BOTTOM-UP FLOOD MANAGEMENT AND ITS IMPACT ON LIVELIHOOD IN JAKARTA

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Abstract

The past research illustrates top-down flood management in Jakarta since the colonial era 400 years ago. One of the common flood managements offered by Jakarta's local government is through a river rehabilitation project, evicting riverbank settlements. By taking a bottom-up approach, this qualitative research aims to reveal the bottom-up flood management practices conducted by three *kampungs* in north Jakarta: Kampung Tongkol, Kampung Lodan, and Kampung Krapu, organized by KAKC (*Komunitas Anak Kali Ciliwung*/Ciliwung Sub-River Community). In response to the eviction threat, KAKC proposed a "Penataan Kampung (Kampung Maintenance)" concept instead of eviction. This effort is not only to protect them from eviction but also to be part of the city's flood management as a whole. This paper presents the existing flood management conducted and the upcoming practices designed by KAKC.

Recently, numerous development programs, including flood management, often transformed the source of livelihoods, and that transformation significantly impacted the livelihood security of vulnerable groups. Therefore, KAKC and its community feared not only losing their house but also their workplace as their source of living. Losing both house and a source of living would significantly worsen the financial situation and well-being of the already poor households.

The research's findings were drawn from field visits with ethnography methods, photo elicitation, in-depth interviews, and random small discussion sessions with KAKC members and the inhabitants of three *kampungs*. This research found that flood management practices by KAKC illustrate an unconventional approach as an alternative to common flood management derived from hydrologists' ideas, which is dominant with big infrastructures such as canal systems, dredging, clearing, and normalization of river projects. It proves that KAKC, as a local community, have their own approach and depicts its crucial role in the development process. KAKC practices in flood management illustrate more active and quasi-participation instead of passive. Lastly, flood management and livelihoods are mutually interconnected and impact each other.

Keywords: flood management, bottom-up, community, participation, livelihoods

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List of Abbreviations

APBD: Anggaran Pendapatan dan Belanja Daerah (Regional revenue and expenditure budget)

ASF-ID: Architecture Sans Frontières Indonesia

BMKG: Badan Meteorologi, Klimatologi, dan Geofisika (Meteorology climatology and geophysics council of Indonesia)

BPN: Badan Pertanahan Nasional (Local land office)

BPS: Badan Pusat Statistik (Central bureau of statistics)

CAP: Community Action Plan

CIP: Community Implementation Program

GTRA: Gugus Tugas Reforma Agraria (Agrarian reform task force)

IMB: Izin Mendirikan Bangunan (The building permits)

JEDI: The Jakarta Urgent Flood Mitigation Project or Jakarta Emergency Dredging Initiative

JRMK: Jaringan Rakyat Miskin Kota (Urban poor network)

KACK: Komunitas Anak Kali Ciliwung (Ciliwung sub-river community)

KEPGUB: Keputusan Gubernur (Governor's decree)

Kopro Banjir: Komando Proyek Penanggulangan Banjir Jakarta (Command of the flood mitigation project)

PEI: Photo-Elicitation Interview

PERDA: Peraturan Daerah (Local regulation)

PERGUB: Peraturan Gubernur (Governor's regulation)

RW: Rukun Warga (Citizens association)

SK: Surat Kerja (Work letter)

UMR: Upah Minimum Regional (Regional minimum wage)

UPC: Urban Poor Consortium

VOC: Vereenigde Oostindische Compagnie (Dutch east india company)

1 Introduction

Floods, admittedly, have become one of the significant and prolonged issues in Jakarta, Indonesia's capital city. It has been recorded that floods in Jakarta have existed since Dutch colonialism. The first considerable case happened in 1621 (Octavianti & Charles, 2019), while the recent devastating floods in February 2007 resulted in approximately 58 deaths and impacted economic losses of US$ 453 million. This tragedy, accordingly, had listed as the worst flood in the history of Jakarta (Ward et al., 2013).

Among several types of floods, at least three exist in Jakarta. The first one is river flooding because of the overcapacity of water in the river due to the flow of water from the hinterland to the sea, resulting in inundating the riverbank. The second type is coastal flood due to the rising sea level and land subsidence. And the last one is caused by the poor-quality of existing drainage canals and rivers in containing the local rainwater (*hujan lokal*) (Batubara, 2022).

There are some fundamental key causes of the flood problem in Jakarta. First, Jakarta is determined as a flood-prone city because it is located in the lowlands and coast in the northern part of Java Island, and when the high tides in the coastal area occur, it will result in either big or small floods. Second, Jakarta has 13 densely-positioned rivers, where nine of which have been recorded as the major rivers contributing to floods (Marfai et al., 2015). Third, Jakarta has a high rate of rainfall. For instance, in October 2022, the rate is 140 – 180 millimetres per day, which causes floods. According to the Meteorology Climatology and Geophysics Council of Indonesia (Badan Meteorologi, Klimatologi, dan Geofisika/BMKG), rainfall level above 150 millimetres is categorised as extreme rainfall (Nilman, 2022; BMKG, 2022). Fourth, rapid land subsidence also intensifies the flood situation in Jakarta (Ward et al., 2013). The land subsidence rate, in some places in Jakarta, is around 20-28 cm/year; meanwhile, the sea level rise is 0.5 cm/year (Batubara, 2022). North Jakarta is the region with high flood cases among other parts of Jakarta, where the land subsides approximately 15 cm/year, making it the fastest-sinking city in the world (Octavianti & Charles, 2019). And finally, massive urbanisation and the shift in land use have worsened the flood situation (Ward et al., 2013).

Urbanisation became an essential part of flood in Jakarta because the process was identical with an increase of population density and the movement from rural to urban. The explosion of population increased the water needs. Groundwater extraction is one of the main water sources in Jakarta. For instance, 32% of citizens of DKI Jakarta's water needs are obtained by means of groundwater extraction (Kompas dashboard, 2023). Groundwater extraction, in turn, causes the city to become more vulnerable to floods because it is one of the causes of land subsidence which increases the flood risks. Moreover, the growth of the built environment reduces the water retention and absorption capacity of the entire city (Batubara, 2022). These interlink backgrounds undoubtedly posit Jakarta becoming more vulnerable and trapped in a lengthy flood problem.

One of the efforts from the Jakarta Provincial Government to overcome the endless flood issue is to create more green spaces (JakGo dashboard, 2021). This initiative has aligned with one of the objectives of Indonesian Law No. 26 in 2007 about spatial planning, in which every city is obligated to have at least 30 percent green spaces in the city area. Most of the green spaces, however, are currently occupied not only by slum areas but also by commercial areas such as hospitals, schools, malls, and apartments (Batubara et al., 2018).

In addition, one of the latest project collaborations between Jakarta's government and the World Bank is JEDI (The Jakarta Emergency Dredging Initiative or Jakarta Urgent Flood Mitigation Project). The approach of the JEDI project is through dredging so that river and water reservoirs are more expansive (World Bank dashboard, 2012). Specifically, the project will dredge approximately 67.5 km of 11 waterways to increase their flowing capacity and 65 hectares of four retention basins to restore their absorbing capacities. But the project, which worth a loan of USD 139.64 million, required eviction of some riverbank areas (World Bank dashboard, 2012).

In collaborating with JEDI, the DKI Jakarta government designed policies through *Peraturan Daerah* (Local regulation/PERDA) No. 8/2007 and PERDA No. 1/2014, the purpose of which was to rehabilitate the riverbanks. These two policies focus on both public order and spatial planning, respectively. Article 13 of PERDA No. 8/2007 states that building dwellings or business places in riverbanks and channels are prohibited. At the same time, point 103 of PERDA No. 1/2014 emphasized that the blue zone is a water zone in the form of rivers, canals, lakes, and reservoirs; their primary function is to drain or store the water, and this function strictly cannot be changed. Thus, because many blue zones are already occupied, in the name of increasing the flow capacity of the rivers and the retention capacity of water reservoirs, eviction of the community located at the top or close to them has become one of the common practices to tackle floods in Jakarta.

The rural-to-urban migrants often occupy the riverbank as their residence. Among several backgrounds, the main reason for rural-to-urban migration is simply to improve the good-quality of life. The notion that the variety of job opportunities in urban areas also triggered the rural people to migrate. Moreover, a handful of them experienced past unevenness through land dispossession, which drove them to move to the capital city (Azuma, 2000). However, these local migrants, often called low-income groups, frequently inhabit the riverbanks since they do not have sufficient resources and affordability to purchase a decent place to live beyond the hydrologically sensitive non-flood-prone areas (Marfai et al., 2015).

The riverbank area is generally associated with a slum area and is seen as having typical characteristics: 1) located on the edge of the river with dirty and slovenly terrain, 2) the population is widely-recognized as low-income and unemployment is quite common, 3) the majority of inhabitants are rural-to-urban migrants, 4) inadequate and inferior quality of public services such as water supply, sewerage, and waste disposal, 5) the common form of building are huts and semi-permanent, 6) high rate of criminal cases, and 7) inhabitants

are prone to disease both mentally and physically (Supriyatno, 2014; Indonesian Law no. 1, 2011). Often, officials blame these settlements because of narrowing the waterways, reducing water retention and drainage capacity (Batubara et al., 2022).

Most of the time, community participation, especially those who live in slum areas, is frequently absent in the development process due to a lack of resources, power, and any other political agenda (Zoomers et al., 2021). In this context, community perception and information of flood risk are often overlooked when designing flood management planning (Bradford, et al., 2012). According to Octavianti & Charles (2016), the government has controlled flood management in Jakarta over the past 400 years until recent days without local group participation. This is also emphasized by van Voorst (2016) that the local community in Jakarta is not empowered, making flood management even worse for them. Therefore, this research not only aims to fill the gap in flood management in Jakarta but also to visualise the role of urban poor communities in a bottom-up approach of flood management.

Figure 1: Location of Kampung Tongkol, Kampung Lodan, and Kampung Krapu in North Jakarta (redpoint) (source: maps Jakarta dashboard, n.d.)

To shrinking this gap, this research will observe the communities' practices in flood management by taking a case study in Kampung Tongkol, Kampung Lodan, and Kampung Krapu who gathered under Komunitas Anak Kali Ciliwung (Ciliwung Sub-River Community/KAKC), located in the north of Jakarta (see: Figure 1). Under the JEDI project, the Ciliwung river and its sub-river are listed as the targeted rivers that will be rehabilitated (World Bank dashboard, 2014). In doing so, then, this research deals with the global flows of capital and ideas. Regarding the global flow of capital, the World Bank loan invested in flood management

in Jakarta under the JEDI project aimed to clear up the riverbanks. In fact, this initiative has triggered the emergence of bottom-up participation by KAKC. Entangled with the global flow of capital is the flow of ideas. First, the idea of JEDI flowed from the world bank desk and the DKI Jakarta water agencies office into the Ciliwung riverbank. Reversely, second, the bottom-up practices done by KAKC potentially inspire the flow of ideas for other urban poor communities locally, and perhaps globally.

Due to a response to the eviction threat, KAKC residents collectively initiate movements to improve their surroundings by planting more greens, encouraging people on waste management, and many more. Among other community efforts, KAKC gambled their sources and savings to cut back their home by five meters before the government's approval was obtained. The initial plan by the government was to clear up a space of 15 meters from the river to create a space, to make clear access along the riverbank. Additionally, the community encourages people's behaviour and awareness of an environment-friendly lifestyle, such as waste management and planting more greens, in which these could become distinctive approaches to mitigate floods in Jakarta (GTRA, 2020 & Husna, 2017). Moreover, the objective of the practices by the communities is not only to protect their habitat and increase the quality of the environment and their life but also to provide the facts on what can be done by Jakarta's urban poor communities. Therefore, they should be allowed to remain at their home instead of being forced out (Munk, 2016).

Recently, numerous development programs, including flood management, often transformed the source of livelihoods, and the consequences of this transformation significantly impacted the livelihood security of vulnerable groups. Usually, the development process comes along with forced eviction and resettlement of vulnerable groups who do not receive sufficient and fair compensation (Zoomers & Otsuki, 2017). Therefore, KAKC and its community feared losing their house and workplace as their source of living. The majority of inhabitants who live in these three *kampungs*, in terms of sources of living, are located in their homes. For example, they cook the dishes or produce some local bracelets in their house, in which these commodities will be sold in the market. These livelihood strategies are ubiquitous in several *kampungs* in Jakarta (van Voorst, 2016). Having been lost both a house and a source of living, this would heavily worsen the financial situation and well-being of the already poor households. It is, therefore, logical for this thesis to investigate the relationship between Jakarta's flood management and the urban poor livelihoods.

As mentioned above, the general objective of this research is to observe: 1. Existing and upcoming flood management practices by KAKC, 2. The implication of flood management practices on livelihoods, and 3. The impact of livelihoods to flood management practices.

This research's overall structure comprises nine chapters, starting with Chapter 1, which introduces the research topic and objectives. Chapter 2 explains the theories and conceptual frameworks to explain flood management in Jakarta, the bottom-up approach, and livelihoods. Chapter 3 illustrates the regional thematic framework, describing Jakarta as the centre of business in Indonesia and introducing KAKC; Kampung Tongkol; Kampung Lodan; and Kampung Krapu as the case study of this research. Followed by Chapter 4,

which mentions the research questions along with the research methods. The research results will be described in chapters 5 to 7. The result will elaborate on the flood management practice by KAKC and the impact on the decrease of flood cases and the livelihoods of the inhabitants. Chapter 5 will describe the flood management practice, while Chapter 6 discusses the flood case reduction after the practices were executed. Chapter 7 will focus on the impact of flood management practices on livelihoods and *vice versa.* While Chapter 8 will provide the discussion. The last part, Chapter 9, concludes the findings of the research.

2 Theoretical and conceptual framework

This chapter explains the theoretical analysis related to the topic. It emphasises flood management and the bottom-up approach as the theoretical framework, whereas bottom-up and livelihoods will be the concepts of this research.

2.1 Flood management in Jakarta

Jakarta is commonly believed to be trapped in flood problems as the cases have continuously occurred since Dutch colonialism. Thus, flood management and policies have been formed for the past 400 years, and the government has kept improving these interventions until now. However, no substantial effort seemingly gives a profound result in tackling floods in Jakarta. The lack of significant steps is indeed reflected, for example, in Batubara's (2022) illustration of how flood cases have increased over decades. Since 1892 there have been two floods event, while in the 1960s, floods occurred five times. Lastly, there were 11 flood cases in 2010 alone.

The evolution of flood management in the past 400 years was illustrated by Octavianti and Charles (2019). Since the colonialism period, according to Octavianti and Charles (2019), flood management was not depicted effective effort because the Dutch colony mainly focused on policies to support Batavia (Jakarta's former name) as a trading port, and the officials seemingly did not pay much attention to flood management. Additionally, *Vereenigde Oostindische Compagnie* (VOC), the official governor at this period, designed policy in a discriminatory manner that prioritized the business sector and put aside the well-being of the community. Even though the ethical policy, which on paper is an effort to improve the colony's welfare by enabling local initiatives in politics and promoting education and infrastructure development, was introduced in this period, the last decision of each intervention is still on the government's call. On the one hand, the purpose of the ethical policy is to improve the well-being of the people, but on the other hand, it only benefits the Dutch colonizer (Prinada, 2021). The top-down approach of flood management was still dominant in Indonesia's independence era, which was led by Soekarno and shifted to Soeharto's era. Flood management through several programs, namely Kopro Banjir (Komando Proyek Penanggulangan Banjir Jakarta or Command of the Flood Mitigation Project) in 1965 and Proyek Pengendalian Banjir Jakarta Raya (Jakarta Flood Control Project) in 1972 under both leadership was lack of community participation and was more government-centric.

Another approach to flood management is decentralization, whose implementation is to shift the command from the central government to the city (*kota*) or the regency/sub-district (*kabupaten*). This approach aims to ensure that the effort is practical and would ease the local government in providing immediate responses and monitoring the whole process without waiting on instruction from the centre of command (van Voorst, 2016). This intervention, nonetheless, is still deemed insufficient to tackle the flood problem. Devoid of trust in the elected officials, because people think that most of the officials are politicians, and those politicians are frequently unable to prove and implement their promises, leading to a significant obstacle to this intervention. The less trust, the less people will obey the policies or advices from the government, and this typically will pave the way to ineffective outcomes. Most importantly for this research, no community empowerment is described in van Voorst's paper (2016).

2.2 Bottom-up

The bottom-up approach was introduced to accommodate the participation of all stakeholders in policy-making and implementation. The more participation, the broader chances for the community to voice their views and strategies on how they solve the issues within their community (El Asmar et al., 2012). According to Chavis and Wandersman (2002), community participation is a feasible approach to improving the quality of the physical environment and enhancing services and social conditions.

Common perspective on the bottom-up approach also soared by Isidiho and Sabran (2016), who emphasize people's participation in the development process with their approach, plan, and sociocultural lifestyle. Moreover, the bottom-up approach also can be an effort to negotiate with power holders and initiate projects or programs that would benefit the community and improve their well-being. There are three forms of participation: passive, quasi, and active. Passive participation allows the officials to execute the program, which aligns with the government's project map, meanwhile quasi-participation lets the community participate at certain levels. Finally, active participation is a condition where the community is fully integrated into the whole project processes. Thus, the bottom-up approach underpins the community's participation in the development process phases, from planning, implementation, evaluation, and revision stage/phase.

A further perspective on the bottom-up approach by Zoomers et al. (2021) defines this notion as a community-based and participatory movement from the grassroots (bottom) to the official level (up). It means that not only the officials but also scholars, experts, and societies or citizens must have understood people's livelihoods during the project design and planning processes, making a full range of assessments such as expected and unexpected consequences, and considering the short and long-term impact of the intervention. Every development intervention or project may impact people's livelihoods, whether go with beneficial or detrimental.

Overall, the bottom-up approach mainly focuses on community participation in the development process. In relation to the bottom-up approach, the KAKC depicts the community's participation in flood management in Jakarta. They collectively designed, implemented, and evaluated the whole processes to respond to the eviction threat, while generating positive outcomes. Nevertheless, it is beyond crucial to consider the impact on the livelihoods lens rather than the participation perspective alone. Because livelihoods are the pilar for a living (Serrat, 2017).

2.3 Livelihoods

The ideal outcome of the development project should have improved the quality of life. Not all stakeholders, on the other hand, may experience the benefits of the project intervention. Therefore, assessing the expected and unexpected impact at the initial stage would be essential (Zoomers et al., 2021). In addition to that, with referring to the first sustainable development goal, inclusive development should "leave nobody behind", meaning that the development program, flood management in this context, needs to benefit not only the policymakers but also those who were affected. A more comprehensive assessment of people's livelihoods is urgently required, not only on how people will be negatively impacted but also on how to understand people's capabilities to cope with vulnerability (Zoomers & Otsuki, 2017).

A livelihood approach emerged to develop a more nuanced policy to address poverty and give a broader context on how poor people organize their life. A popular definition from Robert Chambers and Gordon Conway of livelihood is a set of capabilities, assets (in the forms of stores, resources, claims, and access), and activities to support the means of living (Serrat, 2017 & Walker, J. et al., 2001). At the same time, a sustainable livelihood is a condition when someone can cope with and recover from stress, maintain and improve the capabilities and assets that will provide sustainable livelihood opportunities for the present and future generations, the livelihood of whom is often referred to sustainable livelihood approach (De Haan, 2012). In this sense, not only should livelihood focus on people but also their capacity should initiate and maintain positive change for the means of living (Brocklesby and Fisher, 2003).

Four main components of the sustainable livelihood framework have been recorded. First, people, in day-to-day life, may be exposed to vulnerable contexts such as shocks, trends, and seasonal change. Second, people are considered to have several capitals as an asset to support their livelihoods. These include human capital, natural capital, financial capital, social capital, and physical capital. Third, these assets have generated people's livelihood strategies, such as practices and activities to generate positive livelihood outcomes. Lastly, policies, laws, institutions, and processes shape people's access to assets, their livelihood activities, and the vulnerability they might experience (Brocklesby and Fisher, 2003).

The common livelihoods of Kampung Tongkol's, Kampung Lodan's, and Kampung Krapu's residents are in the informal sector. Some of the residents work as construction workers or warehouse workers, whereas others also produce food and bracelets or necklaces in their houses, which will be sold in the market or in

their small yards. Plenty of them also have food stalls in front of their house, moreover. Therefore, if they had evicted, they would most likely lose their living sources. It is precisely because citizens' livelihoods in three *kampungs* are significantly impacted by the flood management that makes the relationships between them (livelihoods and flood management) crucial to be considered.

3 Regional thematic framework

3.1 Jakarta: centre of business and capital city of Indonesia

Jakarta is the capital city of Indonesia, with a population of 10,6 million in 2021 (BPS dashboard, 2022). The total area of Jakarta is 7,659.02 km, with the northern part stretching 32 km in length at the coastal area which contains 13 rivers and two flood canals (Setiowati et al., 2018). The development in several sectors in Jakarta (Abidin et al. 2015) posits Jakarta not only as the capital city but also as the core point of business and capital flow of Indonesia. According to data from Jakarta's statistic division, Jakarta has become the centre of Indonesia's business activity comprising 80% of total national business productivity (Jakarta.go.id dashboard, 2021). The role of Jakarta as a centre for trade becomes even more significant as there is a port in the north part of the city (Waworoentoe, 2022).

The development in Jakarta also negatively impacts the environmental sector, the frequent impact of which causes seasonal floods. Floods often constrained both day-to-day and business activities. For example, the access to main roads was inundated by floods, which in the end undoubtedly will affect the development outcome. Besides the 2007 flooding, it has been recorded that flood in 2013 also generated significant losses. According to Wijayanti et al. (2015), the total loss of floods in 2013 in the residential and business sector is estimated at US$ 1.3 million and US$ 9.2 million, respectively. The total loss of the residential sector is represented by the monthly income of households, while the total loss of the business sector refers to monthly turnover.

A few illustrations of the loss described previously emphasized that the need for flood management in Jakarta is essential. Because the damages of the floods will aggravate both the process and outcome of development either in Jakarta or at the national level. As a centre of business makes plentiful of local and multi-national corporates are located in Jakarta. In consequence, flood management approach should not only focus on decreasing the damage, but it is also essential to consider the involvement and participation of all the stakeholders, including communities, throughout the policy-making process so that the solution is well-targeted. Due to the absence of participation from all stakeholders, it will be impossible to reach the prevalent outcomes of the development. Even more, flood management with a lack of participation is harmful to urban poor communities.

3.2 Komunitas Anak Kali Ciliwung (Ciliwung Sub-River Community/KAKC)

My description of KAKC in this section is based on my own observation. On my first visit, I took the train from Rawa Buaya Station to Duri Station and continued with Gojek (online scooter transportation) to

Kampung Tongkol. It took around an hour to get to Kampung Tongkol from my place in Tangerang (a suburb of Jakarta, around 9 km from Jakarta's city centre) by means of public transportation. I was unsure when I almost arrived at the location because all I saw was wide muddy land without a house settlement. Apparently, this place is known as the truck parking lot in front of the dormitory Directorate of Army Equipment, Indonesian Armed Forces (Irfansyah, 2022). This is one of the accesses to get Kampung Tongkol. I asked one random guy around there how to reach Gugun Muhamad (Gugun), the key person in the KAKC community, and then the guy gave me quick directions to get there, which were easy to follow.

When I finally reached the main gate of Kampung Tongkol, I called Gugun to tell him my location, and he directed me to the meeting point not far from where I stood, the more I talk to Gugun, the more I can comprehend the location. We then sat together next to the river under banana trees, and we began our conversation with the introduction, followed by the aim and objective of my research. Then he finally briefly told me about the Kampung Tongkol and KAKC. The visit was conducted to build a good rapport with the community. In addition, during this visit, I also tried several questions listed in the interview guide; to check whether the question should be amended or added.

The initial plan of this research is to observe Kampung Tongkol's practices toward flood management. However, after insightful discussions and brainstorming with Gugun, I decided to shift the focus to KAKC instead of Kampung Tongkol alone. The main reason is mainly due to the practices done by Kampung Tongkol being organized by or within/through the KAKC. Furthermore, two other *kampungs*, Kampung Lodan, and Kampung Krapu, also do the same practices as Kampung Tongkol. Therefore, KAKC consists of three *kampungs*: Kampung Tongkol, Kampung Lodan, and Kampung Krapu, since these three *kampungs* are close location-wise (see: Figure 2). Previously, in 2015, Kampung Kunir, Kampung Lodan, and Kampung Krapu formed a riverbank community forum. Nevertheless, it did not work due to the lack of community participation and enthusiasm, as explained by one of KAKC's members.

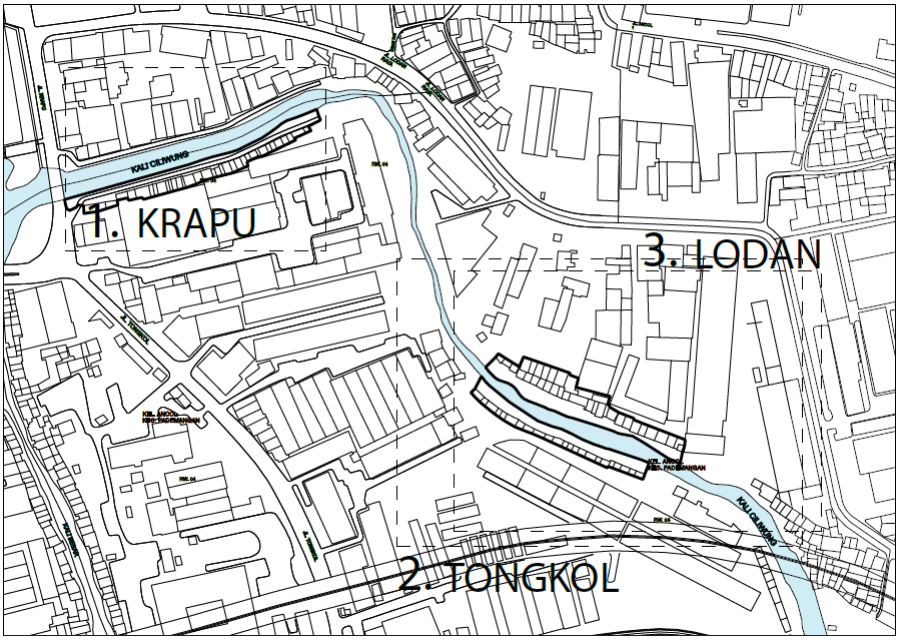

Figure 2: Maps of Kampung Tongkol, Lodan, and Krapu (source: KAKC flyer, n.d.)

KAKC was established in 2016 and shifted to a cooperative organization in 2019. Gugun explained that the purpose of transforming KAKC into a cooperative is not only protecting them from eviction through flood management practices but also maintaining and improving their source of living. This aim is aligned with the definition of cooperative according to ILO and Hatta (2001): "A cooperative is an association of persons voluntarily joining together to achieve economic goals through mutual cooperation".

KAKC's management board comprises a chairperson, deputy chairman, secretary, treasurer, and two supervisors. The fund is collected through a monthly fee of IDR 20.000, and the basic fee (collected when one is registered as a cooperative member) is IDR 300,000.

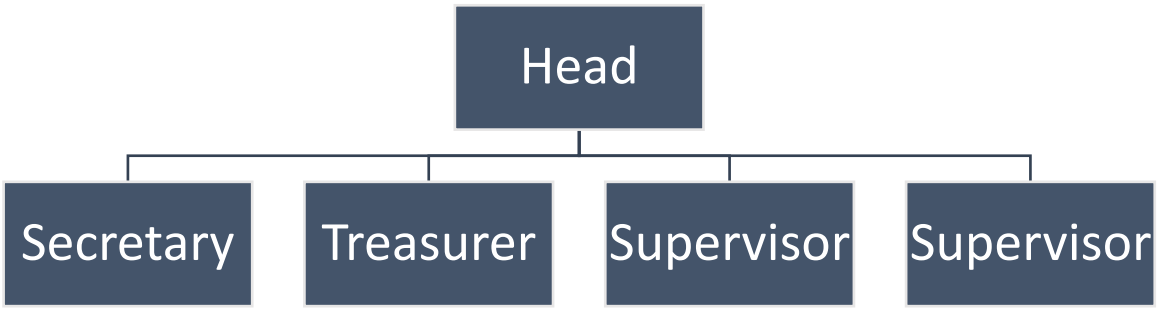

Chart 1: KAKC's board structure (source: author, 2023)

The background of this organization is the response to the eviction threat by Jakarta's local government as part of the river rehabilitation project in 2015. KAKC aims to prove that they are part of the solution rather

than a problem to be solved. To do so, KAKC proposed a "*Penataan Kampung* (Kampung Maintenance)" concept instead of eviction. The practices done by KAKC will be elaborated comprehensively in the following chapters. KAKC is supported and facilitated by, the *Jaringan Rakyat Miskin Kota* (Urban Poor Network/JRMK) and Urban Poor Consortium (UPC).

UPC is an organization which facilitates the establishment of regional organizations, focuses on the fight for the rights of urban poor citizens. Usually, every region has specific regional organizations; in this context, JRMK is the regional organization for the Jakarta area. JRMK was formed as a response to Jakarta's slum settlements to eviction threats. Besides providing support related to the eviction threat, JRMK also assists *kampungs* in Jakarta if they face any accident, such as a fire in Kampung Tembok Bolong, Penjaringan, North Jakarta in April 2023 (Kompas dashboard, 2023). As explained by JRMK's committees, the given support, such as financial support, used clothes, food, and drink. These aids will be collected voluntarily from citizens and other *kampungs* listed as JRMK members. Moreover, JRMK's emergency fund was used to purchase bamboo to build the road in the damaged *kampung.* In this case, the accounting for UPC has acted as a facilitator and advisor of JRMK throughout the JRMK's activities.

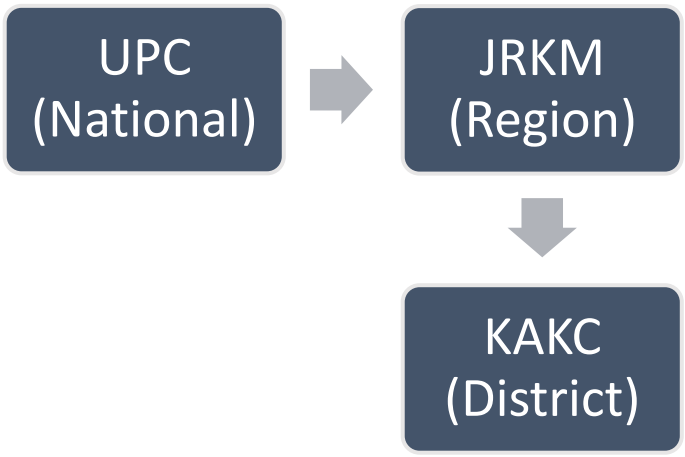

Chart 2: Relations between UPC, JRMK, and KAKC (source: author, 2023)

Chart 2 depicts how UPC encourages and organizes regional organizations such as JRMK to facilitate district organizations or cooperative, in this case, KAKC, to develop strategies to protect their habitat from eviction threats. Under JRMK, there are several sub-district organizations similar with KAKC. Along the process, the initiatives also broaden to create a better environment in these three *kampungs*.

KAKC is located in Pademangan district, north Jakarta, and is close to the historical area of the Old Wall & East Warehouse, part of the Casteel Batavia Complex left by the colonial Dutch (KAKC flyer, n.d.). Apart from that, tourism complexes such as Fatahillah Square and Sunda Kelapa Port are located nearby the KAKC. Therefore, the underlying KACK movement adopted the concept of how their day-to-day activities protect and maintain their environment, including rivers and historical heritage (see: Figure 3).

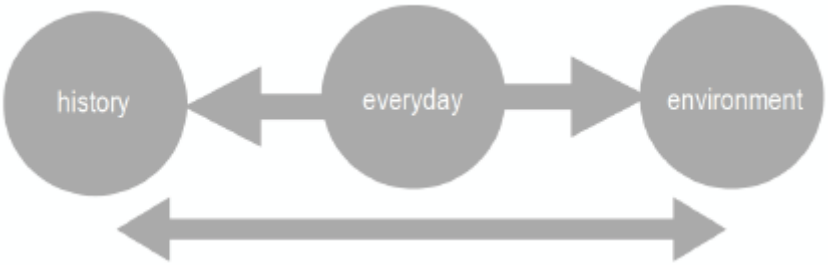

Figure 3: KACK concept: Tourism Inspection Village (source: GTRA, 2020)

In terms of gender balance, most of this organization's participants are women, around 60%. According to an interview with Gugun conducted by Literasi.co (2017), men spend more time at work while women are at home doing household tasks and, therefore, have more available time. Moreover, women, in this case, are more responsive regarding their habitat's well-being; hence, they are the ones who deal with and overcome problems in their household and those related to the *kampung* on a daily basis.

3.2.1 Kampung Tongkol

Kampung Tongkol was inhabited by 12 people in 1975 with an area of +/- 4,000 m^2 (GTRA, 2020 & KAKC flyer, n.d). The population has increased since 1977 and the *kampung* mostly lived by people who moved from rural to Jakarta to seek for better jobs. In 2017, there were 66 households recorded lived in Kampung Tongkol. The first eviction in some of Kampung Tongkol happened in 1991 and focused on those living at the riverbanks and above the river. However, the government had also provided compensation for those who were evicted (GTRA, 2020). Even though compensation was delivered, no clear information about how fair the compensation was.

The residents of Kampung Tongkol are familiar with the old historic buildings (see: Picture 1), which are located back to back with their houses (see: Picture 2). The old building marked “Major Messie” on the wall where this building used to be the warehouse of various commodities, namely bullets, seeds, and ceramics (Irfansyah, 2022). Thus, the community plans to maintain this historic building as a must-visit cultural heritage, which may protect the cultural heritage and empower the community through the tourism sector. Discourse to shift this old building to be heritage landscape emerged during the last campaign for the Governor of DKI Jakarta, Anies Baswedan (Anies) in 2017. The wishful plan is that the old building, as cultural heritage, will be sustained with the life of the people of Kampung Tongkol. In this way, Kampung Tongkol expected will survive the evictions (Irfansyah, 2022).

Picture 1: Inside the old historical building (source: author, 2023)

Picture 2: Some of Kampung Tongkol's houses are back to back with the old building (left) (source: author, 2023)

3.2.2 Kampung Lodan

Four factories for carving wood, furniture, and trade, along with warehouses behind the factories, were around Kampung Lodan started in 1965. Kampung Lodan, with an area of +/- 4,000 m^2, was initially derived from the name of the fish in the area, "Lodan", which means whale (KAKC flyer, n.d.). Several factory guards took the initiative to clean up the land behind the factory of weeds and trees; three pioneers initially initiated this. In the 1970s, the land was given to their close friends and relatives interested in this area. During the New Order regime of Indonesia (1965-1998) led by the former Indonesian president, Soeharto, the development projects triggered the mass movement from rural to urban, including to Kampung Lodan (Zahrah & Muhammad, 2022). The house number had started increasing since 1973, and the first eviction happened in 1991 (GTRA, 2020).

Picture 3: Kampung Lodan (source: author, 2023)

The land is not yet certified due to several reasons. In 1970 – 1980, the occupiers sought for electricity and water supply services. Eventually, the inhabitants began utilizing electricity and water services in 1984 — provided by state-owned water and electricity companies. Access to water and electricity formally provided by the state-owned companies gave a sense of formality to the *kampung*. Nonetheless, other reasons are most of the inhabitants are illiterate, and not a single state agency, even Local Land Office (Badan Pertanahan Nasional/BPN), questioned the legitimacy of the land ownership until the bustling evictions in 2015 (Zahrah

& Muhammad, 2022). Picture 3 depicts the current situation of Kampung Lodan, where the environment and infrastructure improved, and the inhabitants can enjoy electricity and water facilities.

3.2.3 Kampung Krapu

Kampung Krapu was initially known as Kampung Japat (*Jawara Prapatan*/Prapatan Champion) until Jakarta's local government gave the official name of the road as Jalan Krapu (KAKC flyer, n. d.) (see: Picture 4 and 5). People can reach Kampung Tongkol and Kampung Lodan through the main gate of Kampung Krapu since these three *kampungs* are integrated location-wise.

There are not many stories behind Kampung Krapu, with a total area of +/- 4.401 m^2 (KAKC flyer, n.d.), but one profound fact is that Kampung Krapu used to be the place for those evicted from other areas. Some residents moved due to an eviction program or a fire accident commonly happening in densely-populated settlements in Jakarta. Even though the fire accident occurred in 2005 in Kampung Krapu, the residents rebuilt their homes with savings because they had no other place to go (Fahriza, 2022).

Picture 4: Main entrance gate of Kampung Krapu (source: author, 2023)

Picture 5: Kampung Krapu (source: author, 2023)

4 Methodology

4.1 Research question

Generally, this research aims to observe the flood management practices by KAKC and its impact on livelihood and reverse. In this sense, the main research question along with the sub-questions are:

"What are the existing and upcoming bottom-up practices by KAKC toward flood management, and how do they impact and are impacted by the livelihood of people in Kampung Tongkol, Kampung Lodan, and Kampung Krapu?"

Next, to operationalize the main research question, it is divided into four sub-research questions:

1. What practices have been done by the community toward flood management, and how?
2. What is the upcoming practice for flood management by the community?
3. To what extent are these practices affecting the decrease in flood cases?
4. What are the impacts of these practices on the livelihoods and the impact of livelihoods on these practices?

4.2 Operationalization Variables

I refine the concept of livelihoods into operational variables to allow me in this thesis to measure the findings. Among five capitals —human, natural, financial, social, and physical capital—, this research will not focus on natural capital since, according to Serrat (2017), natural capital is "land and produce, water and aquatic resources, trees and forest products, wildlife, wild foods and fibres, biodiversity, environmental services". Evaluated against Serrat's (2017) definition of natural capital, the majority of natural capital does not exist in this area. While natural capital exists in this area is only wild foods and fibres, biodiversity, and water and aquatic resources with a very limited number (see: Table 1). I, therefore, decided not to focus on this particular capital.

Table 1: Natural capital measurement

Natural capital items	Explanation
Land and produce (e.g., mining)	Does not exist
Water and aquatic resources (e.g., fish)	Does not exist
Trees and forest products (e.g., woods)	Does not exist
Wildlife (e.g., animals hunt)	Does not exist
Wild foods and fibres (e.g., mango tree)	Exist
Biodiversity (e.g., bee hive)	Exist
Environmental services (e.g., a river which connects each *kampung*)	Exist

Source: Author, 2023

Thus, here is the detailed operationalization of the variables of the research:

Table 2: Operationalization of the concepts

Concept	Definition	Measurement
Bottom-Up	Community participation in the development process, from policy-making; implementation; to monitoring and evaluating stage with their approach and plan. It is also essential to	Participation: 1. Passive 2. Quasi 3. Active

	comprehend people's livelihoods during the project design and planning process because every development intervention or project may impact people's livelihoods, whether it will benefit or be detrimental. (El Asmar et al, 2012; Ishido and Sabran, 2016; and Zoomers et al, 2021).	(Ishido and Sabran, 2016) Livelihood: refer to the next section
Livelihood (sustainable)	A set of **capabilities**, **assets** (stores, resources, claims, and access), and **activities** to support means of living. In this sense, a sustainable livelihood is when someone can cope with and recover from stress and shocks and maintain or enhance the capabilities and assets that will provide sustainable livelihood opportunities for now and the next generation (De Haan, 2012 & Serrat, 2017).	**Capabilities:** people's access to the positive resource and how they can make the feasible decision for their well-being (Alkire, 2007). **Assets:** refer to the next section (Livelihood assets) **Activities:** refer to the next section (Livelihood strategy)
Livelihood assets	Human capital	Health, nutrition, education, knowledge, skills, capacity to work, and capacity to adapt (Serrat, 2017).
	Physical capital	Infrastructure, secure building, water supply, sanitation, energy, tools, and technology (Serrat, 2017).
	Social capital	Networks and connections (sponsorship, neighbourhoods, family), relations of trust and mutual understanding and support, formal and informal groups, shared values and behaviours, common norms and values, collective representation, mechanisms for participation in decision-making, and leadership (Serrat, 2017).
	Financial capital	Savings, credit and debt, remittances, pensions, and wages (Serrat, 2017).
Livelihood	A livelihood strategy is a designed set of	Natural-resource-based activities; non-

strategy	lifestyles, activities, and practices to achieve livelihood outcomes. It focuses on how people interact and manage the resources for means of living (Serrat, 2017 & Walker et al., 2012).	natural resource-based and off-farm activities; migration and remittances; and pensions & grants (Serrat, 2017).

Source: Serrat, 2017 & author, 2023

4.3 Data collection: Ethnography, in-depth interviews, and photo elicitation

This research utilized ethnography, in-depth interviews, and photo elicitation to gain original data with good quality. In between, I also got a chance to have a small talk with the inhabitants of three *kampungs*. Before and between the research and field visits, I had several online meetings with my supervisor to discuss the best approach and strategy for this thesis, such as additional methods and how to choose the sampling methods.

4.3.1 Ethnography

Ethnography is a research method where the researchers participate in the activities and communicate directly with the communities or the people being studied, and interview them (Hammersley 2006). A similar understanding of ethnography by Brewer (2000) underpins that this method involves the researcher's participation in the ordinary activities of the communities in order to collect data in a systematic manner. Van Voorst (2016) illustrates that she gained original and extensive-quality research findings through ethnography mixed with participative observation methods. Therefore, the researcher conducted field visits and community engagements to collect the data.

4.3.2 In-depth interview

According to Hennink, Hutter, and Bailey (2020), an in-depth interview is a one-to-one method of data collection where the interviewer and interviewee or participant discusses a specific topic. The author can obtain narratives or stories about people's lives through in-depth interviews. In this thesis, the participants are selected throughout the role of each resident within the KAKC, either as the board of management, as members, or as residents of these three *kampungs*. The interviews were conducted not only to seek the practices of flood management but also to observe the diversity. The diversity approach is to understand the diverse capabilities within different groups in how they perceive the crisis (Çiçek, 2022), in this context, eviction under flood management by Jakarta's local government. The heterogonous capabilities may generate various outcomes and impact people's livelihoods; because of this, analyzing how each actor's experiences, responses, and practices is crucial.

During the field visit, in-depth interviews were conducted with key persons, stakeholders, and residents involved in KAKC flood management practices. Rather than random sampling, the participants were chosen purposively by categorizing the particular profiles. The first way of categorizing is the role/position of participants at the KAKC. According to the participants' role/position at the KAKC, this research has three

categories: KAKC board of management, citizens of each *kampung*, and the time they took in cutting house process (fast or slow). These three categories observe how people might respond and perceive differently towards flood management practices due to several factors such as a role in KAKC, amount of savings, and job. The second way of categorizing the participants is the *kampung*. All *kampungs* in this study are represented by the corresponding participants. Here is the list of participants:

Table 3: List of participants

Category	Kampung	Gender
KAKC (Secretary)	Lodan	Man
KAKC (Treasurer)	Krapu	Woman
KAKC (Supervisor)	Tongkol	Man
Citizen	Lodan	Man
	Krapu	Woman
	Tongkol	Woman
Cutting House	Lodan	Woman
	Krapu	Man
	Tongkol	Man

Source: author, 2023

4.3.3 Photo elicitation

To support the research and clearly illustrate the findings, photo elicitation is also used. The idea of photo elicitation is to insert photos taken by the researchers or any other references along with the description of the pictures. Moreover, photographs or images can clearly illustrate the research, as they trigger deeper elements of human consciousness than words (Harper, 2002). Since some of the photographs were provided by the participants, the photo-elicitation interview (PEI) is also introduced in this research. Through PEI methods, researchers can use the pictures from the interviewees or participants to expand the questions, and the participants can use the photographs to communicate their lives uniquely (Clark-Ibáñez, 2004). Many photos provided in this research were taken by myself, while others I gained from Gugun, and I already obtained consent from Gugun to use the photos for research purposes.

4.4 Reflection: limitation and positionality

Due to the short research period, I cannot observe all of the *Kampungs* in Jakarta that will be evicted because of the flood management project. Thus, it is not wise to generalize this research for all *kampung* or the community at the Jakarta scale as they might have different cultural contexts or practices. Additionally, further research might be more comprehensive if the researcher could obtain direct government perspectives regarding bottom-up flood management. The only government perspective in this research is only through the analysis of the government's document policies towards flood management in Jakarta; most were

designed by the top level (the authorities) without community participation. Additionally, the data obtained from participants do not represent my political interest as some participants stressed their hope that one of the former Jakarta governors should win the Indonesian presidential election in 2024 (see: Chapter 8.3).

As a citizen of Tangerang, one of the suburban regions of Jakarta, I experienced and witnessed countless flood cases in Jakarta. Most of the floods in Jakarta prevented most activities for Jakarta's citizens and other inhabitants of suburban regions. I am, therefore, directly impacted by Jakarta's flood. For me, consequently, this study is not merely an intellectual exercise but also has its materiality that affects my life. Flood management is always top-down, meaning that as part of the local community, I have never experienced being involved in a flood management project. This personal experience triggers my curiosity, helps me to delve deeper into the contexts, with which I am already familiar. I, at the same time, also endowed the key person of the community from my supervisor, which, in tandem with my personal experience, support me in getting along quickly with the KAKC community to obtain data.

One of the striking questions from Gugun in our first discussion was about my contribution to the KAKC after I gained data from them. It took me by surprise, and I answered honestly without giving them such utopian promises. He tried to negotiate with me by offering to help them to prepare the proposal for the UN Habitats Awards 2023. On the one hand, I wasn't sure about it, but on the other hand, I was nervous that if I ignored them, I might not obtain the data to support my research. Then I came up with a decision: Yes.

However, I convinced them in the first place that it would not be my responsibility if they do not get the first winner. The point is I tried to manage their expectations that I will do my best with all my limitations. The fundamental reason I entertained their request is that I will obtain the data that will support my research in between proposal drafting, and it will prove that I have something valuable for them and, therefore, they are not only the object of my research. With this view, I found the question/request to help them is fair enough.

Therefore, my second until fourth visits focused on drafting the UN Habitats Awards 2023 proposal since the deadline is 12 March 2023. We, most of the time, met in Kampung Tongkol, where in between, I also got a chance to walk to Kampung Lodan and Kampung Krapu to observe the surroundings, take pictures, and have little conversations with the inhabitants. Indeed, I gained data that —supported my research during the proposal drafting process—, including photos taken in 2015 from Gugun to illustrate the view before and after the practices were carried out. After KAKC reviewed the final draft of the proposal, we managed to submit the proposal on 7 March 2023.

Gugun and I agreed that our strategy is to first focus on the proposal submission before focusing on my interview. Thus, after submitting the UN-Habitat Awards 2023 proposal, he asked me to give the criteria or category list of my interview participants, in which I handed him on 12 March 2023. He gave me the list of participants and also the schedule on 16 March 2023. Finally, the in-depth interviews were conducted on 19 March 2023 with nine participants.

I felt more accessible and flexible in seeking data to support my research, as we finally submitted the proposal, too. By July 2023, I was told that they are now in the big four of the UN-Habitat Awards 2023, perhaps on the way to winning it. Apparently, they are already getting used to being interviewed and observed by external parties or researchers, such as students like me. Numerous researchers came to visit these three *kampungs*, and most of the inhabitants welcomed me positively during the whole research process. It was because Gugun and KAKC were supportive during my research, that made me optimistic, and they told me I could come back anytime if I still need any other data or information. Thus, it was effortless to obtain data from participants, since they were really helpful and supportive in arranging the interview.

After the interview, I had a small talk with one of the participants, with whom he said that many researchers visit, and after they gain all the information they need, they just disappear and completely lose contact with the community. I learned from this statement that they really value friendship, and I therefore should maintain this as planned. I can sense the friendliness among the community when we had a discussion or even small chit-chat in front of Gugun's house. Once, they even cooked me lunch, and we ate it together under the banana trees. As time goes, the ambience during my research was more like friend visits, far from formal or rigid vibes, without interrupting my research goals. Thus far, I still maintain communication and relations with the community of all three *kampungs*.

5 Research result: Flood management practices by KAKC

Since the eviction threat under the river normalization or rehabilitation project by Jakarta's local government, three *kampungs* have gathered and formed a cooperative called KAKC to respond to eviction by designing feasible community-based flood management practices. Thus far, the variety of KAKC's practices is well-recognized, and KAKC keeps improving their efforts in order to protect their habitat and enhance the quality of their environment as part of flood management. Thus, this chapter answers the sub-research questions: "What practices have been done by the community toward flood management, and how?".

The findings were obtained through interviews with Gugun, random chats with the inhabitants of three *kampungs*, and nine interviews. From several interviews and small discussions with Gugun, he chronologically and comprehensively, explained the whole program, activities, and practices. Gugun and all the interview participants introduced me to the structure of the KAKC and then moved to the KAKC concepts towards flood management practices: organizing, advocacy, and network development. Thus, to give an in-depth illustration of the practices, the three concepts of KAKC's flood management will be explained in detail, along with the activities in the following section.

5.1 Existing practices

5.1.1 Organizing

It is specifically accounted that there are three *kampungs* with approximately 161 houses, 223 households, and 417 inhabitants (KAKC flyer, n.d.). There is an urgent need to have a legal entity to organize these masses to fight for their habitats by taking part in flood management. Therefore, in 2015 KAKC was

established and organized by JRMK to address the crisis. The first practice by KAKC under organizing concept is to design concepts and programs for riverbanks housing arrangements, create teams for program implementers, conduct capacity building for the program implementers (for example, gardening, data collection or mapping, cooperation structure, and management), how using bamboo as an organic house material, and last but not least source collection both fund and human. Funds were collected through collaborative projects with external parties such as SELAVIP (a foundation focusing on housing or shelter projects for the urban poor in Latin America, Africa, and Asia) (SELAVIP dashboard, n.d.), Jakarta's local government, and the University of Indonesia. The human resource, in contrast, was collected voluntarily by the three *kampungs*' residents. From the interview with Gugun, below I sum up the programs executed by the communities.

Voluntarily cutting five meters back of the residents' homes to create clear access between the rivers and their homes is the most striking and concrete program executed by the three *kampungs*' residents. One of the river rehabilitation approaches is through PERDA No. 8/2007 which through article 13 mentioned that any kind of building, including settlements in the riverbanks area, is prohibited. This policy was triggered by the collaborative project between Jakarta's local government and the World Bank under the JEDI project. Additionally, clear access along the riverbank must be built, a 15 meters gap between the house and the river. By executing this program, it will demolish most of the half-house area of the residents. Thus, through KAKC, the residents tried negotiating to cut five meters instead of 15 meters. However, prolonged negotiation without significant results triggered the community to take a risk by cutting their house before a concrete agreement with the officials. This striking decision mainly proves to the officials that they can provide feasible solutions. While another community is reluctant to have this approach, these communities were willing to gamble their resources and lives to prove that they were part of the solution rather than a problem to be solved.

Before the house was cut by five meters, the design of the house was generally vertical, and the extension part on the upper floor formed a tunnel where the upper floor was rented for residential use, and the lower floor was for public roads (see: Picture 6). Currently, the housing situation is vertical without extension part and has two to three floors, where some of them use their first floor for their food stall or *warung*, kitchen, bathroom, and small common space (tv room). Table 4 summarizes the nine interview participants' current housing situation after they finished cutting and fully renovating their homes.

Picture 6: The housing situation before the houses were cut five meters back (1) (source: Gugun, 2015)

Table 4: Housing situation of nine interview participants

Participant	Kampung	Gender (M/F)	Occupation	Housing Situation
1	Lodan	M	Marketing	- Two floors - The second floor has three bedrooms - The first floor is for the bathroom, food stall, and common rooms
2	Krapu	F	Housewife	- Three floors - The second and third floors are for the participant's family area (including bedrooms and bathrooms) - The first floor belongs to the participant's young brother's area and shared kitchen
3	Tongkol	M	Security in Airport	- Two floors - The first floor is for the family

				area (including bedrooms, bathrooms, and kitchen) - The second-floor rent is for housing use
4	Lodan	M	Employee - Head of Logistics	- Two floors - The second floor has one bedroom - The first floor is for the common area, including the bathroom and kitchen
5	Krapu	F	Housewife and sell clothes	- Three floors - The first floor has one bedroom, bathroom, and kitchen - The second floor has three bedrooms and a bathroom - The third floor has four bedrooms and a bathroom
6	Tongkol	F	Housewife	- Three floors - The first floor has a bathroom, kitchen, and common space - The second floor has one bedroom - The third floor is for the warehouse
7	Lodan	F	Housewife and bracelets maker	- Two floors - The first floor has one bedroom, a bathroom, a kitchen, and a common space - The second floor has four bedrooms
8	Krapu	M	Warehouse staff	- Three floors - The first floor has a kitchen, a bathroom, and a common space - The second floor has two bedrooms

				- The third floor has one bedroom and a warehouse
9	Tongkol	M	Honorary teacher	- Three floors - The first floor has a bathroom, kitchen, and common space - The second floor has one bedroom - The third floor is for the warehouse

Source: author, 2023

Another interesting fact from this practice is the fund is collected by and within the community itself. Therefore, each house's renovation completion date differs, depending on each homes' resources and financial capacity. From the random residents I asked, some claimed they finished rebuilding their house after one month; some even needed two months or more to settle the renovation. Although the construction is self-funded, the residents have helped each other in the construction processes (see: Picture 7 and 8).

Picture 7: Cut five meters back process by the community (1) (source: Gugun, 2015)

Picture 8: Cut five meters back process by the community (2) (source: Gugun, 2015)

The second program is promoting waste management. Before the gap between houses and the river was made, people had tendency to throw their trash into the river because the river was precisely behind their houses (see: Picture 9). Since the eviction threat, the community awareness to eliminate this bad habit raised, by not only promoting throwing the garbage to the trash bin, but leading the community also to create common trash bins made of used barrels (see: Picture 10) and put those in several spots nearby the houses. Moreover, the community collectively gathers monthly money (IDR 5.000) to hire people who collect the trash and bring it to the landfills. To support this initiative, Jakarta's local government provided several trash bins in each *kampung*.

Picture 9: Condition before house cutting (source: Gugun, 2015)

Picture 10: Trash bin-making process by the community using the used barrels (source: Gugun, 2015)

The third program is monthly-basis river cleaning. Each *kampung* has a small boat made of bamboo to support this activity (see: Picture 11). To support this activity, the government also have formed a team to clean up the rivers in these three *kampungs*, in turn, every month. Fourth, the community collectively constructs the proper road. Previously the road was almost inaccessible, especially for motorbikes, since the road was relatively muddy (see: Picture 12 and 13).

Picture 11: Monthly river cleaning by the community (source: Gugun, 2016)

Picture 12: Road construction by the community (1) (source: Gugun, 2015)

Picture 13: Road construction by the community (2) (source: Gugun, 2015)

Promoting plants more greens became the fifth program. The community was encouraged to plant more greens in front of their yard. This effort is not only to prevent the flood but also to create a better-quality environment. I was doubtful about this particular program, whether all the residents were disciplined and fully committed to this. Gugun explained that when this program was introduced, not all residents seemed interested in this practice. Therefore, KAKC and its partners, for example, Jakarta's local government, provided the plant seeds to be planted in their yards, and this trigger worked. Picture 14 illustrates how the residents are maintaining their plants until now. One of the participants explained when the trees bear fruit, the residents will gather to enjoy the fruit harvest in the form of *rujak* (assorted fruits and vegetables served with sweet, spicy peanut sauce) or *sambal* (Indonesian chilli paste).

Picture 14: Greens in front of residents' houses (source: author, 2023)

It is commonly known that a septic tank is one of the effective solutions for onsite domestic wastewater treatment (Withers et al., 2014). As the sixth program, these three *kampungs* built septic tanks as one of the flood management efforts, wherein in the first phase, the residents used their own savings to finish this practice. One of the causes of a flood is the incapability of the river to accommodate water, as well as the abundance of waste in the river, causing the flow of the river obstructed. Gugun explained that septic tanks play an important role in maintaining the river's cleanliness as the septic tanks can contain domestic waste, such as human waste. Before the septic tanks were built, the inhabitants of three *kampungs* threw their garbage into the river. Lately, Jakarta's local government has finally supported this practice to create better flood management. Picture 15 depicts the septic tank construction process, where the residents were involved throughout the process.

Picture 15: Septic tanks construction process (source: Gugun, 2016)

Last but not least, the "Sample House" has built as the reference for ideal riverbank settlements. The notion of the sample house is not about the design but rather the principles. The principles are to have a septic tank, the canopy does not exceed the width of the gutter, to create space between the house and the cultural heritage, greens are planted in the yard, and the household is involved and engaged with social community activities, in which these principles are designed from the brainstorming between KAKC community and ASF-ID (Architecture Sans Frontières Indonesia). The first five sample houses were a collaborative project between KAKC, ASF-ID, and SELAVIP. In this program, ASF-ID was an architect who supported the design, while SELAVIP supported the fund.

Picture 16: Sample House construction process (source: Gugun, 2015)

Picture 17: Sample House transformation (source: author, 2023)

Picture 16 demonstrates how the inhabitants were involved in the Sample House building processes, from designing the house along with the principles to the construction process. While Picture 17 illustrates the transformation view of the sample house from 2014 to 2020, Picture 18 depicts the current situation of the Sample House and its surroundings and shows many improvements in infrastructure and environment.

Picture 18: Sample House current view (source: author, 2023)

5.1.2 Advocacy

Having more concrete practices, the community should have tried their best to advocate the government to protect their habitat and be part of flood management. In the interview with Gugun, he explained that several

advocacy efforts were accomplished, but one is still under negotiation. The accomplishment effort is not only not being evicted, but several local regulations or laws have been introduced, which will be explained below.

At the sub-district level, KAKC consists of Kampung Tongkol, Kampung Lodan, and Kampung Krapu, three of which successfully negotiated with Jakarta's local government to shift the concept of flood management from eviction to maintaining and planning the riverbank settlements. It has been proven until the present day, three *kampungs* still remained at their coordinates. The accomplishment of this effort undoubtedly paid off their effort, including risking their resource and saving during the cut their house five meters back process without the government's approval at that moment.

At some points, what I can feel about Gugun's passion is he fights for his community's rights when he tells all of the KAKC advocacy efforts that have been and are being carried out. I can see different gestures when he explained to me about the flood management practices and advocacy part; he made strong eye contact and conveyed all of the points in such a convincing way. He and KAKC have the initiative to scale up the concept from eviction to maintaining and planning the riverbank settlements to other *kampungs* at the regional level, DKI Jakarta. KAKC has wishful thinking that the so-called success story of KAKC can be implemented in other riverbank settlements in Jakarta, where we can find plentiful cases of these in Jakarta. Therefore, through Governor's decree (Keputusan Gubernur/KEPGUB) no. 878/2018, Jakarta's government formed a task force unit to manage the *kampung* and its community. From 21 *kampungs* under KEPGUB no. 878/2018, Kampung Tongkol, Kampung Lodan, and Kampung Krapu are listed as the targeted *kampung* management.

The overall approach of KEPGUB no. 878/2018 is also to empower the community through: 1) conducting education related to environmental protection and management, 2) facilitating educational, sports, and religious activities, 3) facilitating the development and arrangement of street vendors, and the formation of cooperatives, 4) providing the plant seeds to encourage planting more greens, and 5) improve the skills and competence of job seekers. The policy, in terms of infrastructure, should have focused on maintaining the access road in the *kampung*, drainage channels, and providing clean water and wastewater management installations. Accommodative to these approaches, Community Action Plan (CAP) and Community Implementation Program (CIP) were introduced by Jakarta's local government. CAP is a form of collaboration between residents and the Provincial Government of DKI Jakarta. It aims for community participation in housing and settlement development planning according to their needs. Meanwhile, CIP is the next step in executing the CAP concept. In this process, the community becomes active social, economic, and physical environmental actors (Jakarta.go.id dashboard, 2022).

According to one of the interview participants, he explained that CAP and CIP were the realization program of political contract agreements during Jakarta's local government election in 2017. One of the candidates, the governor, Anies, and the vice governor Sandiaga Salahuddin Uno (Sandi) and JRMK-UPC created a political contract with five main points of agreement: 1) Spatial policy changes for settlements, 2) Land

status legalization, 3) Affordable housing program for the poor, 4) Business permits for street vendors, and 5) Assistance for *becak* (pedicab) drivers. At the same time, JRMK-UPC is obliged to win Anies-Sandi in 125 polling stations, and if in just one of the 125 polling stations Anies-Sandi does not win, then the agreement is cancelled. It turned out that JRMK-UPC was successful in carrying out the task as promised (Literasi.co dashboard, 2017). Therefore, CAP and CIP were designed in order to execute the agreement. The difference between the two with the previous government's program is explained by one of the participants/interviewees:

" The difference between CAP and CIP with the previous government's program is that the previous program is always from top to bottom. CAP and CIP program initiatives are from the grassroots so that the residents propose housing and building concepts according to their wishes because they know the most about their environment. Therefore, the current practices are more collaborative with the government."

(Participant 1, 2023)

Picture 19: Bridge that connects Kampung Tongkol to Kampung Lodan under CAP and CIP program (source: author, 2023)

Picture 20: River sheet pile in Kampung Tongkol, Kampung Lodan, and Kampung Krapu from CAP and CIP program (source: author, 2023)

The budget allocation for CAP and CIP has been included in Regional Revenue and Expenditure Budget (*Anggaran Pendapatan dan Belanja Daerah*/APBD), at which several infrastructures have made, such as roads, bridges, drainage, septic tanks, street lighting, gate (*gapura*), and river sheet pile. A number of the evidence of the infrastructures are depicted in Picture 19 and 20. As a result, this infrastructure will support the mobility of human resources, capital, information, and commodities which will benefit the day-to-day activities and livelihoods of the residents.

Regarding spatial planning, Jakarta's local government categorized every area through a zoning system. KAKC successfully advocate for the officials to shift the zone of three *kampungs* from the blue zone to the yellow zone (R1). According to DKI Jakarta governor regulation (Peraturan Gubernur/PERGUB) and its attachment no. 31/2022, the blue zone is the earth's surface, such as the water zone in rivers, lakes, reservoirs, and others, while R1 (yellow zone) is determined as a settlement area (article 87 number 7A). It is prohibited for settlements to be built in the blue zone; thus, these three *kampungs* will most likely be prone to be evicted if the status remains blue zone. Figures 4 and 5 illustrate how the spatial planning status of these three *kampungs* shifted from blue to R1.

Figure 4: 2014's spatial planning where three kampungs are still determined as blue or water zone (source: RDTR dashboard modified by author, 2023)

Figure 5: 2022's spatial planning where three kampungs shifted to the yellow zone or R1 as settlement area (source: RDTR dashboard modified by author, 2023)

To address the land rights issue, the President of Indonesia has ratified presidential regulation (*Peraturan Presiden*) no. 86/2018, which formed the agrarian reform to control the land owned and controlled by the government and the community, must be distributed and legalized to the subject of the land recipient, in this case, the local community. As the followed-up action from president regulation no. 86/2018, Jakarta's local

government published KEPGUB No. 192/2019, forming the DKI Jakarta Province Agrarian Reform Task Force (GTRA), which was later revised with DKI Governor Decree number 574/2019 (GTRA, 2020).

Furthremore, the land status of Kampung Tongkol, Kampung Lodan, and Kampung Krapu, three of which are owned by the states without any land dispute, which is possible to be granted to these three *kampungs*. Gugun claimed that, however, this effort is still under negotiation process with BPN. KAKC tried to negotiate that the land should be granted on behalf of the KAKC instead of individual names. This approach aims to prevent each individual's conflict of interest, making it possible to sell the land to other parties for personal benefit in the future. KAKC expects if the land is collectively owned legally by KAKC, the sustainability of the land will be guaranteed and secured for the longer term. However, never has BNP been issued a land certificate under a cooperative instead of an individual or any legal entity such as the company.

Although the land's legal status is still under process, these three *kampungs* were granted the building permit. Jakarta's local government must have approved the building permits (*Izin Mendirikan Bangunan*/IMB) through the work letter (*Surat Kerja*/SK), as detailed in Table 5. This accomplishment certainly gave a glimpse of hope and spirited the community to fight for their rights, participating in flood management and protecting their houses from land acquisition. However, the community should accept that the IMB is not strong enough to protect them from eviction threats.

Table 5: SK of IMB of Kampung Tongkol, Kampung Lodan, and Kampung Krapu

Name of *Kampung*	SK Number
Kampung Tongkol	125/C.37e2/31.72.05.1003.02.003.K.1.g/1/-1.785.51/2022
Kampung Lodan	126/C.37e2/31.72.05.1003.02.006.K.1/1/-1.785.51/2022
Kampung Kerapu	124/C.37e2/31.72.05.1003.02.003.K.1.g/1/-1.785.51/2022

Source: Gugun, 2022

5.1.3 Network development

Having been gained more ideal flood management outcomes for the community, KAKC keeps expanding its networks. Two approaches of the network development were introduced by Gugun. The first approach is the trans-professions network that develops collaboration or cooperation across professions, for instance, architects, lawyers, academicians, journalists, city planners, and environmental activists. It depicted clearly how most of the practices done by KAKC were assisted or supported by KAKC networks. KAKC, because of this, seeks more wider network to gain more variety of opportunities to create more updated and feasible flood management. The second is the horizontal network. This approach is to connect to other communities under JRMK, with 24 *kampungs* listed under JRMK. Through JRMK, KAKC enables communication with and supports other *kampungs* facing similar issues. Often, they share practices from each *kampung* to be implemented in their *kampung*.

5.2 Upcoming practices

This sub-chapter describes the upcoming flood management project by KAKC, which answers the sub-research question: "What is the upcoming practice for flood management by the community?". Due to a lack of resources, most projects haven't started until KAKC found suitable partner candidates.

As mentioned in the previous chapter, Kampung Tongkol, Kampung Lodan, and Kampung Krapu, all are located nearby the cultural heritage complex in north Jakarta. KAKC envisions to utilize the river as the means of transportation for both commercial and tourism areas. From the KAKC perspective, if this project had been executed, it would generate benefits for all stakeholders. First, investors or partners will gain income from transportation profits. Second, the tourism sector will captivate international and local tourists, generating more revenues for Jakarta's local government. Third, this tourism sector will empower the community and absorb more human resources, such as driver of the small boats, tour guides, ticketing stall officers, cleaners, and ship maintenance officers. Fourth, residents with a food stall in front of their houses will get wider and more diverse customers, not only local residents. Fifth, the quality of the environment will improve even more since the community will raise the sense to protect and maintain the environment more. Lastly but most essential benefit is that most likely the land will not be vulnerable to the threat of eviction if these three *kampungs* are legalized as a tourism destination.

According to KAKC, the construction of "Sample Houses" still needs to be encouraged so that the riverbank settlements are tidier and thus can support flood management in this area. This project is targeted at houses that are considered not proper enough for habitation. As mentioned in the prior chapter, the first phase of sample houses was built through collaborative projects with several parties. Therefore, KAKC has planned to gain other related parties to execute this project since it requires massive financial and human resources.

At the same time, land rights also still become one of the main focuses of all the projects. As explained in sub-chapter 5.1.2, KAKC is still negotiating with BPN for the legal status of the lands. Through the urban land/agrarian reform program, KAKC still encourages the BPN to give the land right to the KAKC which aims to reduce and control the inequality of land tenure, meaning that each citizen has the right to land, especially those who don't have any land. This approach has two essential concepts: subject (marginalized community: low income, fisherman, farmer, etc.) and object (state land). In this sense, the main objective of the agrarian reform program is to support the subject's right to own the object.

The latest update of the negotiation process between KAKC and BPN is that BPN requested KAKC to provide legal studies on whether the cooperative can have a legal status of the land instead of the individual. In 2021, KAKC submitted the document. However, until now, there is still no further feedback from BPN. This progress raised concerns among the inhabitants, especially the KAKC's board of management. In the interview with one of the KAKC supervisors, she often asked about the progress of legal status by the residents, and they started to question their effort. In addition, she claimed that even some of them started to

lose hope (including her), which may negatively impact the ongoing and upcoming flood management practices.

The latest upcoming practice is KAKC, through JRMK, will participate in the Indonesian election in 2024 as a legislative candidate at the regional level (DKI Jakarta). The coming Indonesian election opens a space for Partai Buruh (Labour Party) to participate in the election. The JRMK and its network take the chance to join the Partai Buruh. Seven members of JRMK will run for the national and DKI Jakarta Provincial parliaments, nominated through Partai Buruh as one of the legal political parties in Indonesia. This approach hopes that they wish they can fight for legal land status, be free from eviction threats, and have the same rights to water, health service, and education provided by the state (Adinda & Mulya, 2023).

At the end of 2022, whereas the reign of Anies-Uno as the DKI Jakarta Governor and Vice Governor was finished, the JRMK members knew that the political contract was also expired. One good illustration is that the urban poor group perceived difficulties speaking or meeting the authorities after DKI Jakarta was assigned a new temporary governor by the central government. As they didn't find such a significant result through political contracts anymore, they believed being part of the government might be the feasible solution to fight for their rights and goals. In other words, they will have a strong bargaining position as they are no longer a passive actor, and every policy which has made have to be considered and aligned with the local communities' needs and preferences (Adinda & Mulya, 2023).

To avoid the condition where the legislative candidate deviates from the agreed common goals (fight for the community's rights), they have designed feasible solutions. The first one is to have an expert who will supervise each of the candidates. This is to avoid any risks, for example, where candidates diverge from agreed terms or perhaps are controlled by other parties. Lastly, JRMK will conduct weekly meetings between the candidates and JRMK. The meeting supposes to be a consolidation of JRMK's goals with the government's approach (Adinda & Mulya, 2023).

As shown above, most upcoming projects are almost impossible without support from other parties. Moreover, although the KAKC advocacy effort with the officials, in this sense Jakarta's local government and BPN, is still running, there has been no concrete positive feedback until now. One of the biggest concerns among KAKC is that the community's enthusiasm started to decrease because the legal status process has not yet been settled. Gugun understands that the upcoming projects will not be an easy task, but he and KAKC, therefore, still have the courage and optimism to accomplish these common goals.

6 Research result: Flood cases after the flood management practices have been done

This chapter is dedicated to answering the sub-research question: "To what extent are these practices affecting the decrease in flood cases?" From quick-random chats with some residents and nine interview participants, the claim of whom had never experienced a massive flood since flood management practices

have been implemented. It proves that the community's flood management practices have positively impacted on a decrease in flood cases or levels in this area.

According to the community, the typical flood pattern in this area usually occurs every five-year. Moreover, during the interview, a few participants explained to me that this area has the same river route as Istana Negara (state/presidential place): “If the presidential place was flooded, then we would be bitterly flooded, too”. Compared to other *kampungs*, these three *kampungs* do not often experience floods, especially after they have done the Kampung Maintenance as part of flood management. Even though they have never been experienced flooding recently, sometimes roads’ accesses are flooded, impacting them especially in their daily activities like preventing them from going to work or school. Floods are still estimated by citizens in Jakarta, where roads were still inundated by puddles of water, for instance, in February 2023 (Safitri, 2023).

Most participants had confirmed the latest severe flood in these three *kampungs* happened since 2013, proving the height of the flood reached the waist of adults. Prior to the practices of flood management have shaped and applied, most of the citizens always worry and are extra vigilant when heavy rain is occurring at the middle of the night. Since elected officials are not alerting the citizens whether the flood was about to come, so the inhabitants prepared themselves to move their belongings when it rained all night long. In contrast, one of the participants explained that there are various online platforms, which nowadays can inform citizens about the flood, like the official account of Jakarta’s local government on Twitter and Instagram. In addition, Jakarta’s local government has launched online applications, which can be downloaded and accessed through smart devices called JAKI. This official application whose aims are able to fulfil the daily needs of Jakarta’s inhabitants, including the latest update about covid-19, traffic, and flooding in Jakarta (Jakarta.go.id dashboard, 2022). Information is more accessible, recently. The majority of society in Jakarta is already familiar with social media and internet usage.

When I asked the participants how they coped when the flood came, they mostly focused on evacuating the valuable things as they could simply move to the second or third floors to save their lives. The valuable things that were evacuated were securities (such as certificates), furniture, and motorbikes, as the most common means of transportation. One of the participants informed me that in Kampung Lodan there was a warehouse, which used to be where people put motorbikes because the flood had no impact on this location. When severe flooding occurred, some people stayed on the upper floors without electricity and minimum water and food supplies. In this case, they only rely on supplies, or they can obtain instant noodles or medicines provided by donors or the government, which were gathered and centralized in citizen associations (Rukun Warga/RW). Instead, others evacuated themselves to the nearest shelter, such as a mosque.

Thus far, according to the interview, efforts to deal with flood management carried out by the DKI Jakarta’s local government in this particular area are not only limited to calling for not throwing garbage into the river, but also providing a team to clean up the river, providing trash cans at every corner, and staffs who will

collect the garbage. According to interviews, flooding in this area has caused by the river of Ciliwung, where it is connected to Bogor (West Java), and its location is higher than Jakarta. When Bogor is loaded with a lot of water, for example, due to heavy rains and the many reservoirs are overflowed, the water will automatically flow to Jakarta and causes flooding. Therefore, the participants strongly believed that the handling of the Bogor flood management also played an important role in the flooding in Jakarta. In December 2022, the President of the Republic of Indonesia, Jokowi, inaugurated the Ciawi-Sukamahi dam (West Java), which functions as a flood controller so that the dam will hold water from flowing into Ciliwung River (Kompas dashboard, 2022).

7 Research result: Impact of flood management practices on livelihoods and *vice versa*

This chapter aims to answer the sub-research question: "What are the impacts of these practices on the livelihoods and the impact of livelihoods on these practices?". Initially, one of this research's objective is to observe how flood management impacts the livelihoods of three *kampungs* residents. However, during the research and interview, I found how each resident perceived and experienced differently, especially when they worked on the practices due to their savings and other resources. Additionally, policymakers and experts must have required to consider that each household should have a different access to livelihood assets (Serrat, 2017). This finding means that livelihoods also impact the execution of flood management practices. Thus, it is interesting to observe through two different but mutually interconnected angles/directions: the impact of flood management practices on livelihoods and the impact of livelihoods on flood management practices.

7.1 Livelihood capability

Capability in this context refers to how people access their source of living, such as access to work. Another example is how can those who have food stalls in front of their house access the market to purchase the ingredients or tools to support their business. This chapter will explain how flood management practices are either functioned or done by the community, impacting positively on livelihood's capability.

Before the flood management practices were executed, the road was muddy and hard to access. Most motorbike drivers must be extra careful when they pass the streets; otherwise, the motorbike will slip. Especially when the rain falls or post raining, people tend to postpone their outdoor activities, such as those related to livelihoods, as the road is nearly inaccessible.

As part of the solution by Jakarta's local government over the eviction, they offered the community to be relocated to *Rumah Susun* (flats). Most of the inhabitants thought this was not a feasible solution as the location is far from where they live now, meaning they have to consider additional travel costs and time to the work place. If they are being relocated, they also have to conduct administration things related to the municipality, which often takes time and effort, and perhaps money. They do not have sufficient time to spend for it because they have various things to do for a living. Most participants discerned the offered

solution would make them end up in more segregated locations or the compensation is insufficient to rebuild and develop their livelihoods. Indeed, research in Vietnam, Ethiopia, and Mozambique shows that those who were forcibly evicted often face problems reconstructing their livelihoods after resettlement (Zoomers & Otsuki, 2017).

Nowadays, the road within the three *kampungs* can be accessed by car as the street is more accessible, well-constructed, and wider. Although the majority of inhabitants rely on a motorbike or walk to reach their work, the flood management practices are confirmed by most participants to provide a positive impact on their livelihood capability. They do not have to worry about access when the rain falls as the streets are no longer muddy. A good illustration of the positive impact is when cars that bring *sembako* (groceries) by the government or other donors can now reach the houses where the inhabitants previously had to collect the *sembako* by themselves at the informed meeting point near the *kampung*.

Since the streets are more accessible, it supports the mobility and flow of information, for example, about informal job opportunities. As a matter of fact, an informal job in this area is common among the inhabitants. In addition, since the roads were constructed properly, more and more truck drivers also often purchase meals in these *kampungs*, especially Kampung Tongkol, the nearest *kampung* to the truck parking lot in front of the dormitory Directorate of Army Equipment, Indonesian Armed Forces.

7.2 Livelihood asset

This section analyzes the impact of flood management on the four livelihood assets: human, physical, social, and financial, and *vice versa*. Overall, from the conducted in-depth interviews, these four capitals were impacted by flood management practices, and livelihood plays a significant role in flood management implementation.

7.2.1 Human capital

The first livelihood asset that will be discussed is human capital, which relates to health, nutrition, education, knowledge, skills, capacity to work, and capacity to adapt (Serrat, 2017). Nevertheless, this research emphasizes more two points of human capital —health and education— since these were the most significant points emphasized by the participants during the interview. In addition, nutrition and health are mutually interconnected, and the same goes between education and knowledge, skill, capacity to work, and capacity to adapt. Thus, the findings will answer how flood management practices impact the quality of health and education and how these two capital impact flood management practices.

The most significant positive impact of flood management practices in this context is related to the health of the residents. Since the flood management practices have conducted, there has been a decrease in terms of cockroaches, rats, and mosquitoes. Back then, when the settlements were not maintained as per the current layout and situation, people were frequently infected by malaria, dengue fever, vomiting, etc., since the three

mentioned animals' presence was high and suspected to cause the diseases. Indeed, during the field visits, I never experienced myself to see those three animals.

In addition, the participants, nowadays, told me that they tend to get sun exposure easily, improving their quality of health. Before cutting the house five meters back, most of the space was covered by the aisle for housing use (see: Picture 6). The open space area is now welcomed positively by the inhabitants as they can get fresh air anytime without going to the nearest park. Moreover, most of the current housing position faces the river; previously, the river is located in the back of the houses (see: Picture 21). The current layout encourages inhabitants to keep the home environment, including the river, to be clean and free from trash.

Picture 21: The housing situation before the houses were cut five meters back (2) (source: Gugun, 2015)

One participant expressed his gratitude because he survived the eviction, at least so far. His concern was about children's education. Suppose the people were evicted and relocated to the provided flat by the authorities. In that case, they might move their children's school, which results in another effort, and there is no guarantee the new school will have an available slot for their children. In this sense, flood management practices impact the livelihoods asset regarding education as part of human capital.

In reverse, livelihood asset in terms of health and education also impacts the execution of flood management. For instance, one participant gave me an example of a house inhabited only by elderly people. With this health status, these older people undoubtedly do not have sufficient capability to execute one of flood management practices, for instance, cutting houses five meters back, considering that this is done independently. They have to pay a dedicated person to work on these practices, whose cost puts another financial expenditure. Therefore, the timeline of this particular practice differs from house-to-house.

According to one participant, the level of education also influences flood management practices. He told me that people with better educational backgrounds usually communicate and discuss easier, especially

regarding flood management practices. Conversely, people with a minor educational background tend to be apathetic and selfish about flood management practices. Most of these people, for example, are reluctant to plant more greens in front of their houses or even join community gatherings to discuss the upcoming *kampung* maintenance practices. One of KAKC's roles, therefore, is to engage all residents to have solid mutual goals, so that the practices will be well-executed for everyone's good.

7.2.2 Physical capital

According to Serrat (2017), physical capital includes infrastructure, secure buildings, water supply, sanitation, energy, tools, and technology. This section will answer how the executed flood management practices paved the way to the infrastructure development in this area, such as bridges, septic tanks, street lamps, and sheet piles. It, eventually, will also analyze how these infrastructures impact the flood management practices by KAKC.

Flood management practices done by KAKC have shown positive results, which are well-recognized, well-targeted, and well-developed, including by the authorities. Since KAKC successfully generated significant results in flood management and through advocacy efforts, Jakarta's local government published the CAP and CIP to support flood management practices and empower the community in each *kampung*. Therefore, it illustrates how flood management practices impact the livelihoods asset regarding infrastructure development as part of physical capital.

Picture 22: Getek (source: Gugun, 2015)

Among built infrastructures, bridges are one of the most pivotal infrastructures in supporting the inhabitants' day-to-day activities, including flood management practices. Since the connecting bridges in each *kampung* are constructed, the mobilization between *kampung* to *kampung* is easier. In terms of flood management

practices, the coordination meetings no longer rely on *Getek* or a small boat (see: Picture 22), which has limited operation time and costs IDR 2.000 per one way.

One of the participants claimed that the coordination meeting between KAKC and its community was often held at the last minute or at night. Therefore, the bridges' presence indeed supports them in travelling to the meeting points. I can imagine how flood management practices will be prevented if they still rely on *Getek*. The bridges then support the flow of people, and information, generating better opportunities both for livelihoods and implementing flood management programs.

What I have discussed previously is that most participants agreed that resettlement to *rusun* is not the best solution. They think they have the luxury that other settlements might not have: 30 meters of open space (including the river) in front of their house, where they use this area to socialize among inhabitants or do other social activities. The typical settlement in urban areas, in this context Jakarta, is densely occupied with many sky scrapper buildings but limited green or blue zones. If they had resettled to *rusun*, they most likely would lose this lux facility they had assumed and adopted.

However, interestingly, another participant also mentioned the drawbacks of this easy mobilization related to the *kampungs*' security. Before the bridges were constructed, there was only one main gate access to reach each *kampung*. Nowadays, it is because access is more mobile and accessible, that the *kampungs* are prone to theft crime. For instance, the participants illustrated how motorcycle theft occurred several times in Kampung Lodan. The situation has worsened as no security is assigned since *kampungs* have not yet been maintained as per the current situation. As a result, there is a need to consider the security team formation to ensure the safety of the inhabitants in each *kampung*.

7.2.3 Social capital

This section analyzes how flood management impacts social capital and *vice versa*. Social capital can be defined as networks and connections (sponsorship, neighbourhoods, family), relations of trust and mutual understanding and support, formal and informal groups, shared values and behaviours, common norms and values, collective representation, mechanisms for participation in decision-making, and leadership (Serrat, 2017). In brief, this sub-chapter illustrates how inhabitants, as part of the community, collectively reach the common goal, protecting their habitat through flood management practices.

Before there was no eviction threat, each kampung's inhabitants were not recognized each other. One of the participants claimed that previously only the citizens' coordinators, such as the RW of each *kampung,* knew each other. Since the eviction threat emerged and thus KAKC was established, the citizens among the three *kampungs* started to know each other as they had common goals. One participant explained this succinctly:

"... maybe in the past we did not know each other because there was no place where we had a common goal... since KAKC was founded, everyone knows each other and has the same right to give opinions... even though the process and enthusiasm may ups and downs, from now the aim is how to create practices to

protect these kampungs which also align with flood management, too. These three villages have the same goals."

(Participant 4, 2023)

Since the flood management practices were executed collectively, each *kampung*'s inhabitant was known to each other and generated multiple common activities. For instance, *pengajian* (Quran reading) is held at the *musholla* (small mosque) in each *kampung*, in turn every month. During Ramadhan, iftar events are also held in each *kampung*. In between a short conversation with one of the inhabitants, she told me that they also held *arisan* (a regular social gathering where the members collect money and take turns winning an aggregate sum), which consists of 46 members from three *kampungs*. Each member is obligated to collect IDR 200.000 per week, and at the end of the month, they draw the name of who will get the money. Most inhabitants welcomed this positively as this activity can be part of the saving activities while socializing with its members.

As the relations between citizens grow more robust, it has impacted flood management practices. For instance, KAKC and its community also keep working on designing the upcoming breakthrough related to flood management. In addition, the community whose purpose tends to encourage and remind each other to do flood management practices consistently. One of the practices which is often neglected by the inhabitants is planting greens; therefore, KAKC continuously encourages the community by providing seeds.

It is undeniable that some inhabitants are starting to lose their enthusiasm for doing flood management practices. One of the most significant reasons is that there is no concrete result related to the legal land status. The first couple of years after KAKC was established, there was an annual *kampung* carnival to celebrate the KAKC anniversary. The event was held not only to celebrate KAKC's anniversary but also to "recharge" the enthusiasm of the inhabitants toward the practices. The event was no longer held as the community started losing hope in its efforts. In this case, the KAKC board of management is still doing its best —to maintain enthusiasm among the citizens.

According to a discussion with one of the KAKC's board members, his concern is that if some groups completely stop doing the practices, it will create a domino effect on other inhabitants. Without a doubt, this may posit KAKC and its community are prone to be evicted. He also illustrated what happened to another *kampung*, where the collective action was not strongly built, so they would be evicted. He mentioned that if they had evicted and resettled to the provided flat, regathering and recreating such a collective action would have been difficult as they might be distributed randomly. As the community agreed, maintaining the sense of having common goals are the glue that sticks them together to reach the success of flood management.

7.2.4 Financial capital

The last livelihood asset that will be discussed in this chapter is financial capital. As explained previously, different inhabitants may have different lengths of completion time doing flood management practices. One

of the most crucial livelihood assets impacted is financial capital, as this is related to savings, credit and debt, remittances, pensions, and wages (Serrat, 2017).

Table 6 illustrates the length of the cutting house process by each participant, with whom it clearly depicts that everyone has a different completion time due to different capacities of sources. While the average completion is around one until two months, the slowest process took eight months and two years, and the fastest process took one week. Table 6 also shows that the position or role at KAKC does not necessarily determine the speed of the cutting house process.

Table 6: List participants along with the length of cutting house completion

Participant	**Kampung**	**Gender (M/F)**	**Role in KAKC**	**Occupation**	**Length of cutting house completion**	**Classification of the length of cutting house completion**
1	Lodan	M	Secretary	Marketing	This participant did not cut his house since his house is located in the middle of the *kampung*, not specifically on the riverbanks.	-
2	Krapu	F	Treasurer	Housewife	Eight months	Slow
3	Tongkol	M	Supervisor	Security in Airport	One week	Fast
4	Lodan	M	Member	Employee - Head of Logistics	Two months	Average
5	Krapu	F	Member	Housewife and sell clothes	Two years	Slow
6	Tongkol	F	Member	Housewife	One month	Average
7	Lodan	F	Supervisor	Housewife and bracelets maker	Two months	Average
8	Krapu	M	Head	Warehouse staff	One and a half months	Average
9	Tongkol	M	Member	Honorary	One month	Average

				teacher		

Source: author, 2022

Those who took longer to finish the house have to seek rent or allowance from their relatives or their workplace, at which their next month's salary will be deducted as per the agreed amount. At the same time, some of them also decided not to finish the renovation and move to another place or go back to their hometown. These so-called “losers” thought it was more worth it to move to another place or they return to their hometown and buy a new house, which is comparatively cheaper. However, according to Participant 4, this is a relatively minor case. The same case goes for septic tank construction. In the first phase, the residents used their savings to finish this practice before Jakarta’s local government finally supported this practice to create better flood management.

Even though the financial capital of Participant 1 did not impact by the cutting house process, it was affected by septic tank construction. He said it took two weeks until the septic tank was entirely constructed, and this was supported financially by his siblings. Participants 2 and 5 have a slow process because of their different backgrounds story. While Participant 2 relied only on her limited source as a widowed housewife and supported by her limited savings and her children’s income, Participant 5 claimed that she renovated and restructured the house's layout, which took a long process. Participant 5 explained that even though it took longer than others, she and her family were satisfied with the result. The source for this practice was her savings and the profit from selling clothes. Participant 2 was assisted by her brother in the construction process, whereas Participant 5 hired people. I can conclude that Participant 2 and 5's financial capabilities clearly differ, looking at their houses' shape and how they dressed during the interview (the most significant look was Participant 5 wore jewellery such as gold rings, bracelets, and earrings). In contrast, Participant 3 has the fastest process, which is only one week. He claimed he took most of his savings and was assisted by his parents-in-law's savings while the construction process was done by himself.

The average process took one to two months, however most of them working on the cutting house process step by step relied on the source. For example, for the first phase, they will demolish the house five meters, then if they obtained more sources, they would continue to the next phase, which is the furnishing and so on. Participant 4 took two months until his house was entirely constructed. He explained that the first month was dedicated to demolishing the upper lever, which formed the tunnel, and the following month for completion. In a different scenario with Participant 3, not all people can do the construction job, so they hire people to finish it. In this sense, they are really relying on the sources—both financial and human resources. A participant explaining the step-by-step approach/process:

“If we got some money, we bought bricks. Another day we got some money, and we bought cement. And so on until the house is fully reconstructed, the process gradually depended on the money.”

(Participant 7, 2023)

Even though it took an average time to complete the cutting house process, Participant 8, the head of KAKC, mentioned that he gave all his efforts to cutting his house to protect his and others' habitat. There was no agreement on the completion deadline for this (cutting house) practice. During this practice was discussed, all KAKC boards of management agreed to be the first ones who started the cutting house process, the aim of which is to show the citizens about the practice and the trigger. This way has successfully triggered all citizens to do the same thing.

All in all, most flood management practices rely upon financial resources. It is entirely justified that flood management impacted the saving as part of financial capital. Therefore, those whose income is insufficient for savings must put another effort into finding financial resources. Conversely, the savings also have determined the result of the flood management practices as described, where there is a differentiation between the completion date of the cutting house process. Another example is that one of the upcoming projects is to construct all houses the same as the "Sample House" to create the ideal image of riverbank settlements. However, this has not been executed due to resource limitations since this practice requires major funds. In brief, the livelihoods, in this context, require financial capital, impacting the execution of flood management practices, also.

7.3 Livelihood strategy

This sub-chapter analyses the livelihood strategy, which is the activities or practices to achieve livelihood outcomes (Serrat, 2017), or in other words, is the source of living. As briefly mentioned, the common job activity of residents of these three *kampungs* is in the informal sector, as confirmed by Gugun. Typical informal jobs, especially in this area, fully depend on the contract period, which is commonly short and relatively depend on a certain project. The salary is at the average of monthly regional minimum wage (*UMR/Upah Minimum Regional*), sometimes below UMR.[1]

In this case, some examples of informal sector jobs are drivers, construction workers, warehouse workers, and factory workers. However, due to COVID-19, most of the people, including inhabitants of Kampung Tongkol, Kampung Lodan, and Kampung Krapu, forcibly leave their job. For instance, the husband of Participant 7, who used to be a personal driver in one of the companies nearby their house, has to lose his job. Therefore, their livelihood strategies have shifted and relied on their children and the lucrative profits that might result from bracelets and necklaces makers.

[1] According to Jakarta's labor office, the DKI Jakarta Province UMR is IDR 4.901.798, equals USD 324,8.

Picture 23: Fried Chicken Stall in Kampung Tongkol (source: author, 2023)

While the informal sector is done by the men, the women, who are housewives, and who stay at home, generally produce food and bracelets to sell in the market or their small yards. As explained in previous sections (Chapter 5.1.1, Table 4), the first level of their house commonly has a kitchen, in which they can produce and sell the food. For instance, they sell fried chicken (see: Picture 23) or *warteg* (*Warung Tegal*/food stall that sells rice with varieties of side dishes), and *warung* (stall where they sell numerous snacks, small LPG gas, water gallon, etc.) as illustrated in Picture 24. The consumers of these small businesses are diverse, not only residents of the three *kampungs* but also, for example, external parties such as the truck driver who stayed at behind Kampung Tongkol and sometimes researchers like myself. The diversity of consumers have emerged since flood management practices had been shaped, making the roads way more accessible and productive.

Picture 24: One of Warung in Kampung Krapu (source: author, 2023)

Someone, usually, who has *warung* already has a deal with someone who will supply and deliver the stock of goods on a regular basis. This practice is common for those who have *warung* as they claim this has more benefits than travelling to the market and carrying a bunch of stocks alone. Additionally, as they regularly do this practice, they often get special prices compared to purchasing directly at stores. Thus, I can imagine that if the road had not been accessible, it would have undoubtedly impacted the livelihoods of those who have small businesses at their houses and who have to travel to work.

W*arung* is one of the promising businesses in this area, apparently. I happened to talk with a lady whose *warung* is located in Kampung Tongkol as her primary income. She said that even though there are ample *warungs* in these three *kampungs*, she is often shorthanded when many customers come to her *warung*. From the first time she started this business, she can sense a great opportunity of this business. Therefore, maintained these businesses, she would gain a number of advantages, even though it should be assisted by her daughter and her daughter's husband, and she claimed that they can rely on *warung* profit as a source of living. I can discern why she was so confident as she was wearing some gold jewellery, such as rings, bracelets, and necklaces, while responding to the questions, which not many other inhabitants have as far as I can concern.

According to the KACK flyer (n.d.), most of the population in these three *kampungs* are identified as housewives. Most food stalls or *warung* in front of their homes are managed by housewives, some of whom

produce bracelets and necklaces made of artificial gemstone in their houses. Therefore, bracelets and necklaces makers are typical jobs among housewives in these three *kampungs.* During the interview with Participant 7, she showed me how to make bracelets and gave me one of the samples as a gift. She told me that the seller provided the materials for the bracelets and necklaces, and they taught Participant 7 how to make them. The seller will pick up the bracelets and necklaces at the end of the week and will be sold in the market called Pasar Asemka, located near these three *kampungs*. The fee they get from producing bracelets and necklaces is IDR 20.000 per dozen; therefore, the income from this particular job depends on how many bracelets and necklaces they can create. They usually work on it on the wooden bench in front of their houses while having small talk among the housewives, as illustrated in Picture 25.

Picture 22526: Bracelets and necklaces maker in Kampung Tongkol (source: author, 2023)

It is almost impossible to find inhabitants who have white-collar jobs, which typically have higher average earnings, high-skilled work, and a high level of education and experience background (Hayes, 2022), in these three *kampungs*. Referring to the KAKC flyer (n.d.), most residents' last educational background is in senior high school, even though the bachelor's degree is the lowest percentage (see: Chart 3). It answers why not many of them work in the white-collar industry because of their educational background, as the informal sector does not require such a high education level.

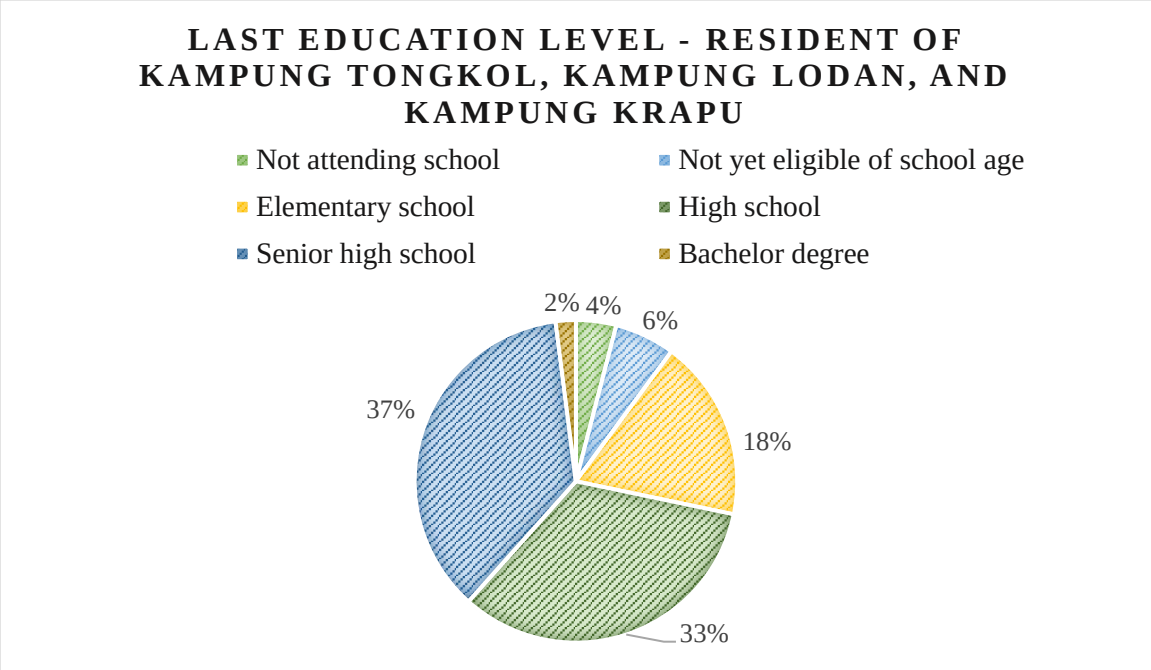

Chart 3: Last education level of residents of Kampung Tongkol, Kampung Lodan, and Kampung Krapu (source: reproduced from KAKC Flyer, n.d.)

8 Discussion

8.1 Conventional versus community flood management

Over the past 400 years, flood management in Jakarta illustrated the top-down approach and was made/prepared by hydrological engineers where local community participation is absent (Octavianti & Charles, 2019). The conventional methods of flood management are dominant with big infrastructures such as canal systems, dredging, clearing, and normalization of rivers project (Batubara, 2022). As part of flood management, this so-called urban infrastructure often comes with forced displacement (Shannon, et al., 2018), which is the riverbank settlement, in this context.

Often, flood management is not ideally fit for the inhabitant's needs; accordingly, the community designs the practices independently. Interestingly, practices done by KAKC recognized as flood management initiated by the community differ from hydrologists' common methods. For instance, the community believes that Sample Houses are one of the profound practices of flood management as it has several values to protect and maintain the environment of the habitat. Moreover, waste management, monthly river cleaning, planting more greens, and creating septic tanks, are the practices to induce a better quality of the environment which also may result in the prevention of floods. It is completely different from hydrologists' approaches to flood management, where they commonly focus on creating more water reservoirs through river rehabilitation projects.

Although Jakarta's local government also took part in flood management in this area through infrastructure development, for example, built sheet piles, the majority of practices were initiated and done by the community. Furthermore, the advocacy effort done by KAKC is also recognized as an apt effort of flood management as several local regulations are made and adjusted, such as PERGUB no. 31/2022 about *kampung* and community maintenance. As depicted previously, it illustrates how KAKC participated in flood management in Jakarta and underpins that flood management is not necessarily about the development of extensive infrastructure. KAKC, as the local community, have shown that they have their capacity and approach towards flood management and prove a crucial role in the development process.

8.2 Community Participation

The notion of the bottom-up approach emphasized community participation throughout the development process. According to Ishido and Sabran (2016), participations have three forms: active, passive, and quasi. However, according to the field findings, two types of participation were only applied to the practices done by KAKC. To sum up, Table 7 identifies the community practice and the participation type.

Table 7: KAKC practices with the type of participation

Participation	Practice
Active *(A condition where the community is fully integrated into the whole project process)*	Voluntarily cutting five meters back of the residents' homes.
	Promoting waste management. Not only promoting throwing the garbage to the trash bin, but the community also created common trash bins made of used barrels. Additionally, hire people who collect the trash and bring it to the landfills.
	Monthly-basis river cleaning.
	Collectively constructs the proper road.
	Promoting plants more greens. KAKC provided the plant seeds as the trigger.
	Built septic tanks.
	Built "Sample Houses".
Quasi *(The participation of the community is only at certain levels)*	Advocacy effort: - KEPGUB no. 878/2018, where Jakarta's government formed a task force unit to manage the *kampung* and its community. - PERGUB and its attachment no. 31/2022, where the spatial planning status of these three *kampungs* shifted (from blue zone to R1).

	- IMB (stay permit) for three *kampungs*.

Source: author, 2023

In sum, table 7 proves that the community's aspiration and participation are no longer neglected by the officials. The type of passive participation, in other words, is no longer valid to illustrate the community's participation. Through strong and common willpower, KAKC and its community successfully show that they, thus far, have a strong position to be involved in the development process with their own approach, which in the context is in flood management.

8.3 Community's hopes related to flood management

The intriguing question during the interview was, what are the inhabitants' hopes towards flood management? Even though significant outcomes from flood management practices have been raised, I still found plenty of inhabitants' hopes that have not been implemented yet. These were obtained not only from the interview with the participants but also from random chats with few inhabitants.

Generally, although they, until now, can settle at their current place, they are still haunted by unexpected eviction threats since no concrete announcement or policy mentions these three *kampungs* are permanently free from eviction. Therefore, mostly the first thing answered was they really wished they could settle at their home for good. They believe the IMB is not strong enough to protect them from eviction; hence, one of the upcoming programs is legalizing land status.

The legal land status is supposed to be completed during the administration of the previous governor, Anies. However, this has not been accomplished due to his period of reign completed in 2022. I can sense a plethora of inhabitants had considerably put their support to Anies as he was the one who finally allowed these communities to settle in their habitat. The community agreed that the former Jakarta governor before Anies, Basuki Tjahaja Purnama (Ahok), was tough and unnegotiable regarding community involvement throughout the development process, especially related to the eviction process. The reigning period of Ahok was from 2014 until 2017, and the eviction threats happened in 2015 under Ahok's governor. The residents, therefore, will be really put high hopes on Anies who could win the Indonesia Presidential election in 2024, so that he could continue the pending task, legalizing the land in Kampung Tongkol, Kampung Lodan, and Kampung Krapu. In addition, they also wish that Sandi could be the vice president of Anies, as he was the deputy governor of Anies.

They also strongly disagree with the resettlement solution, as they think it will posit them with another intricate situation, as mentioned in previous sections. Thus, they wish not to be resettled. To be safe from resettlement, the inhabitants also hope for more houses renovated as "Sample Houses", which is also listed as the upcoming flood management project. However, this is constrained by some resources, such as financial sources, and therefore KAKC keeps widening its network to obtain more support.

Overall, the mentioned hopes were intended for the authorities. Even though these communities have already done rigorous flood management practices, they still often experience as the centre of blame over the flood cases in Jakarta. They said the accusation mostly comes from the community living in the uptown. This so-called high-class community was prevented from daily activities because the road was flooded. The high-class community believed the riverbank settlements were responsible for this since they occupied the water reservoir and/or riverbank. According to one of the participants, the authorities must have put more attention solely on the ones who have more money or have high social status, as they benefit the government more. Certainly, this unfair accusation was not perceived by the community of these three *kampungs* in a positive way as they already took part in flood management practices. They believe the causes of floods are diverse, not merely from riverbank settlements. Therefore, KAKC and its community, especially in flood cases, wish the government to put extra effort to shift the paradigm that they are part of the solutions and no longer be underestimated. They will always be prone to be evicted if they are still seen as the problem, while they have already shown profound resolutions toward flood management.

The most interesting hope mentioned by Participant 4 is that community participation should be more encouraged throughout the development process, especially flood management, as they are the ones knowing exactly the situation in the field. They also know what things they really need and are suitable for them. He said the importance of the program is not about what and how the program is but rather the participation of all actors, including the community. It is commonly known that the policy, thus far, tends to be top-down, but after some advocacy efforts by KAKC, community involvement or a bottom-up approach started to emerge. Participant 4 explained this:

"In fact, the best programs from the government are not only from the top down but from the bottom up. So, the government should invite the community or representatives to be able to make decisions. Previously, decisions were always made from the top; now, they are absorbed from the bottom up to the top level so that the residents also make decisions about what to do. In my opinion, the most important thing is not only the program a/b/c/d/e but the community participation ..... And those who know the needs are us, as the "below/bottom" community who know what needs to be fixed."

(Participant 4, 2023)

Lastly, even though it is not significantly related to flood management practices, one participant wishes that the distribution of sembako from Jakarta's local government should be prevalent in all *kampungs*, not centralized in a few *kampungs* only. Sembako distribution has become one of the programs from the local government, not only in Jakarta but in Indonesia as a whole, where it is intended for those minor groups such as urban poor communities. He mentioned that *sembako* not only plays a pivotal role in flood management, but also it is significantly helpful for citizens' daily needs. "If someone cannot fulfil their daily needs, how could they possibly do activities such as flood management practices?".

9 Conclusion

Conventionally, flood management in Jakarta from the colonial period until the present time illustrates a top-down and engineer-based approach and the absence of community participation in the policy-making processes. One of the profound and recent policies towards flood management in Jakarta is through a collaborative project between Jakarta's local government and World Bank called JEDI. As one of the approaches, this project would evict several *kampungs* located on riverbanks or close to the reservoirs, and clearly, this policy was made without the participation of the local community. This research aims to understand the existing and upcoming flood management practices of the local community by taking a case study of KAKC, which organized three *kampungs*: Kampung Tongkol, Kampung Lodan, and Kampung Krapu in north Jakarta as communities' response to eviction threat. Additionally, this research also analyzes the impact of flood management on livelihoods and *vice versa*. The development project frequently transformed the source of livelihoods, and that transformation significantly impacted the livelihood security of vulnerable groups. The data collection of this research was conducted through ethnography (field visits, observation, and random chats or small discussions with the inhabitants of three *kampungs*), in-depth interviews, and photo elicitation.

The main research question of this research is **"What are the existing and upcoming bottom-up practices by KAKC toward flood management, and how do they impact and are impacted by the livelihood of people in Kampung Tongkol, Kampung Lodan, and Kampung Krapu?"**. Thus far, numerous existing practices have been executed, while others are still carried out until now. In terms of upcoming practices, KAKC has designed several practices and strategies to maintain the positive outcomes generated from the existing practices and to improve the outcomes. Moreover, after the research field was conducted, I found mutually interconnected angles/directions between flood management and livelihood, which can positively illustrate the impact of flood management practices to livelihoods and the impact of livelihoods to flood management practices. The main research question will be answered and elaborated in detail by following sub-questions.

Sub-question 1: What practices have been done by the community toward flood management, and how?

Chapter 5.1 elaborates on this sub-question by providing details of existing flood management practices that KAKC has done. There are three main concepts of the existing practices: organizing, advocacy, and network development, and every concept has specific approaches and activities.

The activities under organizing concepts are: 1) cutting house five meters, 2) waste management, 3) monthly river cleaning, 4) constructing proper roads, 5) planting more greens, 6) constructing septic tanks, and 7) constructing "Sample House". The inhabitants are still doing and maintaining some activities, for instance, waste management, planting more greens, and monthly river cleaning.

In terms of advocacy efforts, there are some actions have been taken. First, successfully negotiated with Jakarta's local government to shift the flood management concept from eviction to maintaining and planning the riverbank settlements. Second, to promote community participation towards *kampung* maintenance, Jakarta's local government launched CAP and CIP. Third, the follow-up action from the second point, Jakarta's local government allocated a budget for *kampung* improvement through CAP and CIP, included in APBD. Fourth, successfully shifted the spatial planning status of these three *kampungs* from the blue zone (water area) to the yellow area or R1 (settlement). Fifth, obtain the building permit or IMB. Lastly, the legalization of land status and this particular action is still in process.

Two approaches of network development are vertical or trans-professions/sectors and horizontal. Vertical refers to developing collaboration or cooperation across professions, for instance: architects, lawyers, academicians, journalists, city planners, and environmental activists. In contrast, the horizontal approach is to connect to other communities, 24 *kampungs* listed within the JRMK. Optimized JRMK, KAKC will enable communication with and support other *kampungs* facing similar issues. Often, they share practices from each *kampung* to be implemented in their *kampung*.

Sub-question 2: What is the upcoming practice for flood management by the community?

The upcoming flood management practices are elaborated in sub-chapter 5.2, which due to a lack of resources, most projects haven't started until KAKC found suitable partner candidates. The forthcoming practices are: 1) use the river's potential as transportation for commercial and tourism, generating income for the community, resulting profits for investors, and producing stability for the government, 2) build more "Sample Houses" since there are still houses deemed not well-constructed yet, 3) enforcing the legalization of land status, and 4) several members of KAKC will participate in the Indonesia election in 2024 as legislative candidates at the regional level (DKI Jakarta). On the whole, most upcoming projects are almost impossible without support from other parties.

Sub-question 3: To what extent are these practices affecting the decrease in flood cases?

According to quick-random chats with some residents and nine interview participants, the majority of whom claimed that they had never experienced a flood since they had done the flood management practices. It proves that the community's flood management practices positively impacted the decrease in flood cases in this area. Chapter 6 not only provides a solid answer to this sub-question but also describes the pattern of the floods that usually happen in five years. In addition, this chapter elaborates on the coping mechanism of the inhabitants when the flood occurred, also. The inhabitants confidently said the flood management practices that have been done dominantly play a significant role in mitigating flood cases in their homes.

Sub-question 4: What are the impacts of these practices on the livelihoods and the impact of livelihoods on these practices*?*

As explained, flood management and livelihoods are mutually interconnected and impact each other, as described in Chapter 7. How to measure the impact is through referring to four out of five livelihood assets (Serrat, 2017): human capital, physical capital, social capital, and financial capital. Table 8 summarizes the relationships between flood management and livelihood (how flood management impacts livelihood and how livelihood impacts flood management), while the details are elaborated in Chapter 7.2.

***Table 8*: Brief example of how flood management impact livelihood and vice versa (source: author, 2023)**

Livelihood Asset	**Impact(s)**	
	Flood management to livelihood	**Livelihood to flood management**
Human capital	The environment gets healthier: - There were significantly fewer cockroaches, rats, and mosquitoes: which caused malaria, dengue fever, vomiting - Better sun exposure: roads or pavements no longer covered by the aisle or tunnel	Elderly unable to execute some of the practices, for instance, cutting houses, as they have limitations in terms of healthiness since this practice is done individually. If they have to hire workers, it will put another financial spend.
Physical capital	The flow of people, information, and capital has been more accessible since the bridges and roads were constructed.	Before the bridges were constructed, the community relied on the small boat (*getek*), which cost IDR 2.000 one way and with limited operational time. In this case, a last-minute flood management meeting especially at night will possibly not going to happen. After the bridges were built, flood management activities became easy to be held (including last-minute coordination meetings).
Social capital	The bond among communities in each *kampung* is stronger. They know each other, as previously only the administrators recognized each other. Several social activities among *kampungs* were conducted after flood management practices were done.	Since the relations are getting stronger, the community has become more consistent in executing flood management practices and creating more upcoming breakthroughs in flood management.
Financial capital	Impact the savings. Often inhabitants have	Different capacities of financial

	to seek credit or loans from relatives or their workplace.	resources or manpower resulted in the different lengths of completion of the practice, for example, the cutting house practice.

Source: author, 2023

To conclude, this research found that flood management practices by KAKC depict an unconventional approach to common flood management by hydrologists, that is added with big infrastructures such as canal systems, dredging, clearing, and normalization of river projects. It proves that the local community, in the case of flood management, can be a solution and participate in the development process, resulting in KAKC practices that illustrate more active and quasi-participation instead of passive.

The different source, in this sense financial and physical, also play an important role in flood management practice. It illustrates that the community is a heterogeneity/diverse entity instead of a single actor of flood management practices, as there are different capabilities for executing flood management.

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11 Appendix

11.1 In-depth interview guide

Introduction

This interview is being conducted to understand the flood management practices done by KAKC and how these impact their livelihoods. It is part of data collection for thesis research as students at Utrecht University. You will remain anonymous; the answers will only be used for this assignment and will not be shared with anyone else. Do you have any questions?

- there are no good/correct answers. Feel free to express your own personal thoughts.

- If you feel uncomfortable answering questions, feel free to skip them.

- Research aim: RQ: 'What are the existing and upcoming bottom-up practices by KAKC toward flood management in Jakarta, and how do they impact livelihood?''
- Permission to record: the interview will be recorded to produce a transcript. This transcript will be used for research purposes only.
- Storage of information: the transcript will be securely stored and kept in accordance with privacy regulations. The transcript will be removed after the completion of the research.
- Anonymity: the identity of the participant and the data through which this identity can be derived will be anonymized. Information about the respondent's identity will only be shared with explicit permission.
- Consent: the respondent is under no circumstances obligated to answer questions that you do not wish to answer. Participating in this research is voluntary; the respondent can withdraw at any point during the research.

Informed consent

This document aims to set out the terms of your participation in this research. By signing this document below, you indicate that:

- You are well-informed about the research and the way in which the research data is collected, used, and handled.
- You have received sufficient information about this research, and you are aware of what participation entails.
- You participate in this research voluntarily. There is no explicit or implicit pressure to participate.
- You give the researchers permission to make (sound) recordings and take written notes during the interview.
- It is clear that if I object to any of the points mentioned above, I can stop my participation at any time without having to express a reason.

I participate in this research and provide YES/NO consent for the interview to be recorded and used for analysis.

Background information

No. of interviews:

Name:

Age:

Gender:

Marital status:

Children:

The number of people living in the house(hold):

Occupation:
(Probes: livelihood strategy – for example, small enterprises at home (livelihood strategy))

Monthly income:

Your role in community organization (KAKC):

Opening questions

1. Can you tell me about your housing situation?
   Probes: where, with whom, what kind of house, and for how long
2. How often do floods occur here?
   Probes: once in month or year
3. When did the latest flood occur?
   Probes: date
4. How severe were the floods in your home?
   Probes: the height of the floods, interior and exterior damages
5. What are your coping mechanisms when floods happened (back then and at present)?

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Probes: evacuate to a temporary shelter, evacuate valuables such as house certificates, etc

6. What and how is government intervention in flood in your area?
   Probes: government practice
7. Do you think the government's practices are the solutions to address the flood in your area? Why?
   Probes: yes or no with the reasons

Questions about the community flood management initiatives (KAKC)

8. What triggers the flood management initiative by KAKC?
   Probes: background story
9. How is the fund for these practices collected?
   Probes: how the fund was collected

Questions about the bottom-up flood management practice (participation)

10. What are the practices done by the community?
    Probes: collective and household level: passive, quasi, or active
11. Whether any practices still exist?
    Probes: example of practice
12. To what extent are these practices affecting the decrease in flood cases?
    Probes: no-repeat occurrence of flood cases within months or years
13. Whether any upcoming projects of flood management by the community?
    Probes: new practices

Questions about the impact of flood management practices on livelihoods (capability, asset, and activity)

14. Does KAKC's flood management practices impact your ability to access the source of living?
    Probes: access to work, market (if the participant has a food stall as their source of living) – capability
15. Whether flood management practices by KAKC's impact your health, nutrition, and education?
    Probes: livelihoods asset – human capital
16. Whether flood management practices by KAKC's impact your social network and connection within the community?
    Probes: livelihoods asset – social capital
17. Whether flood management practices by KAKC's impact the infrastructure, secure buildings, water supply, and sanitation?
    Probes: livelihoods asset – physical capital
18. Whether flood management practices by KAKC's impact your wage, savings, and remittances?
    Probes: livelihoods asset – financial capital

Questions about the impact of livelihoods on flood management practices (capability, asset, and activity)

19. Does your ability to access the source of living impact KAKC 's flood management practices?
    Probes: access to work, market (if the participant has a food stall as their source of living) – capability
20. Whether your health, nutrition, and education impact flood management practices by KAKC?
    Probes: livelihoods asset – human capital
21. Whether your social network and connections within the community impact flood management practices by KAKC?
    Probes: livelihoods asset – social capital
22. Whether infrastructure, secure buildings, water supply, and sanitation impact flood management practices by KAKC?
    Probes: livelihoods asset – physical capital
23. Whether your wage, savings, and remittances impact flood management practices by KAKC?
    Probes: livelihoods asset – financial capital

Closing questions

24. What are your hopes for the future related to flood management in Jakarta?
    Probes: more community participation, no more eviction, for the government
25. Would you like to share anything else, change any answers or ask me something?
    Probes: additional comments and questions