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Transformative Adaptation to Climate Change and Informal Settlements in Coastal Cities

Entry Points for Jakarta and Ho Chi Minh City

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Summary

This study is part of the UNRISD project "Transformative Adaptation to Climate Change in Southeast Asian Coastal Cities" which explores adaptation decision-making processes and barriers to transformative solutions in order to inform more progressive policy making in the context of Southeast Asian coastal cities.

This paper explicitly posits social and environmental justice as an integral part of transformation and transformative adaptation, and synthesizes the findings from case study research that was undertaken on adaptation in the context of informal settlements and urban development in Ho Chi Minh City, Viet Nam and Jakarta, Indonesia. Both cities are emblematic for rapidly urbanizing coastal cities that are highly exposed to the increasing impacts of climate change. In both cities, climate change adaptation is increasingly mainstreamed into business-as-usual sectoral and socio-economic development planning and used to justify the relocation of residents of informal settlements. Through the comparative analysis of the two cases, the paper seeks to dissect and imagine how cities may address root causes of vulnerability to flood risks experienced by inhabitants of informal settlements. Through this analysis, the authors hope to initiate a debate on policy pathways to more transformative adaptation that achieves social justice.

Case study papers

Huynh, Thi Phuong Linh, and Hong Quan Nguyen. 2020. *Transformative Adaptation and Social Justice in Ho Chi Minh City, Viet Nam*. Geneva: Rosa-Luxemburg-Stiftung and UNRISD.

Simarmata, Hendricus Andy, and Gusti Ayu Ketut Surtiari. 2020. *Adaptation to Climate Change: Decision Making and Opportunities for Transformation in Jakarta, Indonesia*. Geneva: Rosa-Luxemburg-Stiftung and UNRISD.

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Introduction

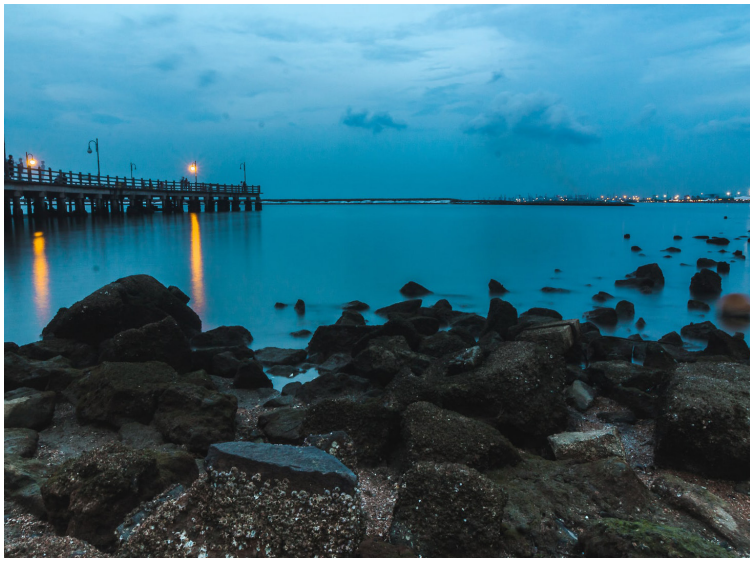
While generations of governors have proposed different interventions to develop or upgrade Jakarta's slums that coexist with its skyscrapers (Andapita 2019), in April 2019, the Indonesian administration faced a different scale of problem, announcing the relocation of the entire capital city which is sinking at an alarming rate (Watts 2019). Elsewhere in Asia, in October 2019 a group of researchers published new findings suggesting that by 2050, without any adaptive measures, Ho Chi Minh City will disappear underwater at high tide (Lu and Flavelle 2019), while city planners and architects still debate issues around informal settlements and pollution along the city's many canals.[1] Climate change impacts are threatening the very existence of these cities, and unfortunately the struggles of Jakarta and Ho Chi Minh City are not unique. They are emblematic of many coastal cities around the world confronting climate change impacts and development challenges concurrently, such as population growth combined with rapid, and often largely informal, urbanization.

Located on the interface between land and sea, coastal cities are economic engines of many nations, concentrating large numbers of people and assets, albeit often shaped by high degrees of socio-economic inequality and political marginalization. Urban informality and poverty coexist side by side with high-end condominiums and wealth. Coastal cities are also faced with a multiplicity of challenges due to a combination of sea level rise, land subsidence, heavy rainfall and climate change. The adverse impacts of climate change and their uncertainty have rendered incremental adaptation inadequate: Infrastructure-heavy, protective interventions such as dykes and sea walls aim to reduce exposure to hazards, but are ill-equipped to address social vulnerability. In response, the global policy discourse has shifted its attention to transformative adaptation—adaptation that seeks to change the fundamental attributes of systems

in response to actual or expected climate impacts. Transformative adaptation includes measures of a greater scale and magnitude and involves governance system reforms (IPCC 2014). It refers to systemic changes that address entrenched injustices and ensure sustainable, resilient and inclusive futures (GCA 2019).

While transformative adaptation has been adopted at the conceptual level (IPCC 2014; GCA 2019), much less is known about what it looks like on the ground. This paper analyses adaptation initiatives involving informal settlements in Jakarta and Ho Chi Minh City as case studies to illustrate what transformative adaptation could look like in the context of urban poverty. It seeks to dissect the barriers constraining transformation and imagine how cities may address root causes of vulnerability to flood risks experienced by inhabitants of informal settlements.

The next section provides a detailed overview of the context of climate change, flood risk and adaptation in coastal cities, and demonstrates the relevance of this study. It shows how climate change and human activities lead to increasing exposure to and risks of flooding, to which communities in informal settlements are disproportionately vulnerable. It is followed by an introduction to the relevant literature on existing approaches to addressing vulnerability in informal settlements, which include resettlement, in situ urban upgrading and co-production. Subsequently, we introduce the framing of transformative adaptation, conceptualized as processes of change in the urban socio-ecological systems that take place across the personal, political and practical spheres and which are guided by the three pillars of procedural, distributive and spatial justice. The next two sections summarize the case study research that was undertaken by Simarmata and Surtiari (2020) and Huynh and Nguyen (2020).[2] We then compare the two cases to discuss aspects of justice-driven adaptation before assessing policy implications and providing some recommendations and a conclusion.



The Climate Crisis, Flood Risk and Adaptation in Coastal Cities

COASTAL AREAS are an attractive location for cities due to their potential for trade and transportation. They play a key role in many countries as hubs for economic growth. Since 2000, seaborne trade has more than doubled with the highest annual growth rate of 4 percent, making port cities a key element in national and global economies (UNCTAD 2018). Coastal cities are therefore places with a high concentration of human, financial and physical assets. This very attractive geographical setting, however, also makes coastal cities vulnerable to natural hazards such as floods.

Situated on low-lying coastlines, coastal cities and their populations are highly exposed to floods. Coastal cities often consist of large areas of land that lie below 10-meter elevation and are hydrologically connected to the ocean. These areas make up the low-elevation coastal zones (LECZs). LECZs are highly prone to extreme water-level events associated with sea level rise, including floods (McGranahan et al. 2007) and are expected to be home to more than one billion people by 2050 (Merkens et al. 2016). Over 80 percent of the world's LECZ population lives in developing countries with particularly high levels of exposure in Asia (Neumann et al. 2015). Population projections show that Asia will both experience the highest increase in the number of people living in LECZs and account for the biggest proportion of the world's LECZ population (Wong et al. 2014; Neumann et al. 2015).

Risks and impacts of climate change are not only the result of natural conditions but also human interventions. Aggravation of land subsidence due to human activities such as groundwater extraction further exacerbate climate-related challenges. Rapid urbanization and economic development as well as sprawling morphology and flat, low-land topography further compound the risks of both tidal and river flooding (Hanson et al. 2011; Delinom 2008; Wong et al. 2014).

Today, Asia is already home to the highest concentration of population living in coastal cities exposed to a 100-year coastal flood (Hanson et al. 2011), which means a flood event so large that there is only a 1% likelihood (or a 1 in 100 chance) of it being exceeded in any given year. A recent study using new elevation data finds that the impacts of sea level rise will be much more severe than anticipated and estimates that it will leave three times more people exposed to flooding than previously thought (Kulp and Strauss 2019).

Asian cities like Ho Chi Minh City and Jakarta exemplify the concentration of assets and hence exposure to hazard risks. Viet Nam and Indonesia are among five countries with the largest share of the population living in LECZ (Neumann et al. 2015). Among the top 20 cities ranked by population exposed to coastal flooding by 2070, Ho Chi Minh City ranks 5th and Jakarta 20th. When ranking in terms of assets exposed to coastal flooding, Ho Chi Minh City ranks 16th (Hanson et al. 2011).

Vulnerability, inequality, and informality

Rapid and unequal economic growth makes coastal cities home to a large number of vulnerable people. Over the past 15 years, the global number of urban slum dwellers has continued to grow (Dodman et al. 2019a). Inequalities faced by slum dwellers manifest in overcrowded housing with little tenure security, poor water and sanitation, and poor access to social services; and their voices are often unheard (Dodman et al. 2019b). These elements trap them in a vicious circle of poverty and marginalization, with adverse impacts on livelihoods and well-being, thus reducing their coping capacity, the ability to manage adverse conditions and to respond to floods.

Dodman et al. 2019b). Slum dwellers are often unregistered, limiting their access to social assistance and resulting in them not being represented in a city's official statistics. Thus, the very nature of urban informality and inequality becomes a driver and multiplier of risks and vulnerability. Informal settlements along rivers and canals are often blamed for increased flood risks and lack of protective infrastructures as they take up space that could otherwise be used for embankments or to broaden waterways and runoff capacity. This narrative is then used to justify the upgrading and resettlement of informal settlements without analysing the root causes of risk and vulnerability (see Garschagen et al. 2018) or questioning why people move into these precarious spaces in the first place. Despite contributing little to the causes of environmental changes, dwellers of informal settlements bear the double burden of flooding and inequality.

Moreover, adaptation measures in numerous cases have negative impacts on vulnerable populations, including those living in informal settlements. Hard infrastructural measures against flooding such as dykes and land elevation, while protecting some areas, worsen the conditions of others, often marginalized and vulnerable neighbourhoods (Birkmann 2011; Jain et al. 2017). Uneven adoption and enforcement of adaptation measures and planning strategies have often denied resources to informal communities and favoured elite populations at the expense of urban poor people, whose livelihoods are disrupted when they are subject to eviction, relocation and resettlement to make space for infrastructure (Anguelovski et al. 2016).

Given the increasing level of exposure to flooding of population and assets in coastal cities, and the disproportionate vulnerability of dwellers