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### Floods in (post-) New Order Jakarta

*A political ecology of urbanization*

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# 1

## QUESTIONING FLOODS IN JAKARTA'S UNEVEN URBANIZATION

### 1.1 WHAT IS YOUR SOLUTION TO FLOODING?

Jakarta is a notable site of urban flooding. The coastal area of which the city of Jakarta forms part has always been vulnerable to floods, from before it was colonized (Milone, 1967: 75) as well as during (Gunawan, 2010; Kanumoyoso, 2011; Blackburn, 2012), and after Dutch colonialization (Padawangi and Douglass, 2015). This area is crisscrossed by 13 rivers which flow from the volcanoes of Pangrango, Salak, and Gede in the South and end in Jakarta Bay (Verstappen, 1953; van Bemmelen, 1949). The Dutch harbored this area in the early 17th century and developed it into a commercial center. They built a fortress, a castle, and housing, and equipped the city with a network of canals. The buildings and canals that formed a European-style planned city radically altered the waterscape, rupturing the “resilience” of the “organic” kampungs to “varying socio-ecological conditions” (Putri, 2019: 805), and exacerbating the vulnerability of this area to flood risk (Gunawan, 2010). The rivers and canals are water conveyors. Flooding occurs in some parts of the city when the water surpasses the capacity of the conveyors. Chances of this happening increase because of how the canals easily clog with sediments (Poerbandono, Julian, and Ward, 2014).

In recent years, the frequency of flooding is increasing (Colven, 2018: 4). In 1892 (the highest in 1890s), only two flood events were recorded for the whole year, but the number of yearly floods has become higher ever since (Gunawan, 2010: 208). In the 1960s, the highest number of recorded floodings in Jakarta was five times a year (Gunawan, 2010:

208).<sup>1</sup> In 2010 alone (the highest in 2000s), the number was 11 times per year (Padawangi and Douglass, 2015).<sup>2</sup> This pattern reveals that around every 60 years the annual frequency of flooding doubles. This cannot be attributed to heavier rains: the analysis of total monthly rainfall from 1860 until 2007 shows a “horizontal” (Brinkman and Marco, 2009: 4) trend line. The horizontal trend line, according to Brinkman and Marco (2009: 5), means that “statements about climate change being the cause of the floods problems cannot be proven with the current available data.” Brinkman and Marco (2009: 5)’s rainfall analysis forms an important starting point of this thesis, which sets out to search for explanations of flooding beyond rainfall or climate change.

### 1.1.1 Flood-society interactions

Hence, my search starts by positing that flood events are not only about water or rain (belonging to the domain of nature/the non-human), but are always simultaneously human-made – or happen because of entanglements between nature and society. The behavior of people affects the behavior of water and vice versa. As for the first, human development affects the behavior of water catchments among others by changing the interception capacity of forest canopy, the rate of water percolation into the ground, and the surface water runoff. In terms of the second, people learn to live with floods. In Jakarta, people are prepared for their houses to flood for one or many days in the rainy season. They wait for water to drop, clean out all the mud and muddy water, and get back the unflooded life. “Get ready for the flood,” that is how anthropologist (van Voorst, 2013) describes how Jakartans deal with recurrent flood events.

I witnessed this from very close by during my fieldwork for this thesis, when I lived for five months in one of the flood-prone urban poor settlements in Jakarta, the kampung of Bukit Duri, on the bank of the Ciliwung River. Like other people in other parts of the world (White, 1942), people in Bukit Duri adjusted their houses to floods. For example, the house I lived in provided an elevated space somewhere on the ground floor to which I could evacuate myself in case of a small flood. My room on the ground floor, located in the front part of the house, was equipped with a rack close to the ceiling. I could put my suitcase there if the floor would be inundated. At first, I did not realize that the floor was slightly sloping. I just realized this during my first flood experience, when I noticed that when the water level decreased, it flowed out from the house by gravitation. Beds on the first floor are high enough, more than one meter from the ground, enabling you to

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<sup>1</sup> Sources of these data are flood events recorded in news, collected/scrutinized/organized by Gunawan (2010).

<sup>2</sup> Source of these data is Indonesia Disaster Mitigation Agency (BNPB).

continue your sleep when there is a flood. Most of the houses in Bukit Duri have a second floor, to which you can evacuate yourself if the first floor is inundated.

### 1.1.2 Types of floods

Between February and March 2016, I experienced five river floods with heights ranging from half to one meter. The volume of water flowing kilometers from the hinterland to the sea surpassed the river's capacity, inundating the riverbank. The early warning system that is in place informs the riverbank communities in time, giving them around 6-8 hours to prepare before the flood comes. Somewhere in the upstream, in a place called *pintu air* (water gate) *Katulampa*, the gate-keepers monitor the water discharge and flow velocity of the Ciliwung River. A table converts the observed water discharges and flow velocities at the *pintu air* *Katulampa* into downstream flood risk. The riverbank community has an intimate understanding of this table. While living there, I used to receive *Whatsapp* messages from the river bank colleagues, warning me about the flood that would come the next morning and, therefore, telling me to be prepared.

River flooding, like the one I experienced above, is just one type of flooding in Jakarta. It is called *banjir kiriman* (literally meaning “sent flooding”, i.e. flooding due to the upstream heavy rain, water is sent downstream). Another type is coastal flooding, caused by the combined effect of sea level rise and land subsidence. In Jakarta, the rate of sea level rise is small when compared with that of land subsidence, with the latter exceeding the former with a factor of, in some places, more than fifty. In some places the land is sinking with a rate of approximately 20-28 cm/year, while the rate of sea level rise is 0.5 cm/year (Abidin et al., 2011; Marfai, Sekaranom and Ward, 2015). A third type of flood is caused by the inability of existing drainage canals and rivers to contain rainwater, the so-called *hujan lokal* (local rain).

### 1.1.3 Managing floods

Since the colonial era, the government has been in pain to manage floods in Jakarta. The colonial era saw the development of flood infrastructure (a canal system, dredging, kampung improvement; see Octavianti and Charles [2019]). After independence, the government has been engaged in a sequence of measures to prevent and manage floods. These include continuous work on a system of canals (see Nedeco [1973]; Gunawan [2010]), dredging, clearing and the so-called normalization of rivers (GOI – Government of Indonesia [2011]; Kementerian Pekerjaan Umum [2015]), but also involve coastal protection works such as the Jakarta Coastal Defence Strategy (JCDS; Ministry of Public Works [2011]), the Great Garuda or the National Capital Integrated Coastal Development (NCICD; NCICD Master Plan [2014]), the ‘Updated NCICD’ in 2016, and the Integrated Flood Safety Plan (IFSP, van Woerden et al. [2018]). In spite of all these projects and measures, until today Jakarta remains a notable site of urban flood risk (Marfai,

Sekaranom and Ward, 2015; Garschagen, Surtiari and Harb, 2018; Wannewitz and Garschagen, 2020).

### 1.1.4 Floods are political

Jakarta's flooding has received much attention from scholars (like myself) as well as from citizens and the government. The issue of flooding is discussed by many people, from the layperson to the high or top ranking politician. I have been involved in discussions about flooding many times and with many people, such as with fried-rice street vendors. One still can watch the debates preceding the DKI Jakarta governor election in 2017 archived on *Youtube* that show that issues of flooding, groundwater extraction, and land reclamation were also a matter of concern to the elites, and figure prominently in political debate.<sup>3</sup>

A decade ago, Fauzi Bowo – the 2007-2011 Special Capital Region (DKI) Jakarta Province governor – for instance used flooding as a central theme in his campaign. During his training as an engineer at the University of Kaiserslautern in Germany, he had done his thesis on Jakarta's urban and regional planning. His campaign's tagline was about floods: "*serahkan pada ahlinya*," literally means "leave it to the expert". He thus smartly mobilized his engineering degree to lend support to his promise that he would better manage floods in Jakarta, a strategy that was politically effective in his race to become the governor in 2007 (metro.tempoco, 2010). Nobody wants to be flooded. When someone claiming to be an expert promises to liberate you from flooding, no reason to not give it a try. Indeed, Bowo won the election. Unfortunately, he was not able to deliver on his promises.

Another wave of political campaigns that centered on floods was even more dramatic in terms of political scale. It came from Indonesia's current president, Joko Widodo (Jokowi). Jokowi was a major in Solo, a small town in Central Java Province, when he was running for the DKI Jakarta gubernatorial election in 2011. He had graduated from the Forestry Department, Gadjah Mada University (UGM), Yogyakarta, another city in the central part of Java. At that time, as recorded in mass media, Jokowi claimed that managing Jakarta's floods is relatively easy. According to him, it was all about allocating enough budget to it. The DKI Jakarta government, in his view at that time, should use the government budget to manage flooding (rmol.co, 2011). Accompanied by Basuki Tjahaja Purnama as the vice-governor candidate, they won the 2012 DKI Jakarta gubernatorial election.

In 2014, Jokowi ran for president. Jakarta's flooding also figured in his presidential campaign. He said it would be easier to manage Jakarta's flooding from a presidential

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<sup>3</sup> Examples: 1) <https://www.youtube.com/watch?v=DmMNPStSeNw> (accessed: 17.06.2018); 2) <https://www.youtube.com/watch?v=ehGRJaRe5EU&t=125s> (accessed: 03.12.2020).

chair, explaining that the water in the Ciliwung River comes from outside of Jakarta, an area that administratively belongs to another province of West Java. His argument was that coordination among many provinces was needed to better manage the Jakarta floods. This would be easier if the higher level of government, in this case the president, is knowledgeable about flood management. This trans-province coordination is something that is beyond the reach of the DKI Jakarta government (megapolitan.kompas.com, 2014). He thus played with the ‘politics of geographical scale’ in politically exploiting Jakarta’s flood issue. With that, he won the presidential election, and his deputy, Basuki, came onto the stage as DKI Jakarta governor. Later on, as a president, in 2019 Jokowi announced the move of Indonesia’s capital from Jakarta to East Kalimantan. Flooding and land subsidence are and important part of the reason to move the capital (Bappenas, 2021: 4). The cartoon of *Tempo Magazine* (January 29<sup>th</sup>, 2022 edition) in Figure 1-1 below captures Jokowi’s statements about how to manage Jakarta floods.



Figure 1-1: Cartoon of *Tempo Magazine*. Top-left; +: If you vote me as a [Jakarta] governor, I will eliminate traffic jam and flooding; ++: Great! Top-right; +: Easier to manage traffic jam and flooding from the presidential chair; ++: Cool... Bottom; +: Jakarta is about to be submerged, we relocate [the capital]; ++: What?!<sup>4</sup>

<sup>4</sup> This cartoon is republished here with a permission from Setri Yasra, Editor in Chief of *Tempo Magazine*, through *WhatsApp* conversation, 4/2/2022. The cartoon is available at: <https://twitter.com/temponewsroom/status/1488668319196450820> [accessed on 14 February 2022].

Basuki, widely known as Ahok, was trained at the Geological Department of Trisakti University, Jakarta. He also pulled the expert card. His claims to expertise about floods are archived: "*I graduated from the geological department,*" (megapolitan.kompas.com, 2015) he said, when he was trying to convince his audience about his ability to manage floods. This was a response to critiques about the government's river normalization programme that had evicted riverbank communities. Apparently, his engineering background was not really helpful, as the floods continued to occur.

In the 2017 DKI Jakarta gubernatorial election, Basuki was defeated by Anies Baswedan, who gained a PhD in political science from the Northern Illinois University, US. In terms of flood management, Anies' campaign distinguished itself from that of Basuki. Under Basuki, Jakarta witnessed evictions of riverbank communities for the sake of 'river normalization' which is the clearance of the riverbank and strengthening it with a fence of 20 m length of concrete sheet pile planted into the earth. Sometimes also a one meter height wall or dam is added to completely separate the river from its surroundings. The main aim of river normalization is to provide space for water so that it can flow into the sea without causing damage to buildings or people. Anies criticized this, calling this type of flood management "horizontal drainage". In contrast, he proposed to implement what he called "vertical drainage": measures aimed at facilitating the percolation of water into the ground (news.detik.com, 2017). He promised to adopt community-based flood management in which, for example, riverbank settlement can co-exist with flood prevention infrastructure. He won the election.

Despite the many political promises and interventions by top-ranking politicians, floods still come and continue to cause a lot of damage. In February 2018, due to heavy rain both in the upstream catchment (the *banjir kiriman*) as well as within the city (flood due to the *hujan lokal*), the largest part of the city was flooded. Floods came again in February 2020 and February 2021.

It seems that nobody is capable of controlling the water. Political campaigns with the promise of expertise and big infrastructure development (river normalization accompanied by riverbank community eviction repetitively conducted by politicians and government), so far, are not able to liberate Jakarta from frequent flooding. This puzzles me. Why is this so? How to explain this? Saying that politicians did not deliver on their promises only provides a small part of the explanation. In fact, many of them tried something (flood prevention infrastructures/measures: river bank clearance and normalization, eviction, dam/wall, etc.). Some, such as Basuki, lost their governor chair partly because of heated public debate on flood management. Politicians know it: to make the city flood-free is of utmost political significance in Jakarta. If somebody wants to run for the Jakarta gubernatorial election, that person has to be prepared to answer the question: what is your solution to flooding?

## 1.2 FLOODS AND URBANIZATION IN JAKARTA

Blaikie and Brookfield (1987: xvii) propose an interesting approach to understanding persistent environmental problems. In their attempt to understand why land degradation continues to massively happen in the Third World, they posed the question: "why 'land managers' ... are so often unwilling or unable to prevent such accelerated [land] degradation?" This question called my attention because I have a similar puzzle: why are water authorities – and politicians many of whom have flood-related expertise or are backed up by flood engineers – unable to liberate Jakarta from flooding? Blaikie and Brookfield (1987: 17) propose a political ecological approach to answer their question, as it allows interrogating "the contribution of different geographical scales and hierarchies of socioeconomic organizations (e.g. person, household, village, region, state, world) and the contradiction between social and environmental changes through time" to understand the persistence of land degradation. In other words, they try to understand land degradation beyond the land (ecology/non-human) itself, and look to how it is related to societal (human) processes and socio-economic complexities. I follow their analytical path.

My starting proposition is that Jakarta floods are woven into the very processes of urbanization through which the city is produced in the first place (Harvey, 1996; Marx and Engels, 1986: 25). Hence, floods are constituted by intersecting 'ecological' – extreme hydrological moments such as heavy rain and the sinking of land – and 'social' dynamics – ways in which the city was built. Jakarta's urban flooding, in other words, is an integral part of the urbanization process. I divide the urbanization process into three separate but interconnected elements, following proposals from urban scholars: increased population density, groundwater extraction that causes land subsidence and further increases the city's vulnerability to flooding, and the expansion of the built environment.

First, population density is recognized as a major factor contributing to floods because it decreases the capacity of upland catchments as well as the city to absorb or store water (Faedo, 2014; Rukmana, 2013; and Remondi, Burlando and Vollmer, 2015). Simply put, because the catchment is occupied by people, the space for water is reduced. In the last six decades, the concentration of urban population in the city of Jakarta has grown significantly. In 1900, the Jakarta population was 115,000. It became 2.9 million in 1961 (Rukmana, 2013). It skyrocketed into 6.5, 9.6, and 10.56 million in 1980, 2010, and 2020, respectively (BPS – Badan Pusat Statistik, 2020: 2). When looking at the urban agglomeration of Jakarta Megacity or Jabodetabek,<sup>5</sup> population counts become even

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<sup>5</sup> The name of Jabodetabek is taken from the initial letters of the administrative unit of **J**akarta, **B**ogor, **D**epok, **T**angerang and **B**ekasi. The total area of Jabodetabek is more than 6 thousands km<sup>2</sup> (Rukmana, 2015).



higher, 28 million in 2010 (Rukmana, 2013). As a matter of illustration, in 2020 Jabodetabek population density is 4 times than that of Java and 33.5 times higher than that of Indonesia as a whole (Gea et al., 2020: 98-99).

Second, the spatial concentration of people in the city is connected to the increased extraction of underground water to fulfil the needs of the above-ground urbanites. People living in the city require a large amount of water for a myriad of purposes. An estimated 40% (Remondi, Burlando and Vollmer, 2015) – 70% (Colbran [2009]; see also Furlong and Kooy [2017]: 895) of the Jakarta population uses groundwater for daily purposes. A major portion of this groundwater, particularly for commercial and high-end residential use, is extracted from deep aquifer layers (Borst, 2014). The over-extraction of deep groundwater has been identified as one of the causes of land subsidence (Abidin et al., 2001; 2008; 2011; 2015). The sinking of land increases flood risk, as it makes it easier for sea water to inundate the sinking land, thereby blocking gravity-based river flows. Land subsidence leads, as has been succinctly explained by Abidin et al. (2015: 17), “to expanded coverage and deeper water depth of flooded (inundated) area.”

To trace the link between land subsidence and urbanisation, following the spatial and temporal distribution of groundwater extraction provides one logical entry point. In Jakarta, the database of deep groundwater wells is incomplete and unreliable, something that I will say more about in Chapter 5 where I discuss land subsidence. In this introduction section it is enough to show the changes in the total number of groundwater wells over time. The most rapid growth of deep groundwater wells has occurred in the last six decades. In 1879, there were only 42 deep groundwater wells in Jakarta. This number grew to 352 in 1968. This means that in 89 years, the number of deep groundwater wells only grew with 310 or 8.3 times. In 1998, the total number of deep groundwater wells was 3,626, which means that in 30 years, the number grew immensely, 10.3 times

(Figure 1-2, data are extracted/reproduced from Kagabu et al. [2013]).

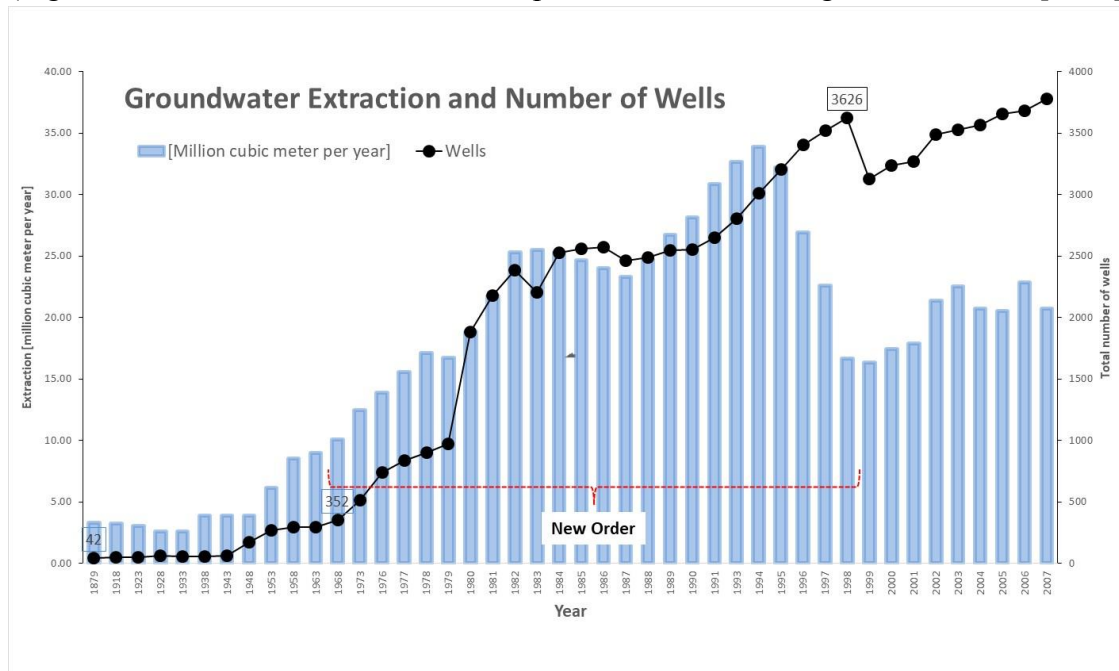


Figure 1-2: Groundwater extraction and number of deep wells; reproduced from Kagabu et al. (2013).

The third factor contributing to the production of flood risk is land conversion, or the increase of the built environment. The built environment increases flood risk through two seemingly contradicting processes. The first process, the reduction of the absorption capacity is partly caused by a reduction of space for water to flow, and partly by the increase in paved area – decreasing the volume of water that can be absorbed by the soil. Then, the second process, is soil compaction – caused by the weight of buildings – that lowers the elevation and logically increases the space for water to stay. They are contradicting processes in the sense that the former reduces space for water, and the latter increases it. Yet, the end result is the increase of the city’s vulnerability to flooding. Under the influence of European-style plans, the small city of Batavia expanded into an urban agglomeration. In 1770, the built-environment was 0.42% of the total area of what is now the DKI Jakarta Province. In 1965, the built-environment accounted for 18.12% of the total (Figure 1-3; modified/reproduced from: Pemerintah Daerah Khusus Ibukota Jakarta [1966], the DKI Jakarta Spatial Plan 1965-1985).<sup>6</sup> This means that in almost 200 years, the built environment grew by only 17.7%. In 2014, the total built-environment was

<sup>6</sup> There is a possible inaccuracy when I reproduced the map. Accuracy is not so much an issue here, but the pattern of landscape transformation over time. I consider this level of accuracy is sufficient for the purpose of my study.

83.7% (Garschagen, Surtiari and Harb, 2018: 7). This means that in only around five decades, the built environment grew by almost 65.5%.

### The growth of modern-planned city

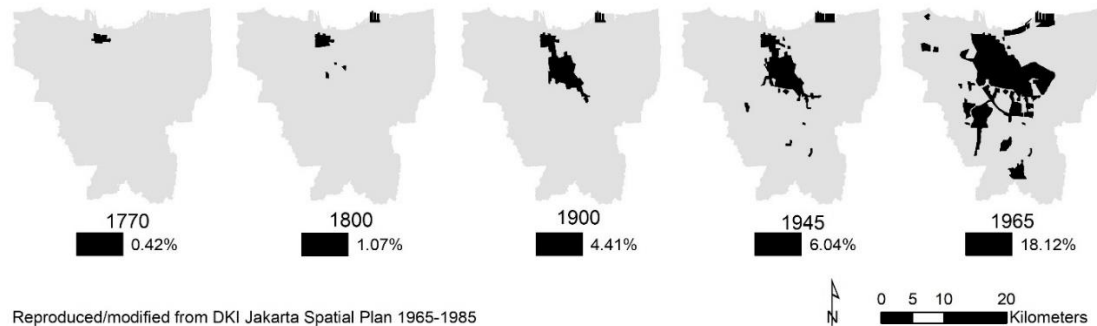


Figure 1-3: 1770-1965 expansion of European-style or modern-planned built environment in DKI Jakarta Province. Reproduced from the DKI Jakarta 1965-85 Spatial Plan.

Taking together, the increase in population density, the increase in groundwater extraction and the expansion of the built environment importantly account for the extreme vulnerability of Jakarta to floods. What is going on in the last five or six decades that allowed these processes to continue, when those responsible for urban planning were aware of the risks of flooding? Or – reformulating Blaikie and Brookfield (1987)’s question, why did water managers and city governments turn a blind eye? For people who follow the history of contemporary Indonesia, this is not a difficult question to answer. From 1965 to 1998, Indonesia was under the authoritarian regime of Suharto's New Order, which embraced the path of capitalist development.

## 1.3 NEW ORDER: POLITICAL ECONOMIC CONTEXT OF JAKARTA’S URBANIZATION AND ITS UNEVENNESS

After the ‘political independence’ in 1945 and the political recognition from the Dutch government in 1949, the era of 1950-65 was a moment of struggle to gain ‘economic independence’. Indonesia under its first president Soekarno (1945-65/7) embraced the idea of an anti-imperialist, -colonialist, and -capitalist revolutionary movement. Soekarno’s anti-imperialist campaign was captured in the slogan of “*Berdikari*,” an abbreviation of “*Berdiri di atas kaki sendiri*,” which means “standing on your own feet” (Soekarno, 1975; Vu, 2009).

The newly independent nation-state, strongly influenced by the national liberation movement and inspired by communist views, chose a path of development that involved nationalizing foreign companies (Kanumoyoso, 2001; Robison, 1986[2009]: 72). Partai

Komunis Indonesia's (Indonesia Communist Party, PKI) capability to mobilize mass movements was instrumental in creating political legitimacy for this. In rural areas, as part of the so-called 'economic independence' and legalized by Basic Agrarian Law (BAL) 5/1960, Soekarno embarked on a campaign of land reform consisting of land redistribution (Bachriadi dan Wiradi, 2011). PKI was the main proponent of BAL because the Party considered reaching people in the countryside as important for building political support for the Party. Lekra, a PKI-affiliated artist organization who used their art to support the revolution, was also actively involved in campaigning for land reform (Aidit, 1964; Mortimer, 1972; Kusni, 2005). To the end of his presidency, and heavily influenced by PKI, Soekarno became a more left-leaning president (Redfern, 2010; Larasati, 2013). The *Berdikari* principle also guided Indonesia's international policy. It was materialized by Indonesia's withdrawal from the United Nations (UN), the International Monetary Fund (IMF), and the World Bank (WB) in 1965 (Redfern, 2010: 572). Soekarno could indeed be called the "Hugo Chavez of his day" (Klein, 2007: 67).

This economic independence movement was a major obstacle for the expansion of, particularly, foreign capital. In 1965, the *September 30 Movement* (G30S) erupted. This was, according to McNaughton (2015) and Lane (2014: 81-101), a counter-revolution in that it ended Soekarno's revolution. On the night of September 30 in the capital, a group of people who made up the *September 30 Movement* kidnapped and killed six army generals, including the army chief. Who, if anyone, was the master mind of the movement, is still a mystery in Indonesia's modern history (Rossa, 2006; Redfern, 2010; Simpson, 2008; Melvin, 2018; Robinson, 2018). Klein (2007: 67) maintains that the US Central Intelligence Agency (CIA) was involved. The *September 30 Movement* created an opportunity to one of the army generals who was not kidnapped to seize power, Suharto. The morning after the events, he was quick to take over the command of the higher army to control the situation. The Suharto-led army accused PKI to be the master mind of the movement. This was followed by the massacre of PKI's and many affiliated organizations' cadres. Estimates of the victims range between 500,000 and 2 million people (Larasati, 2013). Farid (2005: 3) terms this massacre as the "original sin of Indonesia," marking the violent start of primitive accumulation in Indonesia's modern history. On March 8, 1967, the People's Consultative Assembly inaugurated Suharto as the new president.

Suharto named his government New Order, which, according to his logic, is a differentiation to Sukarno's 'Old Order'. New Order (in Bahasa Indonesia: '*Orde Baru*'), according to one of Suharto's (1976: 3, 4, and 11) speeches, is an "order of development" (*orde pembangunan*), a "correction to the leadership, policy, and politics of the Old Order," with "economic development" at its core. Indeed, Suharto called himself "the father of development" (Heryanto, 1988). He cultivated experts who were incubated under Sukarno's era as the main engine for New Order development (Fakih, 2020). After the inauguration, it became clear how in many ways Suharto was completely the opposite of

Soekarno. Soon after he came to power, Indonesia rejoined the UN, IMF, and the WB (Redfern, 2010: 527). Many pro-people policies from Soekarno's era were abolished and replaced by pro-capital policies. Land was no longer for the people, but for big corporations (Rachman, 1999). The early decades of Suharto saw massive inflows of USA-based capital into many sectors, such as manufacturing, banking, finance, mining, oil, agriculture, food processing, and forest products in 1967 (Winters, 1991).

To achieve the goals of development, the New Order state strongly engaged with capitalism, and without any hesitation repressed its own population. That is why Feith (1979) called New Order a "repressive-developmental regime". In a similar vein, Vu (2010: 2) labels it a "developmental state," which means a "state with structures and strong commitments to growth-conducive policies". Or a state with economic growth as it's, to paraphrase Gidwany (2008: 14), main rational conduct. The development promoted by the New Order regime was built upon the centralization of political power, the oppression of the freedom of expression, and the centralization of economic sources in the hands of a few elites of the Suharto family and its cronies. Therefore, the New Order is also characterized as crony capitalism (Robison, 2009[1986]; Kunio, 1990; Vatikiotis, 2003; Robison and Hadiz, 2004; Aspinall, 2005; Hadiz and Robison, 2013). Because of the increase of state power, Hiarij (2003 and 2006) labelled Indonesia's capitalism a form of "state capitalism," which has two main roles: implementing capitalist development and protecting the capitalist class. The moment of 1965-7 upheaval, then, was a moment that marks the further integration of Indonesia's economy into global capitalist development.

Capitalist development always urbanizes unevenly. The general law is, as Marx (1867[1982]: 265) warned, "What appears on one side as a minus, appears on the other side as a plus." In Smith (1984[2008]: 6)'s words, "development at one pole and underdevelopment at the other". Or, as Amin (1976: 31) states, the "proletarianization and the accumulation of money-capital" are the essential conditions needed for the development of capitalism. The unevenness produced by Suharto pro-market policies becomes clearly manifest in today's Indonesia, more than two decades after his power was halted by the Reformasi Movement in 1998. One example of how unevenness proceeds can be seen by looking at the allocation of large-scale land concessions. According to Rachman (2013), one of the roots of the endless displacements in Indonesian rural areas has been the abandonment of the Basic Agrarian Law 5/1960 – in which the redistributive land reform program was contained – since the New Order came to power. This went accompanied with the New Order allocating large-scale stretches of land for private corporations. The massive displacement and lack of access to land in rural areas, in turn, contributed to pushing out the rural population; with some of them moving to cities like Jakarta.

Existing urban research indeed shows that landlessness in rural areas is one of the main reasons for rural-to-urban migration among the Jakarta urban poor (Azuma, 2000). This matches with the analysis of rural/agrarian studies that identify the lack of access to land

as one of the pushing factors of rural-to-urban migration (White, 1977). People are flowing to Jakarta or Jabodetabek for permanent, seasonal, or temporary stays (Breman and Wiradi [2004]; see also Milone [1967]: 250; McNicoll, 1968; Temple, 1975; Papanek [1975]; Hugo [1982]; Bachriadi and Lucas [2001]; Aditjondro [2003]: 309-310; Sheppard [2006]; Kooy and Bakker [2008]: 383; Texier [2008]; Kusno [2011], [2013], and [2020]: 2; Van Voorst [2015]; Texier-Teixeira and Edelblutte [2017]; Leitner and Sheppard [2018]: 7; Yarina [2018]; Putri [2019]: 5).

Suharto died in 2008. However, his legacy persists. Current Indonesian political and business elites have been incubated during the New Order regime (Hadiz and Robison, 2013). Indeed, the influence of Suharto's crony giant property developers is quite literally cemented into Jakarta's landscape (Kenichiro, 2001 and 2015), including the transformation of the sinking part, such as the luxurious area of Pantai Mutiara in the north-west part of the city (see, Abidin et al. [2011]; Rukmana [2015]).

In my analysis, I examine how the uneven capitalist urbanization of the New Order regime (1965-1998) and its continuation afterwards (1998-now), or (post-) New Order, is cemented into the city of Jakarta and beyond. I am particularly interested on how it is related to the city's vulnerability to flooding. To carve out the scholarly space for my work, below I discuss how Jakarta's floods have been studied by others.

#### **1.4 HOW HAVE THE JAKARTA'S FLOODS BEEN STUDIED?**

Flooding makes Jakarta into "the most-researched high-risk coastal cities in the world" (Wannewitz and Garschagen, 2020: 3297). Wannewitz and Garschagen (2020) provide a good review of more than two hundred scientific publications in English on floods in Jakarta over the past 20 years. Studies have examined the vulnerability of the city to floods (Marschiavelli, 2008; Ward et al., 2011 and 2012), discuss floods through engineering models (Tambunan, 2007; Hurford, Maksimovič and Leitão, 2010; Trilaksono et al., 2011; Bricker et al., 2014), and document and assess options for flood management (Julianery, 2007; Gunawan, 2010; Akmalah and Grigg, 2011; Simanjuntak et al., 2012; Octavianti and Charles, 2019).

How flood production is thick with politics can perhaps best be shown through the linkages between particular patterns of settlement and economic development on the one hand and floods on the other. Texier (2008), affirmed by Van Voorst (2014), mentioned that over the past 50 years, numerous villas have been constructed by the upper class of society in the upstream part of the Ciliwung River catchment. Meanwhile, the main slopes of the upstream areas are increasingly used for plantations, causing a massive reduction in forest area. The combined effect of converting the upstream green area into impervious surfaces and reducing forest canopy is an acceleration of run-off, which in turn triggers floods in the lowland city of Jakarta. Within the city, urban development is recognised as

an important causal factor of flooding (Caljow, Nas and Pratiwo, 2005; Texier, 2008; Padawangi, 2011; Faedo, 2014; Rukmana, 2015; Hellman, 2015; Padawangi and Douglass, 2015; Remondi, Burlando and Vollmer, 2015). Padawangi (2011) and Rukmana (2015) specifically point to changes in land use, such as the development of mega buildings for commercial purposes, as contributing to the complexity of the flooding problem. Rukmana (2013) likewise sees flooding as a consequence of suburbanization and the extension of Jakarta into the Jabodetabek urban agglomeration.

Some studies have examined the uneven distribution of flood risk among urban populations and how they react to it. For example, Van Voorst (2014) links the reluctance of people living on river banks to attend tribunals or lawsuits against the government, demanding attention to and compensation for poorly implemented flood prevention measures, to their experiences of repression exercised for years by the New Order regime. Faedo (2014), through the lens of political ecology, noted that flood in Jakarta should not be taken for granted as a ‘naturally’ occurring phenomenon. He shows how the design and location of hydrological structures like the Manggarai floodgate in Jakarta is shaped by power relations that importantly determine who will be flooded and who will be protected. Recent studies refer to what flooded communities do to deal with floods as “insurgent planning” to differentiate it from as well as challenge government-led “rational planning” (Putri, 2020). Instead of blaming urban poor settlements as causing flooding, these studies focus on ways of empowering communities (Leitner and Sheppard, 2018), and set out to support them with making legal appeals in court (Gavin and Soemarwi, 2020) to challenge evictions. There is experimentation with forms of “social innovation” through which the urban poor can contest their displacement by dominant urban development (Widyaningsih and Van den Broeck, 2021).

### **1.5 MAIN RESEARCH QUESTIONS**

While there are studies that articulate the hydrological, historical, social, economic and even political causes of floods, there is no specific analysis yet of how flood intertwines with uneven urbanization processes within the political economic context of capitalist development in Jakarta (post-) New Order regime. This lack of critical attention to how the occurrence of floods is intrinsic to the process of uneven urbanization in (post-) New Order regime leads to what I see as a distinct depoliticisation of floods: it conceals how floods happen partly because of distinct political choices. This thesis benefits from the above reviewed rich literature on Jakarta flooding to locate itself, to excavate the relations between (post-) New Order uneven urbanization, the production of flood events, and the development of flood infrastructure. The main research question of this study therefore is: *How are flood events and interventions related to uneven urbanization of (post-) New Order Jakarta?*

To operationalize this question, I have divided it into two parts. The first part is concerned with answering the following question: *How are flood events produced by and productive of (post-) New Order uneven urbanization in Jakarta and beyond?*

The second part has to do with how flood prevention measures are designed, planned, and implemented, specifically focusing on how they are the product of and in turn produce unevenness. At the time I started this research, there were three big flood prevention measures on the ground: the Jakarta Urgent Flood Mitigation Project (JUFMP), the National Capital Integrated Coastal Development (NCICD), and the Ciliwung River Normalization (CRN). JUFMP aims to improve the flow capacities of 11 rivers in Jakarta and to increase the storage capacity of four reservoirs. The *Consolidated Summary of Environmental Impact Assessment of JUFMP* (GOI, 2011: 52) explicitly mentions that, in order to perform its aims, 1,109 settlement structures, which are occupied by 5,228 people, are potentially “affected.” According to the *Assessment* (GOI, 2011: 52), these people – called “Project Affected People (PAP)” – would have to be evicted from their living spaces. This is rationalized by the flood management imperative to ‘normalize’ rivers and reservoirs, in order to increase their flow and retention capacity. 96% of those to be evicted live on riverbanks, and the rest have their houses close to reservoirs. In Jakarta, people who live on riverbanks are often referred to as the urban poor (Texier, 2008; van Voorst, 2014). The NCICD aims to protect Jakarta from the type of flood that comes from the sea. To achieve its goal, the project has to evict some 50,000 fisher folks living and working around Jakarta Bay.<sup>7</sup> CRN is a program to increase the flow capacity of the Ciliwung River so that the water stays in the river and does not inundate the city’s settlements. Doing this would require clearing a total of 85.31 hectares of land and evicting 8 kampungs (Kementerian Pekerjaan Umum, 2015). Indeed, the eviction of people from their places of living and work is what these three projects have in common. Understandably then, that to riverbank communities the main threat is not flooding, but eviction (van Voorst and Hellman, 2015: 804). Based on a publication of the Jakarta Legal Aid Institute (LBH-J, 2016), in 2015, approximately 40% of the 113 evictions in Jakarta were because of flood management in the city. This, then, is what provoked my second sub-question: *How are infrastructural interventions for managing floods reproducing unevenness under the (post-) New Order regime?*

## 1.6 EXISTENTIAL AND PERSONAL UNDERGROUND QUESTION

Up to this point, I hope everything I wrote is reasonable; that it makes sense, is clear and logical. Yet, I still have something to say, a sort of question if you want to put it that way,

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<sup>7</sup> Presentation by General Secretary of KIARA in public discussion for a documentary screening of *Rayuan Pulau Palsu (The Seduction of Fake Islands)* at The University of Paramadina, Jakarta: 8-6-2016.



which is occupying my mind. The question nags me, as a pebble in my shoe: why I am doing this, spending all this time (6 years in total: full time from 2015 to 2018 and half time from 2019 to 2022) and hard labor on producing scientific articles and ultimately a PhD? This is an existential and personal question. It comes from the depth of my human self, which is why I think it is fair enough to share it here.

A first reason is an existential one. In 2014, I had no permanent job. Now (2022) I do not have one either. For me at the time that I started, pursuing a PhD was a way to survive. My personal experience and my studies and readings helped me recognize a political discussion: how to change the condition. But, what condition is to be changed?

The best way to tell this is perhaps by telling who I am and what I have done so far. I was born in 1980 in a village in the so-called “outer” island of Sumatra, Indonesia, in the middle of the Bukit Barisan Mountains. My childhood memory is made of mountain rivers and fishes, terracing rice fields; non-plantation coffee, rubber (*Hevea brasiliensis*), cinnamon, and candlenut trees. If once in your life, you sip Mandheling coffee in Jakarta or Amsterdam or elsewhere, most likely, from the name, it came from my place, the Mandailing land (*tano Mandailing*). In 2000, I moved to the city of Yogyakarta in the central part of Java Island to pursue my bachelor’s education in the Geological Department at UGM. The Shell Oil Company helped me do this; it provided years of scholarship, thus helping me to graduate from UGM. At the end of my thesis, I identified myself as belonging to a specific fraction of the much larger group of rural-to-urban migrants: those who move to the city to pursue education.

The city of Yogyakarta is well known in Indonesia for its role in nurturing critical activists. From the early 2000s, one of many urban poor organizations in Jakarta was the Urban Poor Consortium (UPC) with its nationwide network, Urban Poor Linkage/UPLINK. Originating as NGOs, UPC/UPLINK later transformed into networks of the Indonesian urban poor. While doing my bachelor in UGM (2000-5), I worked part-time at Lafadl Initiatives, a small NGO, that was ‘sub-contracted’ by, or to be more polite worked ‘in partnership’ with, UPC/UPLINK to publish UPC/UPLINK’s newsletter. I was part of that sub-contract/partnership scheme. My job at that time was to coordinate the publication of KOMPOR, UPC/UPLINK’s newsletter. In 2005, I graduated from UGM and shortly after joined a mining company in East Kalimantan, working as a well-site geologist. My tasks were, among others, making geological maps, supervising drilling activities, describing rock and geophysical logging, and contributing to the modelling of the geology of that area. I spent two years in East Kalimantan and subsequently signed out from the mining company. My reason was simple: I did not feel suited for that job.

Leaving the mining company behind, from 2009 to 2010 I rejoined Lafadl Initiatives and was involved as a community organizer for survivors of the Lapindo Mudflow in Porong, Sidoarjo, East Java. This mudflow displaced more than 50,000 families due to the

inundation of densely populated peri-urban and rural areas. The mud had erupted from an oil and gas drilling exploration and was triggered by an underground blowout. Around 2009, through many friends in my village in Sumatra, I learned that an Australian-based gold mining company was about to enter the Bukit Barisan Mountains. My village was one of the many villages that was inside the concession area of the gold mining company. I did not like the activities of that gold mining company because to me it meant the erasure of entire villages. I took a stance and joined the people's movement in rejecting it.

In 2010-12, I got a scholarship from the Belgian government to pursue a master program in the Interuniversity Programme in Water Resources Engineering (IUPWARE), organized by two universities, KU Leuven and VU Brussels. In this timespan, from a distance in Leuven, I continued to be involved with the rural-based movement in my own village set up to reject the Australian-based gold mining company. Due to my bachelor in geological engineering, I was given a role by fellow villagers of translating geological reports for people without a geological background. In addition, on the several occasions that I went home to Sumatra, I joined community meetings and talked with people to learn about what is going on there. Thanks to all the hard organizing work by villagers, we managed to build a coalition of 13 villages that were located in or close to the gold mining concession area. We succeeded in rejecting the gold mining company. Until now (2022), the gold mining company has disappeared from our area. Perhaps, in the future, they will come again, or just transform their mining-capital into other kinds of investments.

This 'success' nestled itself in my brain. It made it hard for me to accept working for a company or corporation like mining. That is why, after I graduated from IUPWARE in 2012, I again became involved in a peasant movement. This time in Kebumen, Central Java, where I worked as an organizer for a peasants' movement, which, until now, resists the army's claim on agricultural land: in 2008, the Indonesian Army (Tentara Nasional Indonesia Angkatan Darat/TNI AD) supported a permit of an iron sand exploration by an Australian-based mining company on that land in the hope that some of the benefits would flow to the army.

Through this decade of involvement with both social movements, I discovered that there is an urban-rural divide between social movements contesting uneven development in Indonesia. I observed how similar movements remained at a distance from each other, roughly holding on to the boundaries between the urban and the rural. Hence, the (post-) New Order agrarian, environmental, and indigenous people movements root their struggles mainly in access to land (Peluso, Afif and Rachman, 2008; Li, 2001). On the other hand, the urban poor movement anchors their campaigns in housing issues, while the labour movement roots its campaigns in issues of minimum wage and safety conditions for workers in the industrial sector (Aditjondro, 2003a: 169-175; Sidik et al., 2015). This is perhaps what Padawangi (2008: 11) identified as "the lack of shared identity among many social movements" in her study about what space means for social

movements in post-New Order Jakarta. Building cooperation between urban- and rural-based movements indeed is one of the “most crucial problems” (Dolgoft, 1974: 8) in revolutionary struggles and transformations.

In acknowledging this, I would like to make clear that I am not advocating one centralized or hierarchical social movement. I am arguing that the underlying mechanism of Indonesian uneven development in both rural and urban areas is the same: the massive expansion of capitalist development. Recognizing this helps to see that the problem caused by Australian gold mining concessions in my own village has the same root as the evictions of Jakarta’s urban poor for the sake of flood management. My hope is that by making this similarity more visible, the two movements can support and learn from each other.

What is the social movement that I am talking about, by the way? I admire the contribution of the NGO-type of social movements that were part of the *Reformasi Movement* that overthrew Suharto from power (Aspinall, 2005). I respect Indonesia’s NGOs, particularly for the knowledge they produced through so many documents and publications in the past, both in urban- and agrarian-studies.<sup>8</sup> However, in today’s Indonesia, this NGO-type of social movement, working on splintered issues, is far from enough. Hadiz and Robison (2013), argue that those who currently dominate Indonesian politics and businesses were incubated under the New Order regime. They conclude that “for the cycle to be broken and a new social order put in place nothing less is required than a deeper social and political revolution” (Hadiz and Robison, 2013: 57). In line with this, the social movement that I am dreaming of is one that facilitates “a deeper social and political revolution,” one that eliminates unevenness.

Having explained this personal experience, I can now say that the underlying motivation for this thesis is one that has had a long time to become sedimented in my own inside underground. I am now capable of surfacing it, and of formulating it onto the screen of my laptop: *how to open more possibilities to connect, and to provide possible pathways to deal with, urban/rural-divided social movements (set in place for a deeper social and political revolution)?*

Hence, I discuss the main questions against this underground sediment, approaching the analysis of in- and beyond-city contexts and society-nature relations to engage with

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<sup>8</sup> Examples of good regular publications by Indonesian NGOs are: 1) *Jurnal Tanah Air* published by WALHI (The Indonesian Forum for the Environment); 2) *Jurnal Wacana* published by INSIST (Indonesian Society for Social Transformation); 3) *Jurnal Prisma* published by Institute for Social and Economic Research, Education and Information. I consider they are good because they record both cases and how people/authors approach cases – they record the developmental trajectory of critical social science in Indonesia.

uneven (post-) New Order urbanization processes. To do this, I use a political ecology of urbanization (PEU) framework.

## 1.7 ORGANIZATION OF THIS THESIS

This thesis is divided into seven chapters. Chapter 1, where we are now, introduces the research questions.

Chapter 2 unpacks my explanatory framework and method. It fleshes out PEU from the ongoing and lively explosion in urbanization theory. The political economic approach of political ecology (PE) was nurtured in near-South rural areas, and aimed at confronting the uneven process of ecological/environmental production within which the human/society and the non-human/nature are entangled.<sup>9</sup> It was urbanized through the urban political ecology (UPE). The critique of methodological cityism re-urbanizes UPE into PEU, suggesting more analytical attention to the sociospatial moment of urbanization. To relate with the political economic approach of PE, this Chapter locates the discussion within political economic conversation by setting constitutive moments of unevenness, sociospatial, and socionature as theoretical strands for PEU. This thesis employs an ‘ecologized dialectical method’. I call it a dialectical method because, first, this thesis deals with the constitutive relations between urban and the rural, between sociospatial and socionatural, between human and nonhuman, and between differentiation and equalization. Second, I develop a framework (political ecology of urbanization) and categories of processes (in Chapter 3 – 6). I use both the framework and categories as a way to identify possibilities for political change. I call it ‘ecologized’ to accommodate the spontaneity of life forms in the future.

I use the moments of unevenness, sociospatial, and socionatural to help me answer my research questions. Chapter 3-5 mainly deal with the first sub-question (*How are flood events produced by and productive of (post-) New Order uneven urbanization in Jakarta and beyond?*). Chapter 6 shows how the development of flood infrastructures reproduce unevenness in the city and beyond – mainly dealing with the second sub-question (*How are infrastructural interventions for managing floods reproducing unevenness under the (post-) New Order regime?*).

Chapter 3 identifies the uneven urbanization of the non-city and the city to conceptualize the explosion and eviction of Jakarta’s urban poor (the ‘*kaum miskin kota*’, *KMK*) as an ‘extended agrarian question’ in ‘concessionary capitalism’. It explains large-scale land

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<sup>9</sup> “Near-South” is a device to designate Global South in which imagination about development is bordered by the condition of the Global North, but with an understanding that there is no need to catch up with the latter (Simone, 2014).

concessions in the countryside's sociospatial reconfiguration, within which non-human (land) and human are transformed, as a vehicle to dispossess the rural population from access to land and push some of them to move to the city and end up as *KMK* living in Jakarta's precarious spaces and working in the informal sector. Even though my analysis of Jakarta's flooding and flood infrastructure temporally anchored in (post-) New Order, for a more convincing explanation, I locate (post-) New Order's 'concessionary capitalism' within the trajectory of capitalist development inherited from previous eras, such as the colonial time. I acknowledge that lack of access to land in the countryside is not the only reason that makes people move to the city and also realize that to become part of the formal sector is not the only goal of rural-to-urban migrants. My main aim in this Chapter is to connect the non-city with the city through providing an explanation of a specific type of capitalist development. The explosion of *KMK*, or so I argue, has to be understood in its relation with primitive accumulation happening in the countryside.

Subsequently, Chapter 4 identifies how flood risk conditions were produced through urbanization. It further connects the city and the non-city by connecting urban eviction with rural land dispossessions. The Chapter follows the flows of people by linking those I interviewed in the evicted, or at risk of being evicted, flood-prone urban poor communities in Jakarta to interviews in selected rural village in Central Java Province. I focus on the place of origin of one interlocutor, from which she was expelled due to land dispossessions. The analysis traces the history of land dispossessions back to the colonial era and the New Order regime, manifested in two forms. The first is the state-led forest occupation in the colonial era that was inherited by the New Order state – political forest. The second is land dispossession through dam development, as a part of agricultural modernization to support the Green Revolution under the New Order – political water. Sociospatial reconfigurations through political forest and political water are intimately linked with socionatural transformations: a decrease in groundwater and an increase in above-ground flows in the rainy season. The dual character of sociospatial reconfiguration and socionatural transformation in the countryside pushed the peasantry to move to cities like Jakarta. This, in turn, helped the Jakarta urban space to explode into the agglomeration of many cities. When these people occupy precarious urban spaces such as river banks, it helps transform Jakarta's socionatural conditions to become more vulnerable to urban flooding.

Chapter 5 operationalizes socionature as a methodological device to trace how Jakarta's urbanization under the (post-) New Order regime contributes to the current land subsidence that perpetuates urban flooding through an examination of the city's development and deep groundwater extraction, within which human and non-human are entangled in uneven ways. It uses sociospatial theory of urbanization to tell the narrative of how land subsidence is produced by and is productive of New Order development and continuous to affect the post-New Order. Sociospatially, land subsidence unfolds through

capitalist urbanization, articulated in the horizontal growth of the city and the vertical expansion of deep groundwater wells.

Chapter 6 connects flows of water to flows of labour and capital through Jakarta's flood infrastructure by tracing how Jakarta's urbanization is productive of flood risk and how flood infrastructure developments, themselves part of processes of urbanization, are productive of unevenness. It illustrates the production of flood events by examining how the land conversion of the non-city in the upland catchment of Jakarta by political and economic elites, some of which are part of the New Order crony capitalism, contributes to the production of flood events in the lowland part of the city. In turn, flood infrastructure developments evict the Jakarta urban poor and deteriorate the environment both within and outside the city. The latter occurs in places that are the sources of sand and cement for the development of flood infrastructure. The mobilization of materials (sand and cement) connects the city and the non-city and shows how the space and people in the countryside are sacrificed for urban requirements. The city is treated as the site of agglomeration, while the non-city is treated as a site of extraction. The Chapter argues that the political ecology of urbanization, which is rooted in the analysis of the contradiction between capitalist and labour, has emancipatory promise. It can help advance social movements by connecting the city to the non-city, and flows of water to flows of labour and capital.

The practice of political ecology and my ecologized dialectical method both seek to change the politics or the condition. Chapter 7 concludes by summarizing the uneven relations entangled with the more-than-city socionatural transformation and sociospatial reconfiguration exposed in the previous chapters, highlights the political consequences of understanding Jakarta's flood events and management through the lens of political ecology of urbanization, and sketches out possibilities for such change.