Resilience Development Initiative

Migration as Adaptation in the Context of Flood Risk in Jakarta

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Summary

As the Capital City of Indonesia, Jakarta has long been known as the most populated megacity in Indonesia, coupled with its vulnerability to chronic flooding. The 2050 projection estimated that Jakarta's coastal areas will almost drown as a result of the simultaneous effects of rising sea levels and land subsidence. The question emerges as to whether migration could be an adaptation strategy as people prefer to stay instead of moving. This article aims to explain how migration could be an alternative adaptation measure in the context of Jakarta. A shifting perspective of migration that moves from a negative towards a positive view is a crucial topic that needs to be further explored in order to contribute to a better understanding. This article posits that migration could be an opportunity, if governed appropriately and if in-situ adaptation still fails to address the disaster and climate impacts.

Keywords: Adaptation, Climate Change, Flood, Jakarta, Migration

Introduction

Due to being the centre of Indonesia's government and economic activity, Jakarta has been a core gravity of Indonesia's mass urbanization since the 1960s (World Bank, 2011). Demographically, Jakarta has a significant population characterized by heterogeneous communities. In 2022, it reached 10.4 million people. Since there is no enlargement of every region in Jakarta, the total area remains similar for years. Thus, the higher the population, the higher the population, and the higher the population density in the city.

The mass population and the economy created a very competitive labour market in the capital city, making it challenging for some people, which led them to live in struggle. The issue has been aggravated by environmental degradation and climate factors, where floods occur frequently in the capital city, affecting the citizens' well-being. Some Jakarta areas have been at a critical point of environmental conditions, and this has caused people to be displaced and eventually decide whether to stay or migrate. This article aims to explore the opportunities of flood-related migration as adaptation measures towards positive outcomes in the context of Jakarta.

Reviewing Jakarta's Flood Risk

The substantial increase in Jakarta's population over the last three decades, driven by urbanization, has heightened its susceptibility to flood risks. Jakarta has experienced yearly flood occurrences, as well as more significant five-year flood events, such as those in 1996, 2002, and 2007 (Wicaksono & Herdiansyah, 2019). In addition, Jakarta's coastal areas are projected at risk of almost complete immersion as a result of the simultaneous effects of rising sea levels and land subsidence by 2050. Anticipated land subsidence in certain coastal areas will surpass 5 meters by 2050, whereas the expected sea level rise is only 25 centimeters (Andreas et al., 2018).

Floods and other hydrometeorological hazards have brought destructive impacts on people and the environment, exacerbating vulnerabilities. Major flood events in Jakarta had caused significant losses and damages; affecting the slowdown of the city's economy. In 2007, for instance, floods inundated more than 60% of Jakarta's area; resulted in 79 deaths, up to 50,000 evacuees, and cumulatively lost around $680 million (Bappenas, 2007).

Specifically, North Jakarta might experience the most significant impacts economically by flood since it has the largest concentration of poverty among other Jakarta's administration cities, resulting in higher living costs to cope and adapt after disaster while their livelihoods are disturbed (World Bank, 2011).

Furthermore, Jakarta is the biggest producer of garbage in Indonesia. It produced 3 million tons of Garbage in 2023, the biggest amount of the total is around 27% from East Jakarta alone (KLHK, 2023). Across the Ciliwung River, the river flows and carries garbage and other toxic chemical materials downstream (e.g. Bogor City and Depok City). Thus, aside from the economic impacts, the accumulated wastewater results in alarming flood wastewater, which will cause harmful effects to public health. The impact is riskier for residents in Ciliwung's downstream; because the further downstream is, the more water pollution it contains (Yudo & Said, 2018).

Migration as Flood Adaptation Measures

One aspect of the argument supporting migration as adaptation suggests that households evaluate various options to cope with hazards and select the most suitable ones for their circumstances (Black et al., 2011). This may involve a deliberate choice to relocate if necessary, resources are within reach. If the migration governs well, it provides adaptive potentials such as generating income, diversifying livelihoods, limiting household risks, and social or financial remittances (Ober & Sakdapolrak, 2017). In the context of a flood, the migration character is rather short-term and short-distance, and thus intra-regional mobility is common for migrants who migrate due to this environmental factor and mostly occurs within national borders (Cattaneo et al., 2019; Zickgraf, 2021).

In the context of Jakarta, the survey shows that there is 53.5% of people live in the worst points such as Penjaringan (North Jakarta), Cakung (East Jakarta), Rawa Buaya (West Jakarta), Sawah Besar (Central Jakarta), and Manggarai (South Jakarta), are deciding to stay in their places (Suci Hendrawati & Sulandari, 2023). In this case, a circular migration model might be suitable to deal with. Circular migration is defined as a movement that takes place over a short period of time with the aim of returning to the original place of residence. An important group of temporary migrants are seasonal migrants, who combine activities in several places according to seasonal labour needs (Keshri & Bhagat, 2010).

Through the circular migration model, Jakarta's people do not need to migrate permanently. However, one or some of them need to work in another area (sub-district, city, or even regency/province) in order to help the household adapt to the condition. Families who stay or are local communities can adopt various physical adaptation strategies, which include raising the housing level, building terraced housing, and building small dikes to prevent water from entering the settlements. Jakarta's residents have commonly adopted these physical strategies before (Marfai et al., 2015).

Migrating from the previous place in the same city or even cross-city administration can sustain the livelihood since the characteristics of socioeconomic status are not quite different. Except for Central Jakarta, where the city has an average cost of living higher than others, and migrants need to prepare and adapt with more cost (Van Ham et al., 2021). Migrating out to places in Jakarta's neighbouring region would also be an option since Jakarta's neighbouring cities, such as Depok City, Bogor, and Bekasi, have relatively lower costs of living (BPS, 2018). Those places also provide some points of the Electric Rail Train (KRL) station, where there are 6 stations in Bogor, 7 stations in Bekasi, and 3 stations in Depok City (KAI, 2023). Thus, this will help to sustain mobility for people who migrate to these places to still have work in Jakarta.

Climate change events and toxic environmental conditions can slowly make land uninhabitable, such as polluted water, sea level rise and erosion; drowning coastal lands can lead to either permanent or temporary displacement (Zickgraf, 2021). In this case, a new destination with a more habitable environment will be one of the 'pull factors' to migrate. Migrating to a safer place from polluted water areas will contribute to maintaining physical well-being. In 2021, for instance, Jakarta achieved a high number of diarrhoea cases, with more than 12 thousand cases (BPS, 2021). West Jakarta has the highest number of diarrhoea cases, with more than 3thousand cases, coupled with the worst groundwater quality spatially among Jakarta's cities (DLH DKI Jakarta, 2022). Moving from a place where flood is frequent will at least reduce the potency of water- and vector-borne diseases, including diarrhoea, typhoid malaria, and cholera.

Strengthening Stakeholders Collaboration

The ability of households to employ migration as an adaptation strategy depends on several factors, such as the circumstances of the migration and the capabilities of the households. Thus, research and policymaking should prioritize finding ways to facilitate migration that can assist in effective adaptation while also addressing frequently neglected losses and well-being pressures. This approach inevitably requires comprehensive consideration of entire systems, involving various stakeholders and perspectives (Vinke et al., 2020).

Several vital governmental actors involved with this case, such as but not limited to the Regional Disaster Management Agency of Jakarta (BPBD) in flood and other hazards management, theMinistry of Social Affairs in handling issues related to the displaced population, and the Ministry of Public Works and Housing which were involved in urban planning and infrastructure development within the city.

These actors need to work hand-in-hand in strengthening a solid collaboration for the program effectively through collaboration with other stakeholders, including but not limited to, civil society organizations (CSOs), research institutions, and affected communities themselves.

Through this collaboration among stakeholders, knowledge sharing will contribute to a better understanding of the complexities of flood risk and migration process, and it can lead the adaptation strategy to be more sustainable and inclusive. The collaboration will also facilitate capacity building across different levels, enriching the skills and capabilities of individuals, organisations, and communities engaged in adaptation to flood risk and migration. Hence, ensuring the strengthened collaboration among stakeholders is important.

However, within the notion of collaboration, accountable leadership is highlighted as a key factor to achieve the goal of collaboration. Leadership plays crucial roles, such as establishing enduring relationships, persuading prospective stakeholders to collaborate, encouraging partners to contribute resources, and aligning on a shared vision for partnership actions to mitigate harm and minimise urban vulnerability. All of these roles are critically needed to navigate the direct and indirect impacts of flood risk in Jakarta (Dwirahmadi et al., 2023). Otherwise, the uncoordinated responses during flood events lead to increased vulnerability to the hazard (Marfai et al., 2015).

Conclusion

Given the urgency of Jakarta's flood risks that could affect people, migration, combined with in-situ adaptation, can be an adaptive strategy for households. As exemplified, migration choice would bring benefits to maintaining positive outcomes such as socioeconomic and physical well-being. The circular migration approach seems a suitable strategy to adopt especially for households that the households decide to stay. Migrating to Jakarta's neighboring city would be an option since the cost of living there is quite lower than in Jakarta. In addition, by moving from flood-prone places to safer areas, households would potentially avoid health issues that come from toxic environmental conditions. Moreover, strengthening stakeholder collaboration is also highlighted to facilitate migration as an effective measure as well as addressing the flood risk in the city. Various stakeholders and perspectives need to be involved in formalizing a better program and understanding. Within the notion of collaboration, accountable leadership plays an important role in overcoming the collaboration goals.

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