not only with the government, but also with NGOs and the private sector for those around the Ciliwung river. The TKPSDA is based on the Decree of the Minister of PUPR, its chairman alternates between the three provincial governments between Jakarta, Banten, and West Java.

So, collaboration is not only with the Ministry of Public Works, there is the Ministry of ATR BPN regarding how we organize the blue space and green space so that they can be in harmony, with the PUPR regarding infrastructure, third with the Ministry of Environment regarding the quality of the environment, Ciliwung is also expected to have better water quality because it is expected

to be able to be a source of raw water. Even though it's done now, it's a little less water from BKB. Then with BNPB as well as from EWS, etc., then with the Ministry of Home Affairs with the local government who facilitated our disaster preparedness and management as previously agreed. Then the National Development Planning Agency for planning integration between the RPJMN and RPJMD, and the Ministry of Finance with the current conditions requiring certainty from the Ministry of Finance regarding alternative development financing. Actually, we also want to be able to do it with PPPs, but recently we did flood projects with regional financial loans. If you've heard about the PEN loan, yesterday we had a loan for development repairs, yesterday in 2021 we borrowed it for flooding, that's the stakeholders. It can't be separated from the local government because the name DAS must be related to the local government, for Bogor, Bekasi, mutually beneficial inter-regional cooperation is also carried out. We also like to help, looking at our fiscal strength, we also like to help, especially regarding floods.

Researcher: How to improve the current institutional situation in flood management?

Interviewee: One thing that needs to be improved is, now the intention is there, we already have the same vision for flood control, but the process must go on even though the intention is the same, we have to go the same way, we have to complement each other when it has to be done, everyone has to sit together, it can't just be the government, it can't just be the community, it can't be the private sector alone, but it must be together and in harmony. Also, joint monitoring and evaluation, there are some that are the same, so that the project can run. That is our homework. Coordination is not easy, running it is also not easy. but if it can be implemented, I'm sure it can reduce the problem, especially regarding the destructive power of water in Ciliwung. Especially in Jakarta. In addition, we have to be more creative under current conditions, it seems impossible if we are not creative, both in terms of alternative financing, problems in terms of infrastructure, technology is growing here, maybe there are more effective and efficient ones, especially options for financing, especially the collaboration of all of them.

We carry out what at least we agreed, as well as the seven plans of Bappenas, maybe not all of them can work, but if we can do it, at least it can reduce flooding. At least if we can reduce it with our abilities, and the community can adapt to the existing capabilities, the socio-economic impact and other things we can minimize the damage.

Code of interviewee: G-9

Institution : Water Resource Agency of East Jakarta (Municipal level)

Function : Planning staff

Relevance : Responsible for developing water resources management planning in East Jakarta Municipality

Date of interview: June 1, 2021

Researcher: To what extent the policies relate to spatial planning and flood management well-aligned in your institution?

Interviewee: I still don't think so because we have limited budgets and each has priorities in their respective regions, so sometimes we have the same opinion, but sometimes the priorities for implementation are different, maybe some are implemented this year, some are not, it should be in line, for one sub-department. For example, one road has just been repaired and then the next year's channel, sometimes the road becomes damaged again. It's about the coordination. So sometimes we collide on the priority issues of each agency.

Researcher: To what extent the national, city, and municipalities collaborate in the flood management initiatives especially river revitalization?

Interviewee: Tasks, principals, and functions are now changing, especially in the current service, there are new units being formed, some being split up and some being merged, there are still obstacles for that. So, two years ago, the sub-department had planning and construction, but now it's only for reservoirs that the agency is working on it, we're only planning it. So sometimes we still have a lot to learn because of the changes in the main tasks and functions now. So, changes in the main tasks and functions also affect the collaboration process between agencies.

Because Ciliwung is wide, our institution only gets 5.3 km, and it has only reached 2.5 km, it doesn't have a significant impact yet, there is no appreciation from the public yet for the sub-department, there is appreciation in the form of banners but only for channels. In Ciliwung, the authority of BBWSCC and our budget is for dredging. So that's because it's not our authority, just because of the collaboration with BBWSC, we cannot help but take it from the drainage budget, whether we like it or not, for dredging the river. The revitalization is still flooded, the changes are not too significant, but the current flood inundation is not too long even though it is still flooded.

Researcher: To what extent proactive participation of stakeholders applied in the river revitalization for flood resilience in Jakarta?

Interviewee: In our agency, it is more to suggestions. For the socialization, it is more at the time of development. For dredging, it is only a notification to the sub-district, later the sub-district will convey it to the community. For the input from the community is usually through the musrenbang (national planning meeting), For the sub-department it is more to the channel. for the river the authority is at the BBWS.

Researcher: What are the pros and cons of this collaboration? What are the benefits, but also what is missing in the collaboration?

Interviewee: From the planning point of view, the collaboration already exists, but it must be renewed again and is indeed being updated by the agency, but it should be discussed among the leaders, they must have similarities in which areas must be reviewed first so they can balance their priorities, so they can be well integrated.

Researcher: How does your institution enable information sharing and knowledge communication between governmental sectors related to flood resilience?

Interviewee: For agencies at municipal level, we have a data portal for our five regions in Jakarta, for internal natural resources. The data portal is created by an agency that has to be updated and monitored there. It's internal in the provincial government. There is also a portal that can be accessed by the public, but only in the form of general data, if there is a CRM for public complaints, it is a community complaint that can be submitted through an application at the sub-district level, the letter will be addressed again to the relevant agency for follow-up.

Researcher: How clear are the role and responsibilities between national, city, and municipalities levels on flood management in the revitalization program?

Interviewee: As for the area, it's clear. For CRM, not all incoming complaints do not match the agency. People know that all natural resources canals are channelled, even though the road channel is for Bina Marga, it is still a matter of debate. Actually, the main task is clear, but the implementation is not right. We rely on the governor's decision, a decree or a governor's regulation, but the public or other agencies know that the channel is a natural resource. In our agency it is more of a connection channel, and so for this time the authority is more to the service, and policy related Ciiliwung river is more at BBWSC. Our institution is in the river service, which is only for dredging. For rivers, for example if the embankment leaks, we only help in the gabion, but for the permanent embankment it is under the authority of the agency or BBWSCC directly. Last year, our agency only played a role in dredging, this year none at all.

Researcher: To what extent political interest or the leadership of the policy actors applied in the flood management?

Interviewee: If there are proposals from the council, sometimes the person who has the position will want to handle it in the area where he lives. That's what he thought to secure an area for his constituency.

Researcher: To what extent do staff in government have skills and knowledge about flood management?

Interviewee: I think it's still lacking, because our budget is still lacking. Our budget is mostly for physical development, not to mention the budget still likes to be cut. More budget for physical maintenance. In my opinion it is still lacking, even though we need comparisons for newer methods, so far, the old methods are still being used.

Researcher: To what extent the traditional paradigm or values still being maintained by your institution?

Interviewee: Paradigm is very influential, because we are also demanded, sometimes people only know that this will be repaired immediately, for example there is a flood, even though if there is a flood, it doesn't have to be only the repaired area in the affected area, it may also have to be repaired upstream. We should look broadly at an area according to the catchment area and that takes time. Sometimes people don't think like that, they just need it fixed quickly.

Code of interviewee: NG-1

Institution : Institut Teknologi Bandung (academician)

Function : Head of Master of Urban and Regional Planning of Institut Teknologi Bandung (ITB)

Relevance : Concern about institutional and organization in Indonesia and flood management in Indonesia

Date of interview: May 19, 2021

Researcher: To what extent the policies relate to spatial planning and flood management well-aligned in flood institution?

Interviewee: Talking about flood management, especially in metro Jakarta, maybe in the last 5-10 years there may have been changes from the engineering approach, widening, cleaning, and so on, starting to lead to integration with environmental and social approaches. In engineering, we consider water to be the enemy, if environmental is nature based, water is actually a friend, for example being made a shelter, etc., which can even be an attraction, not a waste. In terms of discourse, the policy is shifting in that direction in 5-10 years in Indonesian metros, including in Jakarta and its surroundings, especially in Ciiwung if we talk from upstream. In terms of institutional structure, as far as I have observed from afar, I have not heard that there is a transformation that is heard other than the discourse between normalization and naturalization, that is actually the battle. First that the fragmentation is still. There has been an effort for institutional integration, maybe there is but it's still a design, because I haven't heard anything concrete yet. In a sense, because Ciliwung is complex, it is a bit different from the Citarum watershed because it is 1 province even though it is longer. Ciliwung is cross-provincial, that adds to the complexity, so the nuances of fragmentation still exist. Trust between different provinces is not easy, let alone different parties.

Talking about integration in the administrative sector, we are still politically influenced, including the debate on normalization and naturalization, the latent of which is a political debate, in fact the gubernatorial election debate. So, I don't know which community is which, but it means that it is still heavily influenced by political affiliation and political views, even short term political views. In the political midterm of the party, the different parties there become a different discourse. Usually cross-regional integration, if the regions are different parties, now it's troublesome, trust is not formed, if for example there must be a transfer, either infrastructure transfer or financing, which in this context, for example, Jakarta subsidizes the upstream. For those on a higher scale, if we look at the physical or sectoral approach that is still more effective than the integrative one such as spatial panning, it is still difficult, especially if you play upstream. Actually, when we talk about flood control, it is from upstream to downstream. Upstream, the issue is more integrated, more multi-issue, because it's area based, because upstream it's more of a land use condition, it's different if it's downstream it's more of a water flow problem. In the upstream area, the problem is area based, it is cross-sectoral, there is forest, there is housing, etc., it is more difficult, and the impact is long-term. The problem is that the policy makers and Indonesian politics are short, only 5 years. Because repairing the one upstream is the one who feels it's the next governor, not him. The problem is in the context of policy integration. Actually, not just a flood. The most acute thing is that the problem in Greater Jakarta is still related to flooding, because the integration of upstream and downstream is very visible. Yes, transportation is, but transport is not as complicated as a flood, maybe in terms of

funding, transport is large, but flooding is not expensive in infrastructure, but expensive in coordination. Because it was not area based, so the business is not only with KemenPUPR.

Researcher: To what extent the national, city, and municipalities collaborate in the flood management initiatives, especially river revitalization?

Interviewee: Indeed, it has been 20 years since regional autonomy, we have tried to experiment with the bottom-up approach, collegial, cooperation, it's difficult, 20 years is enough for us to learn. Maybe there needs to be an approach, not purely top down, but a touch from the level above. So, if for example the initiation of the Institute is still Cooperation between regions, I am pessimistic, but for example there is a top-down element or presidential instruction, or it is clear that there is an incentive to build institutions at that level, it will be more sound, because previously it only relied on a voluntary basis. so sometimes it's just a formality, integration is just small projects. The real projects are only individual, so it's like lip service, like just cleaning. In fact, the big projects are not integrated, so it's just for branding. Even the people are sometimes outcasts who are there. If there's urgency from above, it's not just voluntary, it's a must try. Previously there were more extreme ideas, whether to start building a very radical one for the province, for the Minister, maybe it was too radical, but a top-down touch was necessary. So, the problem is really structural. So, the cross-regency/city issues, such as floods, watersheds, are not represented in the constitution so they are weak, down to sectors etc. Unlike the village, it is in the Constitution, strong, until the village gets how many billions. So the watershed level is not recognized in the constitution, or the one that is close to the watershed if in the context of Jakarta, for example, it is metropolitan, because if it is metropolitan, it can also have a river basin approach. It doesn't exist. It's different in the Philippines, that the agglomeration area is also an administrative entity and a political entity, in ours it doesn't exist, we only recognize in the law only the central, provincial, district/city, and village governments. No metropolitan, no watershed. So, it's troublesome when watching cross-cutting issues such as floods, transport. Because in the financial system there is no metropolitan financial system, a watershed financial system. So, in terms of budget, he attaches it to a ministry or local government, so it does not stand alone, nor does it have constituents. In the Netherlands, I didn't experience the mayoral election, but I did experience the waterboard election phase, so it's like the legislative in a watershed, so there's even a political institution, so there's a political level, there's a financial system. We don't exist, that's what hinders integration. Then we have a history of rivalry between sectors, since the New Order era. Competition between sectors or ministries has always been carried over until now. So which ministry belongs to which party. If the rivalry between regions since regional autonomy.

My thesis is that there is a spatial planning system about the planning culture, which supports or hinders integration and coordination in Indonesia. It's not explicitly related to water, but integration issues are not just about water resources.

Researcher: To what extent proactive participation of stakeholders applied in the river revitalization for flood resilience in Jakarta?

Interviewee: I do not follow that. You can go to the office or even an NGO. There is a "Rujak Center for urban studies".

Researcher: How to improve the collaborative process in flood resilience?

Interviewee: In my opinion, from related research, there are several approaches. First, the political approach, which combines the top-down and bottom-up approaches, may be a political

approach, meaning with political power. In this case, when talking about ciliwung, cross-province so there needs to be national power, a president or at least a minister. From there, they started to fix it, but it had to be cross-sectoral. So from above, that is from a political approach. It could also be from a cultural approach. But I haven't explored further, because Jakarta and its surroundings are too heterogeneous. It means to build a shared identity so that it can become not only a media, but also a vehicle for collaboration. What can be sought for a common shared objective or shared value that can be mutually agreed upon and that becomes an identity. If you don't talk about identity, people can commit, or there are shared values related to ciliwung what can be agreed upon by both upstream and downstream people. For example, related to settlements. In the past, and now, to some degree, they still think that Bogor is a satellite of Jakarta. That's not building a shared identity culture, but it's not attractive to Bogor people. That's the interest of Jakarta, seeing that Bogor is a satellite of Jakarta, so it's not a joint identity. Infrastructure in Yogyakarta waste management in 3 districts. That he can raise it as a joint area that must support each other, because there is a shared identity. Indeed, there is a cultural closeness factor. Is it difficult for us to build an identity in a very metropolis city? But if I look at references like in Europe, in Spain, regionalism also builds identity, maybe in England. These are global cities whose interests are even more heterogeneous. The third way is more rational, more to bargaining, cost benefits for cooperation. Actually, that's what I'm trying to practice even though it's not formal. Cooperation is mutually beneficial, because there's no rationality. For a liberal country with high rationality like America, perhaps cooperation based on rationality of interests can work because the local government is rational. It is rational in the sense that the interest is not in the short term. For example, talking upstream yes. If you look at it for 5 years, it's difficult, but also the objectives are broader. What is called a political leader there is an interest in how to increase investment, it is holistic. For us, the interest is how PAD is spread, now it's destructive, so it's not how to create jobs, investment or the economy. The focus is still on increasing PAD, if development sees PAD as serious. But if the interest is more rational, more holistic, it's not a matter of how much money, but whether it will prosper, improve the quality of life, in my opinion, it hasn't arrived yet. Indeed, the most urgent is the political approach, then the second layer is cultural.

Researcher: To what extent the flood institution enables information sharing and knowledge related to flood resilience?

Interviewee: My thought now is that it is inevitable that information, including for example government plans, is at a level where it actually wants to be published. In the past, it was hidden, because if there was a plan, people were worried that it would be used for speculation, or that it could be considered as value, so in the end it was corruption, so that in the end we can get it if we buy it. Information like that, like the direction of development or something. Currently the culture is more open, but not primitive openness like that, but more to the culture of sharing, in the sense that it is more at the root of the bureaucratic work system that does not yet consider the knowledge management information system as crucial for the bureaucracy. Unlike the company, publishing something has become a culture. This is more about bureaucracy, not engagement in sharing information. So, there is still not enough attention to this area. For example, building an information system, how people can see that planning has not become an important thing. The problem there is not wanting to share it, but indeed sharing the information culture is still weak. What is good is BPS, other institutions still have problems there.

Researcher: To what extent do staff in government have skills and knowledge about flood management?

Interviewee: Regarding the specifics of the apparatus I have no comment.

Researcher: Do you think the role and responsibilities between national, city, and municipalities levels on flood management in the revitalization program is clear enough

Interviewee: Looking at other infrastructure issues, overlaps and gaps are still happening, this is whose authority and no one wants to. I suspect there are still vacancies, there are areas where it is not clear who should be responsible. Because of the nuance, when it comes to flooding, the more upstream, the less visible the longterm, so it doesn't seem like it's a priority, so everyone leaves the business, it's different when it's a hotspot, it overlaps, everyone feels empowered. But if the area is a bit upstream, there is a hole there. In the sense that the lower-level government feels that it is incompetent, and the government above it considers it too distant and less significant. It's different in the city center. There may naturally be overlapping potentials related to irrigation, the environment, but further upstream, don't even move NGOs, the government doesn't exist. The nature is like that.

Researcher: To what extent the traditional paradigm or values still being maintained by your institution?

Interviewee: From my point of view the paradigm matters a lot. For example, if we consider the sungi tradition to be a dumping ground, it will become our policy and political mindset. For example, the direction of the facet of the building is behind the river, because it is a dumping ground, it will go to policy. But if people see that the river is an attraction or central to life, it is reversed, the river is clean. In our culture, Indonesia has high social closeness, maybe one of the highest, but on the other hand, maybe this is a paradox, yes, but social awareness is low, but based on my hypothesis or small research, we are pragmatic, instant, citizens. so what we are not directly affected is not aware. For example, taking out the trash. The roots are there. So it's contradictory, on the one hand, social closeness is high, but there is less concern that is more linguistic and less philosophical. We, Indonesia people, are known as "*makan tidak makan asal kumpul*" (togetherness), but actually it's not meeting to what certain objective.

Researcher: To what extent the impact of Ciliwung river revitalization?

Interviewee: Revitalization is always double swords, 2-edged. It may mean well, but it can be hijacked by capitalists. When the environment is good, it has social value which then becomes economic value, it can be hijacked, which in the end marginalizes the surrounding community. When it becomes attractive, then people who have capital, are willing to pay more. It means getting rid of the people there. There is caution if it has been revitalized. Maybe the original intention was to improve the environment, but it might later marginalize the poor. Here need to trade off. Because we need each other to build our environment and social, we need an economic injection. Maybe with a cross subsidies. Indeed, there are areas that build areas for economic value, but there are areas that we concentrate on, for example, to organize social values. For example, land consolidation for settlements, resettlement, which ones are arranged which have social rights, which ones are for economic generation, so that they support each other. So, if it is not well integrated, or there is no role of the public sector that has a public interest orientation, then yes, it can be like that. So, the role of the public sector needs to be here, so that it is not double-edged.

Code of interviewee: NG-2

Institution : Institut Teknologi Bandung (academician)

Function : Assistant Professor at Master of Urban and Regional Planning of Institut Teknologi Bandung (ITB) also senior research fellow in Resilience Development Initiative (resilience research center) and an adviser for Bandung Disaster Study Group

Relevance : Concern about disaster management in Indonesia and how to build resilience

Date of interview: May 18, 2021

Researcher: To what extent the policies relate to spatial planning and flood management well-aligned in flood institution?

Interviewee: It is necessary to check the documents as well, because this is talking about provinces and cross-provincial flooding, there are horizontal ones, namely West Java and Jakarta, for the river itself, BBWS KemenPUPR. Second, the terms normalization and naturalization, in my opinion, are not black or white, but just revitalization is not enough. In my opinion, if people are naturalized, it is a concept of nature-based solution, it is still needed, but Jakarta is not enough just with NBS because there is a flood of shipments, this cannot be included in Jakarta land, what can be included is flooding because rain. This flood of shipments needs a structural approach. Jakarta has 3 sources, postal flooding, flooding due to high rainfall, and flooding due to sea level rise and land subsidence. So, one approach is not enough, we need all of them, so for policy, we need solutions that are interrelated, because the source of the flood is not coming from one source, but from various events. Some of them are from rainfall, some are from shipments, it doesn't have to be the same way to deal with it, so various approaches must be taken. It can be made a matrix of flood sources associated with the required policies. So, it needs to be looked at thoroughly.

Government policies do not cover it all. Floods still occur because of our lack of intervention. See what the naturalization is like, whether for bio pores, or harvesting rainwater, or responsive wells, etc., it's still limited, I think it's still lacking. Normalization is also still limited, some of which are not connected from which socket, so they are not finished.

Researcher: To what extent the national, city, and municipalities collaborate in the flood management initiatives, especially river revitalization?

Interviewee: Collaboration related to flooding, of course, wants to finish the flood immediately, but when the flood is finished, it will be forgotten again. For example, the Kalimantan flood in January 2021. The flood crossed the peninsula and cities in South Kalimantan, we can ask the government what can be done so that flooding can be carried out? Not necessarily because managing rivers between districts and cities is not easy, costs a lot and requires coordination, many people don't like coordination. Also flash floods and floods in February 2021, it's true that there needs to be cooperation between regencies and cities, but that doesn't work. Because there are districts who think that they are not affected, so for example, if he cuts a forest, the flood is not on him, the flood is downstream. What is the incentive for him? They think about regional income. If they think about development, they will get the results. So then, they would not want to think about the flood.

Researcher: To what extent the impact of PMO Jabodetabek-Punjur for collaboration?

Interviewee: I don't know the details, because I didn't do any specific research on that, but I've participated in FGDs etc. In my opinion, it is a good framework for cooperation, but the framework will not work if there is no evaluation monitoring, there needs to be an evaluation monitoring indicator. For example, if it is made for the next 5 years or 10 years, there needs to be an indicator of achievement every year, otherwise the FGD will only become an MOU. If not, it will only be interesting in terms of how the concept is, but in terms of how it's being implemented it's another question. how the implementation needs to be checked with the annual indicators.

Researcher: To what extent proactive participation of stakeholders applied in the river revitalization for flood resilience in Jakarta?

Interviewee: Regarding this matter, it is necessary to discuss with NGOs, I am not directly available. Jakarta floods are not too big, but the economic value is great. If we talk about the loss of life, the earthquake is bigger, so we need a quick response. Jakarta is important because there are a lot of assets there, a lot of infrastructure, and a lot of people. But in terms of disaster management, we have limited money, so we have priorities, so for disaster people the focus is on disasters that have a direct impact on the community.

Researcher: To what extent the leadership of political interest or the policy actors applied in flood management?

Interviewee: Politics must have an effect. Sometimes good policies can also be discontinued, this is not just talking about one area, but talking broadly. Because talking about policies is about budgeting, of course sometimes changing leaders will change priorities, for example changing leaders to focus more on tourism, previous leaders focused more on the environment, what is good is how tourism is built without damaging the environment. For example, many hotels are built in catchment areas, such as in North Bandung, where a lot of land use changes occur. That's actually not spatial planning, but in fact it is allowed, later we will reap the water in the rainy season, meaning there will be extra water and flooding. The understanding of politics here is more to those who have power, of course, they will have decisions, so it's not the political party, but more who is making the decision. And it could be that he has different considerations, different interests compared to the previous one. Like the planner, for example, it is proposed that an area is not developed because it is prone to tsunamis, the decision is still political, meaning that the decision is not based on risk analysis, and it is not related to the former leader or when, at that time the consideration was related to the disaster risk analysis.

Researcher: How to improve the collaborative process in the flood resilience?

Interviewee: In the classic case between governments, it requires coordination, harmonizing ideas in plans and then following up, but in fact this is not the case. My office is what I have to do to produce a certain performance, and that's not necessarily coordination, so I'll just go my own way. Second, for the community, there is actually something wrong with the community. There is already a spatial plan, does the community really make an IMB and follow the spatial planning rules, not necessarily, our society is stubborn, it has been banned but still implemented. So, the community factor is also lacking. So, there is also a need for awareness in the community, there is no need for the government to come, that's why we need champions, namely people who become examples and NGOs, if the formal relationship between the government and the community does not work, then maybe there needs to be other actors in this case NGOs, starting from small things, for example managing waste, it is with NGOs. Floods are also related to garbage. Garbage by the community likes to be thrown into the river, and it starts with public awareness.

Researcher: Do you think the role and responsibilities between national, city, and municipalities levels on flood management in the revitalization program is clear enough

Interviewee: It's actually not clear. When it comes to flooding, the river has BBWS, that's good because it's a cross-border river, so there's a gap between provinces, cities and Kabupaten the way that role is done is good. But the problem is, if we talk about flood management, what is it? Does flood management widen the river? Yes, one of them, the other filter also manages the river. Who manages the waste? In the city, it's an office, so if the service and the community don't implement it, then there will be flooding, because it's impossible for BBWS to take care of everything, so if you ask whether the role is clear, yes, it's clear, but it doesn't work. I take an example from the IMB side, how is the runoff? If we pave our yard, the water will not enter the ground and will flow into ditches, ditches into small rivers, small rivers into large rivers, and floods. so the contribution from this house is also there. It doesn't work either. So, whether the role exists, exists but does not work.

Researcher: To what extent did public well informed about river revitalization programs for flood resilience?

Interviewee: Regarding this, it is necessary to check with the community, community representatives or NGOs

Researcher: How to improve the existing condition of the institution to increase flood resilience?

Interviewee: In my opinion, the condition of the institution is still lacking, because there are still floods. The drawback is more on the implementation. Floods occur because the capacity is not sufficient. So that means there are areas that must be allocated to accommodate water. But I also want to emphasize that flooding does not only come from managing water in the river, but even from its source, from the rain earlier, the rainwater does not absorb it, does such a management exist or not. It's not easy. So, if asked where the problem is, well it is in the mitigation.

Researcher: To what extent the traditional paradigm or values still being maintained by your institution?

Interviewee: Technical and non-technical measures in my opinion are still needed. Our approach is still classic actually. So, in our society, if there is a flood, it is the fault of the river or the channel. That's true, but not quite there. Flood management should also explain the source of the water. Like a traffic jam. Is the congestion due to the large number of vehicles and the lack of roads or is there another factor? In my opinion, there are other factors, because there is not enough public transport. So, if you want to add as many roads as possible, you can get stuck again, because people buy vehicles. This means that the problem of structural provision, in this case roads, including waterways, will not be sufficient, because people must build houses, and building houses will drain water because the land cover has changed from being absorbable to non-absorbable (built-up area). because they don't have water treatment. Back to the river, this is not about widening the river. This is important, but how about water management too. That is the nature-based solution approach, namely the approach for example water that can be absorbed from the river, more efficient water management, ecosystem improvement, it needs to be done. I don't think that's been done yet. So, we need integration from upstream to downstream.

Researcher: To what extent river revitalization impact the urban system?

Interviewee: The impact on the urban system actually exists. By paper must be consistent, because of course it is in the spatial planning. If I take Bandung as an example, are we serious

about river revitalization, I say no, because there are many houses on the banks of the river. According to the spatial plan, there should be a belt, where there is a riverbank area, but there is no riverbank anymore. So, if you ask about flooding, it's flooding, people put their houses on the banks of the river. As for Jakarta, in theory, this must be consistent, but if the implementation of the houses follows, I don't think so, but this can be found through the data.

Researcher: To what extent river revitalization impact the socio-cultural of community?

Interviewee: In my opinion, no one wants floods, wants him to support normalization or naturalization, surely no one wants floods. is this a public demand? Yes, definitely public demand. And for improvement, yes, there must be. The question is in the process of revitalizing the river to what extent it includes community considerations. For example, how far are they moving, then what is their economic potential, how far is it. I don't think this is easy, so maybe it hasn't been considered optimally.

Researcher: To what extent river revitalization improve local economy?

Interviewee: It depends, but yes, if there is no flood, so their working activity is not disturbed. Meanwhile, if there is flood, so they cannot work. River revitalization makes the area less vulnerable to flood, so community activities are not disturbed. But it is better if there is an assessment of economic impact before and after revitalization.

Code of interviewee: NG-3

Institution : United Nation Development Plan (NGO)

Function : Head of Exploration at UNDP Accelerator Labs Indonesia

Relevance : Involved in flood management practices in Jakarta

Date of interview: June 5, 2021

Researcher: Can you explain your institution role in the flood resilience?

Interviewee: UNDP has many units with different focuses, ranging from nature conservation to poverty reduction. This accelerator lab is different because of different units. This lab accelerator is different because it is not a unit but part of an international network of 91 labs in 115 countries. The accelerator lab works across UNDP units, so it doesn't focus on flooding, but through the exploration process mandated to us, namely urbanization, when exploring various processes, such as surveys, interviews with field experts, etc. environment, when further explored the environmental-based issues that are obvious and in the community are related to water and one of them is flooding. So, what is being done now is about flooding. This Accelerator Lab is a learning cycle, 100 days, the flood has been in two cycles.

Researcher: To what extent the policies relate to spatial planning and flood management well-aligned in flood institution?

Interviewee: Incidentally, our work is to support the irrigation and water division of Bappenas. One of the focuses is bridging between the policy-making process and the field. Reducing the proximity between the policy maker and people who are impacted or closes to the problem. So, we support Bappenas to produce more inclusive policies. Initially, we had not studied the water policy landscape in Indonesia. The Directorate of Irrigation of Bappenas (DP) is initiating the NUFRRP (National Urban Flood Resilience Program), DP's focus is to invite development partners such as the world bank, koica, and other partners. One of them focuses on infrastructure for flood prevention and management, focusing on flood management with natural infrastructure such as rivers, etc. So, the first is man-made infrastructure such as road construction, embankments, etc. If you look at other development partners, their presence as donors or providers of support for DP development priorities. The Accelerator Lab's position is not as a donor, but as a unit to accelerate learning in the development sector. The focus is always on learning. What works what doesn't. how do we disseminate the learning outcomes to the community or to development partners in order to create change in the field. So, instead of several years of donor programs with an allocation of a few dollars, now we are quick just for the learning process in the field. Although the Accelerator Lab does not provide support in the form of funding, it seems we can help with policy mapping, judging from the focus of 1,2,3,4 we can help to develop it further. And what we see is that it is quite fragmented, so for policy integration, we really need to take into consideration many things from the government's policies, in the form of quick fixes, so the main handling is, so our hypothesis is that our focus is on man-made infrastructure, such as repairing embankments. , build higher embankments, build culverts, etc. But what Accelerator Lab is trying to change the minder is system thinking and systemic change.

So, don't just look at the problem from one facet, namely from man-made infrastructure, but what is bigger, namely why natural infrastructure is put last, why not together. Then where is the human part, the inclusiveness part of the victims affected by the flood, how do we include

them in this consideration, has there ever been a study assessing the effectiveness of the man-made infrastructure that has been built. Because it is being built continuously but it is well maintained etc. So, we see that it is still fragmented in general, it turns out that after discussions with the Directorate of Irrigation, Bappenas, what we can offer is as a fairly agile and small unit and its position is strategic enough to be able to reach Bappenas to the community in the field to fellow civil society organizations and so on. So, we offer a short research process for 2-3 months, we try to get input from communities that are potentially affected by flooding and already affected by floods in several cities throughout Indonesia through several methods to complement their focus on physical infrastructure. For example, social infrastructure, in terms of whether there are mutual cooperation activities, maybe it can be directed to an early warning system about flooding, or maybe there is already a solution in the community for handling floods that have not been detected and can actually ease the construction of physical infrastructure. So, we tried to find other alternatives in the form of innovations that already exist in the field. The Directorate of Irrigation, Bappenas, agrees that there is indeed a lack of intersection with the human aspect in its policies. Only in 2020 yesterday, in the policy that peacock shared with us, there was an indicator of the success of making infrastructure, namely the number of victims of the flood disaster, but not yet on their income, etc. That's good, that's what we aim to develop further. So even though it is fragmented, we can see from the National Development Planning Agency that there are several movers who are aware of more inclusive needs, but maybe it's because many other projects have not been implemented by them, so we offer them to be happy and accept it gracefully.

Researcher: To what extent the national, city, and municipalities collaborate in the flood management initiatives, especially river revitalization?

Interviewee: We, the National Development Planning Agency, work closely with the PUPR Ministry. KemenPUPR is more focused on physical infrastructure, and Bappenas, which has an overall bigger design. Because Bappenas sees the need systemically. The output of our collaboration with them is the policy direction or policy brief to be implemented in 2022. For those who run it in the field, the intersection for flooding is with PU, if it seems that the community is still disconnected, there is no wedge, so the form is still top-down, not loop feedback. So, the presence of Accelerator Lab is to open 2 directions, not only top-down but bottom-up as well. The relationship between Bapenas and PU seems to have been well established. We hope that if next year the policy is more inclusive, it can change the workflow or flow focus of PU or maybe involve another government, depending on what the outcome will be. But they also work closely with local governments, so when we propose later, one of the tools we will develop is a solution mapping platform, in the form of a website, where we can upload solutions that are in the community focused on flooding. Bappenas considers this a good idea, we hope this can be disseminated to local governments. So far, we have approached 3 main actors, namely Bappenas, KemenPUPR, and local governments.

Researcher: To what extent proactive participation of stakeholders applied in the river revitalization for flood resilience in Jakarta?

Interviewee: There is no direct link to the government, but the community has actually worked closely with civil society organizations, such as Rujak, the center for urban studies, and other CSOs in several cities in Indonesia for community action plans. This CAP has actually become a forum for people's aspirations, this is the most differentiated form of what the community needs are, but there is a bottle neck in OPD2 (a unit smaller than PU), such as Ppurwacaraka, Wika, so the bottle neck is how smart civil society organizations are. advocating for CAP so that there will be changes in the small KemenPUPR units, that's what we feel is still a bottle neck and there is

no solution yet. That's why we want to bring together Accelerator Lab from the community so that they can present the results of this short research to Bappenas. In our opinion, this is something that is rarely done, it turns out that Bappenas also hopes to have direct two-way discussions with CSOs and the community, because it is a rare opportunity for discussion because it usually takes the form of a formal presentation. We hope this can be the first step to minimize the bottle neck.

Researcher: To what extent the flood institution enables information sharing and knowledge related to flood resilience?

Interviewee: Not all policies are shared by the National Development Planning Agency. Incidentally what was shared and we think it is sufficient to carry out the brief policy mapping for 2019-2020 which includes the natural infrastructure section, the focus is on normalizing rivers, lakes, and making natural embankments. But it was not explained more clearly, there is no indication of how many rivers, whether it involves the community, etc. So, the model is still top-down, but in our opinion, there are many initiatives from the community. We're just not sure if they meet with Bappenas or not.

Researcher: To what extent the leadership of political interest or the policy actors applied in flood management?

Interviewee: The short answer is yes. But we were lucky because we met the champion in the National Development Planning Agency who had the same vision of a more inclusive and less fragmented policy. It really makes the whole process easier and increases the morale of the Bappenas team to participate along the way. Although there are differences in terminology and understanding, they are all in. But if the head of the National Development Planning Agency changes, there is a possibility that the focus will change, so it could be that the next head of policy doesn't need to be inclusive and undo again. so very influential. But if we talk about the political will, from what we are currently working together, the question is if there is a next head whether he will continue or return to the way it was before.

Researcher: Do you think the role and responsibilities between national, city, and municipalities levels on flood management in the revitalization program is clear enough

Interviewee: I am not well informed about this to be able to comment.

Researcher: To what extent did public well informed about river revitalization programs for flood resilience?

Interviewee: One of the things we do is a public survey, in the form of asking questions about the public infrastructure that has been built. We don't ask if you are informed enough or not. But more about asking things like, is there any infrastructure for preventing and overcoming floods in your area? Is your area frequently flooded? What is the condition of the flood infrastructure quality? The assumption is that the community is quite aware of the existing infrastructure, although it is not yet optimal. Based on observations, the community already knows, but when asked what is needed for flood resilience efforts? It turns out that the majority prefers the need for physical infrastructure, so they feel that whatever is built they still need it, and the second is capacity building. So, there are indications that there is still a lack of socialization. So, they still need to be rebuilt, how to handle flooding, etc. The last one is EWS. It turns out that there are still many who need capacity building. Even though there is a lot of infrastructure, it turns out that they feel they are still lacking. For EWS, the community still doesn't feel the need and doesn't know, so it seems that the government has not been socialized. So people are still not aware, but it seems that the government is still using it a lot.

Researcher: To what extent the impact of Ciliwung river revitalization?

Interviewee: The focus in the Malay village area at that time was a lot of evictions to widen the river. But from there the most impact on the environment, namely their living quarters, that is, roughly robbed, they were forcibly evicted, moved to Rusunawa (apartemen). In the interviews that have been carried out, it has had a very socio-cultural impact, so there is resistance from the community about this government initiative, although logically the intention is good, so that people do not live in slum areas, so that they live in areas that are safer from flooding, because they are affected by floods every year and gets worse by floods every 5 years, but it turns out that there is a lot of resistance from the community, some really don't want to move, etc. So, for example they have a shop (warung), which is usually reached by their neighbours, they are worried if they move to a flat on a high floor how their livelihood will be. So at least there is a change in the pattern of people's income. Because of that many often escape the government's consideration when introducing an intervention. So further studies are needed to accommodate things like this. From the social pattern, it is from the relationship between neighbours, because the change from landed housing to vertical housing means that the feel and experience is definitely different. But to what extent still needs to be studied.

Code of interviewee: NG-4

Institution : Wahana Visi Indonesia/WVI (NGO)

Function : Former project officer of the WVI, an NGO funded by USAID which concern on flood disaster and resilience in Jakarta

Relevance : Involved in capacity building for community in flood management practices in Jakarta, especially in Kampung Melayu, Penjaringan, and Kamal Muara

Date of interview: May 30, 2021

Researcher: To what extent the policies relate to spatial planning and flood management well-aligned in flood institution?

Interviewee: I think it's integrated. Plus, in my opinion DKI Jakarta is quite good because it is supported by several infrastructures, one of which is a smart city, then the BPBD is also connected to the smart city and several applications that exist with the DI Jakarta Government. There are 2 components to river revitalization, one that is indeed held by DKI Jakarta, the other one which is held by the Ministry of Public Works and Public Housing because it is national because of its cross-provincial nature.

Researcher: To what extent the national, city, and municipalities collaborate in the flood management initiatives especially river revitalization?

Interviewee: There is good communication between governments, there is communication, although I am not much involved between authorities, but if you look at the news, there are some that are lacking or some that are good. However, when I work at an NGO, the data is quite good, it is automatic, for example information on floodgates in Bogor, or elsewhere, which is connected to Jakarta has been integrated with Jakarta itself, so in Jakarta if there is a flood of shipments, I know whether the information comes from floodgates, etc. If there is a river revitalization development, yes, because it is connected, I just don't know if there are specific programs.

With the province, namely its BPBD. If we are national NGOs, we also work together in the form of coordination. Incidentally, at that time, we conducted a training with a large enough saka for DKI and the trainers from BNPB (Central). Our activities are all grants from USAID

Researcher: To what extent are cities or municipalities open to community participation in Ciliwung river revitalization programs?

Interviewee: Between the DKI government and the community as far as I know, they are quite active and have quite a number of programs. For example, the standby village program, then the simulation programs, whether organized by NGOs, like what I was doing at that time, in collaboration with the DKI Jakarta provincial government, which were carried out at the Kelurahan level.

In Kampung Melayu, we have two jobs there, the first is a simulation, then a contingency plan at the Kelurahan level. Starting from making a plan, then up to making a simulation that we made 2 times. So, one level of coordination, for example at the kelurahan level, then coordination with anyone, for example with the orange troops, then also with health centers, etc. Then we also simulated several RTs that were affected by the flood and also simulated their schools, schools for disaster preparedness.

Researcher: Does the program is connected or an integral part of the river revitalization program?

Interviewee: The revitalization is more about the physical, but we are more focused on strengthening the capacity of the community and the government, so you can say it is a soft skill, so it doesn't touch the infrastructure. I don't know if DKI Jakarta is still one part or what, in my opinion it's still one unit with revitalization but we haven't touched on the revitalization part, so I don't know the revitalization part. So, because our focus is on capacity building, such as training, simulation, plan development, and system development. There is a system but it's more about collecting data in real time for floods, fires, it's by adding tools or applications on Android.

Researcher: How to improve the collaborative process between government and communities in the flood resilience?

Interviewee: If you look at the latest conditions, improving coordination still needs to be done. What I understand is that if there is a routine simulation it will be better, then if it is for updating data, for example a contingency plan is also good if it is carried out regularly. If I'm not mistaken, this has been facilitated in all urban villages in DKI, but I don't know if it's still ongoing or not, but especially for areas that are very vulnerable which are categorized as red, in my opinion, the coordination needs to be improved.

Researcher: To what extent the political interest or leadership of the policy actors applied in the flood management?

Interviewee: In my opinion, the focus of the leader is influential, for example, what is the tone from above? I don't mean to compare, but when our NGO used to carry out activities, flooding was quite a priority, be it at the provincial level or at the city level. So, at that time we coordinated with the city quite quickly, with the mayor, for example coordination with the service tribe was quite fast and smooth, and that helped us to conduct training, communicate and carry out activities with the community, because usually they already have connections with the community, so be quick if you want. holding activities, not long for administration, not long for scheduling, etc. Quite helped by the tone of the leader. So, if you say it's important and influential, I think it's quite important. For now, I cannot compare because I don't know the tone of it. But if it's a province, it can be seen from the news, only if it is actually in the field, I don't know. That was around 2015-2017, spanning those 2 years we were quite intense.

And for example, we coordinate with traffic that is quite far away, for example with smart cities, etc., it is quite fast. So, one of the keys to the smooth success of our activities at that time was coordination that was quite fast, so it was quite fast and helped everywhere. That's in terms of coordination. But from the political perspective, it can also be seen from the budget. I don't know much about budgeting because we don't help in budgeting. So, if you want to check the government's commitment, you can look at the coordination and budgeting whether they have prepared a specific budget there. In the past there were several program activities that the provincial government facilitated with funds, the funds were not directly given, but for example for this component from the provincial government, then which component from us. For example, for training, speakers from the provincial government are not paid or there are some activities that are funded by the provincial government.

Researcher: To what extent information about river revitalization programs for flood resistance open to public?

Interviewee: Quite open, I hope the current conditions are also the same. For example, in the Kelurahan there are RT RW, they are joined in a communication chain for flooding, so for EWS

there is a PKK head, there is a health center, there is a school principal who is in the flood location, that's what we simulated. So, using the network they already have, we simulate how quickly the information is conveyed to each group, then if there is an evacuation, how fast is the evacuation, and that is helped by information from BPBD.

Researcher: To what extent community well informed on the river revitalization programs?

Interviewee: For in the Malay village, when the activities that I did, the revitalization was just finished. From the results of chatting with them, they have been informed from the start, because the planning is quite long, right, because there is a compensation process, etc. Because that's indeed quite a lot of news, because there are also people who refuse, etc. So that's pretty much informed.

Researcher: Do you think the role and responsibilities between national, city, and municipalities levels on flood management in the revitalization program is clear enough?

Interviewee: For Jakarta, it is quite clear, because the capacity of BPBD is quite good. So, if there is a disaster, such as a flood that is not large enough, the Jakarta province is usually still able to handle it. But for other areas, sometimes there is overlap if the flood is big enough, not yet on a national scale, but national has entered there. For Jakarta the flood news is always big, so for disaster management there is not much national involvement, but the news is national because Jakarta is the capital city, especially if the flood is near the state palace. For revitalization, there must be a distribution of funding between DKI Jakarta and KemenPUPR (central government).

Researcher: To what extent the traditional paradigm or values still being maintained by the community on tackling the flood issue?

Interviewee: If in Jakarta it is quite balanced, so the traditional paradigm will not be an obstacle to increasing flood resilience. So, it is quite balanced with non-structural measures. Especially DKI Jakarta, because it has been exposed to a lot of NGOs, so it is quite balanced.

Researcher: How is the revitalization in your opinion?

Interviewee: In my opinion, the community views that the revitalization project will help them to be flood resistant. So, the community response is still positive for this project.

Researcher: Are there any improvement in service and welfare due to river revitalization program?

Interviewee: Enough to have an impact, so be more aware. If it has a negative impact, it won't, but they will become more aware. After the government activities carried out they are more responsive to what is being done to increase flood resilience.

Researcher: To what extent river revitalization improve local economy?

Interviewee: Economically, in terms of resilience, they are more undisturbed, because their economic activities are not too disturbed. For example, in terms of time, for example in Kampung Melayu, the less flooded they are, the smoother their business activities will be.

Researcher: How do you think to improve the current institutional situation in flood management?

Interviewee: Maybe revitalization is one of them, because it is quite influential. Because community resilience complements each other physically. So, if revitalization still needs to be done, then do it. also increasing public awareness, for example about land use, etc. Collaboration, of course, still needs to be improved. If the center and the provincial government are quite safe, the focus is between cities and districts, for example with Bogor and Depok. Moreover, floods in Jakarta are generally sent from Bogor, so inevitably they are interrelated,

because the topography is interrelated, especially for the Ciliwung river which passes between provinces and several district cities.

Code of interviewee: NG-5

Institution : Ciliwung Institute (Community)

Function : Head of Ciliwung community

Relevance : Receive impact by the Ciliwung river revitalization program and concern on Ciliwung River and flood resilience

Date of interview: May 26, 2021

Researcher: To what extent the policies relate to spatial planning and flood management well-aligned in flood institution?

Interviewee: According to what happened in the field, because we are a Ciliwung community, the issue is to return this river as a water source, and become an integrated part of the village, and we carry out conservation of river restoration. This is actually contrary to government policy. So for us, the Indonesian government has not upgraded the impact of river management technologically and so on, regarding how the development of eco-hydraulics is, how to challenge climate change, etc., so the mindset is still irrigation. So, the river is only considered drainage, so how can the water as quickly as possible with the maximum discharge flow into the sea. This is the old paradigm. When the legacy of the Dutch era for Public Works was irrigation, how to flow water smoothly with infrastructure. This becomes a dilemma with the challenges of climate change. How water becomes a very important resource, so there should be a management of the water being saved. Disproportionately When we do a lot of denial, it means that floods cannot be separated from drought because they are twin brothers. He will come at the same time, because it concerns spatial planning, how the mandated regulation states that 30% of spatial planning is green open space whose function is to store water, only the rest of the runoff coefficient is just going to the river. It's a natural law and it's also protected, mandated in the regulations. We don't want to proportionately look at the root of this flood problem. This means that so far this policy-making is indeed civil engineering people who know about concrete, how to make buildings that are strong for 100 years they are indeed great, but this river is an ecosystem. Where there is a water absorption function, there is an ecosystem with many habitats, both humans are part of it, then there is a riparian ecosystem, a tidal ecosystem, then there are river functions as a water source, infiltration, etc., this is something policy makers do not see, I see this is not balanced, that a large budget is taken by the Ministry of Public Works in this case BBWS. So, my campaign is now disbanding the Ciliwung-Cisidane BBWS, because they don't understand the river, their concept is that the river is just a drainage. So, we propose a ministry of water resources, because water is the most important element, and how our founding fathers said that Indonesia is the homeland. Soil is very important and water is very important.

This means that water is the second element for life besides air. Once the importance of policy making is still old-fashioned, not upgrading. Such an important source of water is wasted into the sea, nothing is stored at all. This will make Jakarta vulnerable. Jakarta is included in the top 10 cities in the world that are swamped with climate change. One of them is about water security and sea level rise, longer droughts, fires, air pollution, etc. Jakarta must answer that

challenge, the central government is planning to move the capital to Kalimantan. However, we local people still ask that this problem must be faced. Don't run away from problems. This means that Jokowi's promise as head of state, he has served as governor of DKI Jakarta and is currently president, that solving the Jakarta flood is easier when he becomes president, and that makes a lot of sense, because there are many stakeholders, agencies, ministries that deal with water and that can be synergized. When he is head of state/president, he can coordinate between ministries, for example the ministry of ATR, then KLH there is BaPepdas. Actually, for the correct division of the region, the version of the KLHK is that it is regulated by region which is the area of the watershed area, Bappeda was made, where the management is arranged based on the watershed area. And this is different where PU divides it based on the project area. Like BBWS Ciliwung-Cisadane, where Ciliwung is combined with cisadane, so also in Banten there is Balai Besar C3, 3 rivers are combined, Cciujung, Cidurian, and Cidanau. In fact, the causal relationship between upstream and downstream is based on watershed management, watershed management, not the project area. This means that this has nothing to do with it, that's why we asked the BBWS to be disbanded because they are project oriented. The infrastructure that there is a "*bancakan*" (profit sharing, red) of these projects by political parties, etc., means that every disaster gives birth to a project, so every disaster becomes an ATM that becomes income for many people who benefit. That's why the disaster of water management that became a flood will be allowed to continue, because every disaster the Ministry of Public Works gets many development projects, starting with dams, dams, river embankments, then up to the eviction of villages downstream in Jakarta, the cause of the flood to me is slander, they are evicted. And they still get projects to build flats. Their river culture was then forced into a concrete culture.

This cannot be ignored, that topographically, Jakarta is an alluvial land, meaning that Jakarta was born from flooding. The mainland of Jakarta was formed from sediments that were changed by rivers. The culture is river people, the culture of the villages is very closely related to the river. And now we deny that, that Jakarta must be flood-free, eventually giving birth to many policies that are wrong and make the situation worse. Not to mention that sociologists, etc., can check that the villages beside the river have been evicted, even though they are not the cause of the flood, they are also flood victims. This means that we must be fair that when Katulampa was on standby 3 Jakarta was already flooded, meaning that there was a problem with spatial planning upstream, inconsistency. But there is disinformation, that they are stigmatized that the villages on the riverbank downstream are the cause of the flooding, that's not fair. This means that if you really want to organize the dialogue space, it can be very open, they can be involved in village planning, they don't have to be removed. There is disinformation in the normalization of the Ciliwung river to the public.

Researcher: To what extent are cities or municipalities open to community participation in Ciliwung river revitalization programs?

Interviewee: The first thing we despise is the stigma, or slander that they are called the cause of the flood. Indeed, there are several places where the community builds or performs maintenance so that there is a bottle neck. But that's not the main variable that causes flooding. The main variable is due to the excessive run off coefficient from the upstream area. The indicator is very simple, that the parameters in the Katulampa weir are only the burden of segment 1, Bogor district, only the burden of the central region. Well, under Katulampa there is still the Bogor City Government, if there is the Bojong Gede, Cibinong Regency Government, then there is the Depok City Government again. That's still a lot of run-off, water runoff that Jakarta still has to bear. We don't want to see a problem in its entirety. The academics must conduct a study, that concretization is not a solution to flooding, it only removes floods. Concreteization in

fish is the same as the habit of throwing garbage. NIMBY. The important thing is that this is not in my yard, the important thing is that this garbage is thrown into the bantar gebang or into the banten, that this will be a problem elsewhere. The same goes for concrete. That the places where the concrete is only temporary do not receive water runoff from the river, but the runoff will be borne in the downstream area.

Normalization is number 1 from TB Simatupang south of Jakarta to the Manggarai sluice gate, the length of the project is 19 km, left and right about 30 m. why do we reject normalization, don't we reject it, we agree with normalization, meaning that it returns the function of the river to its natural, normal function. In practice it deviated. In practice, the BBWS Ministry of Public Works has even built a high wall along the riverbank, along the river. This is contradictory. Whereas the residents' buildings on the banks of the river are accused of being the cause of flooding because they narrow the river's space, but on the other hand the government has built more massive buildings, large walls on the banks of the river that take upriver space. The function of the river border is the river space where the rain and the river overflow the water to fill the border. However, the government has instead built a new building on the side of the river, this is contrary to the normalization claim that the river will be widened and deepened so that it has the ability to flow water up to 500 m³/second. In fact, taking upriver space makes the river narrow. This is related to the river's tamping ability; its dimension space is decreasing. The topography in Jakarta is from south to north the topography is decreasing, so if the government builds concrete first to take upriver space, then the water speed will be accelerated even though it should have been suppressed first through the natural function of river borders, this function will be lost. What is unfair is that we ignore sea level rise. It was never raised that Jakarta had other problems on our coastline. When the tide is high, the river water is certainly blocked. Then the full moon cycle of the high tide coastline will be maximum, so when it rains upstream then high tide sea water, plus local rain, it is called 5 years, the 3 variables meet.

The big problem in Jakarta is the water crisis. Clean water piping can only reach 40% of Jakarta residents, far from Surabaya, which can reach 80% for clean water. The rest is ground water. Until the ground fell. So, the problem is complex, but if we want to simplify it we have to sort out the root of the problem. If you want to solve the Jakarta flood, the most urgent step is to meet the residents' water needs first, so that soil extraction can be stopped. Since sea level rise due to climate change in Jakarta is not significant, what is significant is land subsidence due to extraction. Water is so important, but we consider water as a resource. We have a lot of water, but we have a water crisis.

Researcher: How come networks between government, private, and public applied in the flood management?

Interviewee: If it is seen that centralized governance is still dominant, it is concentrated in the Ministry of Public Works, the engineering people. There is no involvement, even though the Ciliwung River is one of the rivers that during the last 10 years the public awareness has been extraordinary, there are many communities. But they were given space for a ceremony only. For example, when it is water day, earth day. The forum is actually PPKSDA, under BBWS, its function is as a stakeholder forum to receive community input, but it is only a formality and legitimacy. Big countries have seen that our biggest threat is water resources, and it can all be modeled in the lab. Concrete is not the solution. Then friends from the community at the forum gave input that there were many bioengineering technologies that could be done, but they were never considered. then in KLHK there is also the same forum, namely the DAS forum.

For community revitalization, the motivation is limited to land acquisition and compensation, but there are also many land mafias, so the price of land is not in accordance with what is

received by residents, it can only be one third. This is a problem too. In my opinion, the residents on the banks of the river should be freed and their function is for the ecosystem. For us, if they are still owned by the residents, it is very difficult to regulate that they are not allowed to build buildings there. The socialization of revitalization is only limited to land acquisition. And we see that this concretization will continue.

It also has a lot of politics, as this issue once arose during the presidential election campaign, so we cannot deny that there are political issues there. Because of that, there are 2 politically rival camps there. That's a political mockery, they don't understand that rainwater should soak into the ground, because of fanaticism. So, actually there are 2 camps, the central government and the local government. Not to mention that in 2024 there will be a presidential election, between the regional government and the center there will be rivals. In policy, the central government has the greatest authority, because the Ciliwung River geographically crosses 2 provinces.

Actually, there are 2 different discourses, Pak Anis accepted our proposal on how to restore the function of the river, that's why he talked about river naturalization, and what Pak Anis presented was clear, for example the examples that have been done in Singapore, in Malaysia, but because of political hatred that is so high it becomes a barrier and cannot be understood.

Researcher: In the process of river revitalization, which stage or activity includes consideration for the community, for example, how far to move, what is the economic potential.

Interviewee: What happened to them was stigmatized as the cause of the flood, and that was not entirely true. The main variable is the runoff coefficient from upstream is too large and they are also victims of flooding. The two spaces for dialogue never occur. When Jokowi and Ahok were campaigning to become governor, they said that the proposal from the community regarding the flat model with the stage model was accepted during the campaign. They even said that the chicken drum, or tree would be taken into account in the compensation. But that didn't happen, they were instead stigmatized as being criminalized because they were a den of drugs, high crime rates, the cause of flooding, and accused of incest because they lived in a narrow place. And the forced evictions where the government deployed the TNI and Polri, then riots ensued. In my opinion, if we open a dialogue room, it can still be done, the public cannot possibly fight the TNI's shoes. If the dialogue space is provided, it will be very possible to organize the village in a participatory manner, and this has been proven in Tongkol Village.

Researcher: How to improve the collaborative process between government and communities in the flood resilience?

Interviewee: It's easy, that is, people are invited to dialogue. In the past, Jokowi was brought from Solo to Jakarta because in Solo, Jokowi was successful with dining table politics with solo citizens, why wasn't that done when he became president?

Researcher: Do you think the role and responsibilities between national, city, and municipalities levels on flood management in the revitalization program is clear enough?

Interviewee: It is no longer clear, from the perspective of a flood-free Jakarta, it's wrong, it's denial. What must be done is that Jakarta lives with floods, more to the adaptation model, and the adaptation should be villages on the banks of the river, including early warning and so on. Jakarta as a city downstream, we cannot control how much water falls, what Jakarta can do is provide space. When the excess water becomes a place of water retention, for example, river borders or parks where contour or geographically it is a place for water to stop for a while. It must be made an adaptation model, and that's nothing new. Like the Betawi people with their houses on stilts, then they are brothers with water. This has been done abroad regarding the

concept of sharing space. For DKI, Pak Anis has started to provide gardens whose functions are for water retention, tides, that when there is excess water it becomes stagnant, but when dry it becomes a social space, becomes a garden, etc. And it must have started the survey, as recently as the Kendal River Park, Gintung Park.

Researcher: To what extent river revitalization improve local economy?

Interviewee: In the long term, it will worsen because of how close knowledge about human relations with rivers is in Jakarta, in fact, cultures are from when people relate to rivers. The current wrong perspective is that the paradigm is hostile to water, the waterproof paradigm, that water must be thrown into the sea, that it is available that when the tide is high, river water cannot enter the sea.

In the village of Pulo Bukit, there is a new problem, now the local rain can't go to the river because of the high concrete wall. They only think how when it rains the river water doesn't go to the road, but they don't think that it will automatically block local rainwater into the river. We become more and more dependent on the pump. When the January 2020 flood, the pump was damaged because it was submerged, and maintenance was up to 70 million. So, when the pump is off the water cannot go to the river. In the past, when the village was flooded, when the river receded, the flood in the village also receded automatically. But now what has happened is that the river has receded, the village is still inundated because the water cannot enter the river, because the concrete is as high as the walls of the residents' houses. Now again, we are surveying the places that have been concreted, the water level has dropped. If the river goes down the ground water goes down, if the groundwater goes up the groundwater goes up, now that function is lost. When the surface has been concreted, they take groundwater deeper, when it is dry the water becomes very dry. In the past when it flooded. The mud just needs to be sprayed by the mud people. Back to the river, at this time the mud must be lifted through a high wall. The next threat that becomes a ticking time bomb is that the concrete structure is not very strong for a very long time. So, when at a certain height the power limit will be broken, and it will kill a lot of people because it is a densely populated residential area. Like in 2013 the embankment in Latuharhari broke. The west canal flood flooded the HI roundabout and the palace, and there were casualties in the basement. Office areas that are not densely populated have fatalities, what if in a densely populated area, if the embankment breaks, it will become a small tsunami. So, the waterproof concept, we see the river as an enemy that must be isolated, and the riverside civilization is about to be turned into a Concrete civilization. There needs to be more research that they do not adapt well. When they are not prepared for the adaptation changes, from those of houses with quite thick social space and then being placed in multi-storey buildings, many people are stressed to the point of committing suicide there because they cannot adapt. So, it not only fosters human beings, but also fosters their social economy. There must be intense assistance in the adaptation process of 2 different cultures from which previously were so close to neighbours that they were suddenly placed in high-rise buildings and then far from the economic room, etc.

So, it should be connected with the cultural, social, economic model. Over time, when the river is isolated, knowledge about the river will be lost. What's worse is that they were given a false solution that they were protected by the wall, so their alarms were turned off. Folklore or people's myths about the appearance of white crocodiles but for me it's part of their alarm to stay alert and part of their disaster preparedness.

In discourse, the better the Provincial Government of DKI Jakarta, such as how to make vertical drainage, water catchment wells, it automatically reduces the burden of the river, then fills the ground water, Jakarta sinking is because of the water crisis, we extract excessive soil, because

naturally alluvial soils experience compaction. because it is formed from river mud, but there is an uncontrolled spatial layout, then developments that do not meet environmental studies, the heavy load of buildings that are so large, building infrastructure such as toll roads that are so massive that more and more concrete sinks. The solution to the flood is to plant trees instead of adding concrete.

The perspective is still irrigation, the river is just a drainage. The river is a source of fresh water, but all the dirty water is dumped into the river. Should make wastewater treatment facilities in those villages. We see that there is no political will. So, the leader is important for the arrangement. We from the community can slowly educate residents, such as managing waste, planting trees, but that's a small-scale horizontal. For vertically it should be from the government for solutions from the river. Inconsistent spatial planning is also one of the causes. The change in spatial planning is actually a justification for the violation. What should be taken action is actually part of the legitimacy of the violation, then destroys the river by building the river as a drainage so that it displaces the habitat of human and natural ecosystems. What is important is order or regulation, the community wants to be regulated, only law enforcement from the government is lacking. The solution for the Jakarta flood is law enforcement.