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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

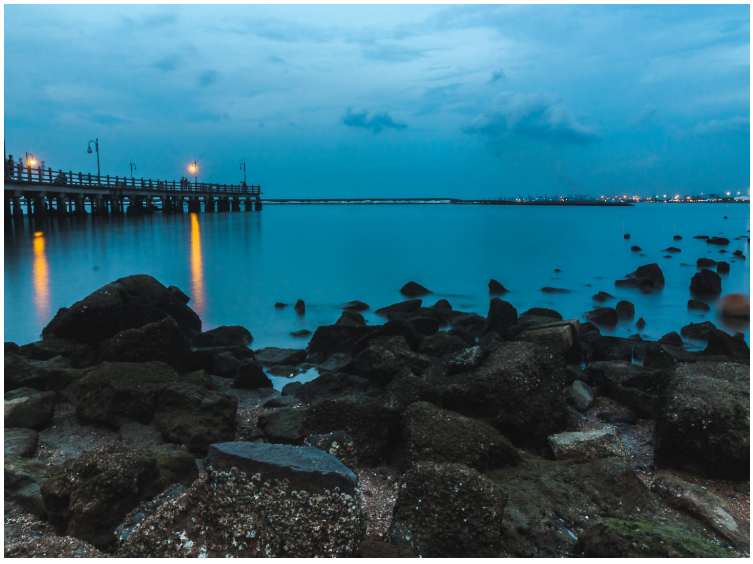
While generations of governors have proposed different interventions to develop or upgrade Jakarta's slums that coexist with its skyscrapers (Andapita 2019), in April 2019, the Indonesian administration faced a different scale of problem, announcing the relocation of the entire capital city which is 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.

Slum dwellers in coastal cities are highly vulnerable to floods while having low coping capacity. As a result of marginalization and inequality, urban poor people often settle in precarious areas, such as low-lying land or riverbanks, where exposure to flooding is high. The unplanned, unregulated and unserviced nature of informal settlements makes them further susceptible. Poor drainage and waste disposal systems worsen flooding; overcrowding and poor sanitation lead to public health concerns; low-quality housing increases the likelihood of houses collapsing; and political marginalization reduces access to information and support (Baker 2012; 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 in informal settlements, it is thus important to question how coastal cities may adapt to climate change while addressing the development needs of the most vulnerable.

Adaptation in the context of urban informality

Informal settlements and climate change-induced relocation

Vulnerability to flooding is closely linked to place-based exposure. Adaptation measures in many places have thus often involved resettling

communities. Different frameworks, however, have emerged around the role of resettlement in adaptation to climate change (McNamara et al. 2018). On the one hand, resettlement has been framed as part of loss and damage, resulting from impacts of climate change; and on the other, it is seen as a component of managed retreat, which is an adaptation strategy (Hino et al. 2017). Resettlement helps reduce exposure to impacts of climate change (Birkmann et al. 2013). Yet, focusing on justice implications of climate-induced resettlement, critics have challenged the perception of resettlement as an impact of climate change, advocating instead for positioning resettlement as a response, one that is especially rooted in a technocratic, Western mode of thinking and ignores the agency of the affected (Farbotko 2018; Barnett and O'Neill 2012).

In alignment with this framing, Anguelovski et al. (2016) analysed the equity impacts of urban land use planning for climate change adaptation and identified two categories of urban adaptation injustices: acts of commission that describe interventions which negatively affect or displace poor communities, such as involuntary resettlement, and acts of omission, which describe interventions that protect and prioritize elite groups at the expense of the urban poor. Protective infrastructures and planning processes and regulations in cities across the global North and South involve acts of commission that further marginalize the most vulnerable while protecting the interests of elites.

Resettlement, and climate change-induced resettlement in particular, have negative consequences. Reflecting the complexity of adaptation as a process, the concepts of first- and second-order adaptation help understand how resettlement may aggravate adaptation challenges (Birkmann 2011). First-order adaptation refers to measures taken to respond and/or adapt to climate events, such as physical relocation of households and communities. Second-order adaptation involves processes to adapt to the changes that result from first-order adaptation, such as adjustment to the relocation site (Birkmann 2011). In the case of involuntary resettlement, in second-order adaptation, risks to communities include landlessness, joblessness, homelessness, marginalization, health decline, food insecurity, loss of shared income and loss of social network (Cernea 1997).

In situ urban upgrading and co-production as adaptation

As an alternative to resettlement, in situ urban upgrading is another adaptation strategy. In fact, international institutions and frameworks emphasize in situ adaptation as a priority. The UN Refugee Agency (UNHCR) stresses, "all reasonable in situ alternatives and solutions should be explored first, unless communities themselves have identified planned relocation as their preferred option" (UNHCR 2014). Usually, urban infrastructure and services contribute to reducing risk. However, in informal settlements, there is a lack of high-quality, accessible and affordable infrastructure and services, which increases vulnerability and hinders adaptive capacity (Satterthwaite et al. 2018). In situ upgrading work that fills these service gaps not only minimizes the risks of impoverishment but also increases adaptive capacity and can thereby contribute to urban climate resilience and accelerate the transition to low-carbon development (Dodman et al. 2019b). Examples include urban upgrading efforts that also aim to reduce greenhouse gas emissions through higher density residences, pedestrian and biking friendliness, and public transit. There is evidence that dependence on resettlement as a go-to adaptation strategy precludes other adaptation options that are low-cost and low-regret, bringing positive benefits regardless of how the climate changes (Barnett and O'Neill 2012).

The discussion of justice in climate change adaptation and informal settlement intervention has recently embraced co-production as a potential pathway to transformation. Co-production refers to the delivery of basic public services which is shared by government and citizens (Mitlin and Bartlett 2018). In the field of urban development and particularly in urban poverty and state-citizen dynamics, co-production is part of a political strategy to secure not just immediate basic urban services but also long-term improvements in the distribution of power (Mitlin 2008). In recent literature on climate change adaptation, researchers have emphasized ontological plurality and advocated for knowledge co-production that centres around normative commitments and multiple truths, meanings and values (Nightingale et al. 2020). In both, co-production seeks to disrupt the dominant power relationship in climate change adaptation and urban upgrading. Both require reimagining the contemporary discourse and going beyond established governance structures.

Transformative Adaptation

WHILE RESETTLEMENT and upgrading often occur on a local, neighbourhood level, at the level of the city as a whole, transformative adaptation has emerged as an important concept in the context of climate change and its impacts (Revi et al. 2014). It reflects the need for profound change to appropriately tackle climate-related risks and is often used as distinct from incremental change (see IPCC 2014). While adaptation is defined as a process of adjustment to actual and expected climate change and its effects (IPCC 2014), transformative adaptation concerns deliberative action focusing on interventions and processes with fundamental and major changes (Pelling et al. 2015). It is usually understood as a fairly large-scale and qualitative change towards something preferable (see Kates et al. 2012; Mustelin and Handmer 2013).

There are different strands of research using either an analytical or normative concept to describe and assess transformative adaptation (Krause 2018; see Few et al. 2017). The more analytical approaches tend to view transformation in terms of the nature and magnitude of change that occurs in a social-ecological system without discussing the specific normative assumptions and social implications of transformation (see Folke et al. 2010; Clarke et al. 2014). Normative approaches to transformation tend to be rooted in political economy/ecology and take vulnerability as a starting rather than an end point in their analysis, where political and power structures causing vulnerability and inequality need to be addressed and overcome in order to achieve transformation that is rooted in normative goals of social justice and equity (see, for example, Schulz and Siriwardane 2015; Pelling 2011; O'Brien et al. 2004).

Situating adaptation in the development field, transformative adaptation involves non-linear changes, either intentional or unexpected, toward alternative development pathways, involving changes that address structural causes of risks rather than proximate ones (O'Brien 2012; Pelling et al. 2015). It is a response to the socio-political nature of the processes driving vulnerability and adaptation (Eriksen et al. 2015); and to the inadequacy of incremental adaptation in the context of increasing climatic uncertainties (Kates et al. 2012).

This paper takes a normative approach to understanding transformative adaptation and sees human rights and justice as drivers of the adaptation process. Transformative adaptation then requires changes that address root causes of poverty, inequality and environmental destruction, and can be forged through inclusive institutions, an enabling environment for social innovation, and participatory processes (see UNRISD 2016). Based on existing research, this paper frames transformative adaptation as processes of change in the urban socio-ecological systems across the personal, political and practical spheres guided by the three pillars of procedural, distributive and spatial justice.

What is being transformed: urban socio-ecological systems

The global policy discourse on climate change adaptation has increasingly recognized the importance of transformative adaptation of urban systems. Highlighting the distinction between incremental and transformative adaptation, the Fifth Assessment Report of the IPCC stresses the need for transformative adaptation that considers both mitigation and development. It calls for "a change in the fundamental attributes of natural and human systems [... that] could reflect strengthened, altered, or aligned paradigms, goals, or values towards promoting adaptation that supports sustainable development, including poverty reduction" (IPCC 2014:1122). The definition of transformation within the IPCC has evolved over time to align itself with the Sustainable Development Goals, to recognize multiple systems of interlinked solutions, and to include elements of poverty reduction (Tàbara et al. 2019). In its 2018 special report on the impacts of 1.5°C of global warming, the IPCC pointed out that "adaptation pathway approaches to prepare for 1.5°C warmer futures would be difficult to achieve without considerations for inclusiveness, place-specific trade-off deliberations, redistributive measures and procedural justice mechanisms to facilitate equitable transformation" (Roy et al. 2018: 459). The Global Commission on Adaptation's 2019 flagship report (GCA) also underscores the need to move from incremental urban adaptation solutions to long-term transformative changes. It identifies three priorities to achieve transformative adaptation: (i) spatial planning and infrastructure delivery; (ii) people-centric and inclusive approaches; and (iii) nature-based solutions. Both the AR5 and GCA reports bring to the fore the role of cities and the urban context in accentuating systemic changes that address entrenched equity and justice issues.

Yet, most case studies have documented transformations in climate change adaptation in the rural and or natural resource management sector, and in many of these examples the evidence supporting a transformative outcome is still inconclusive (Few et al. 2017). In the urban sector, most transformations have taken place on a project or community level, with little to no evidence of city-level transformation (Revi et al. 2014).

Where transformation is taking place: personal-political-practical spheres

While there is no consensus on what transformative adaptation entails in practice, several studies have examined the domains in which transformation takes place. Pal et al. (2019) define transformational domains as "the spheres within which initiatives can set out and adopt effective routes to deliver transformation" (p. 6) and they identify three key

domains: policies and governance, innovation, and social and behavioural change. Fedele et al. (2019) summarize conceptualizations of transformative adaptation into a common set of characteristics: restructuring, path-shifting, innovative, multiscale, system-wide, and persistent. Based on empirical evidence from a set of cities in the global North and South, the GCA report underlines the enabling conditions for transformative adaptation, which include strong leadership, inclusion and equity, finance and local capacity, synergies across scales, knowledge-data-partnership, evaluating and learning, accountable institutions and governance.

While the aforementioned frameworks are important to keep in mind when thinking about transformative adaptation, they do not account for the interaction effects among different scales of adaptation. Synthesizing literature related to transformation, O'Brien and Sygna (2013) propose three interacting spheres in which transformation takes place:

- personal, relating to beliefs, values and worldviews;
- political systems and structures that create enabling or disenabling conditions;
- practical, representing behaviours and technical solutions.

They argue that transformation in the personal sphere is the most powerful as it shapes the political sphere and influences what is considered possible in the practical sphere.

How transformation is taking place: distributive-procedural-spatial justice

Understanding transformative adaptation as processes that address root causes of vulnerability requires a more political approach that tackles questions of power relations. The value of justice thus is an important driving force. Scholars have conceptualized transformative adaptation by pointing out the dangers surrounding transformation that is divorced from values of justice and rights, which may place even greater burdens on the poorest (O'Brien 2012; Pelling et al. 2015). Yet there remains a gap in the literature that explores the linkages between values of justice and operationalization of transformative adaptation. To operationalize transformation, Few et al. (2017) propose a framework to identify and implement transformative adaptation by mechanisms and objectives which, however, does not fully embed, and elaborate on, the questions of power and justice. Tschakert et al. (2013) suggest inequality and transformation analyses to prioritize equity and relational aspects of marginalization and vulnerability, but to date there are few empirical examples that provide evidence of the underlying conditions transformation would need to address in order to promote equity and justice, especially in the context of urban transformative adaptation.

To address this gap in the literature, this paper centres on justice as a driver for transformative adaptation, and foregrounds causes of injustice in order to identify entry points for transformative adaptation. The paper analyses processes of adaptation involving resettlement in two case study cities focusing on three major pillars of justice: distributive justice, procedural justice and spatial justice. While the notion of justice as fair distribution of resources, power and outcomes is contested, the concepts provide important frameworks to begin to understand climate change adaptation as a process. Distributive justice concerns the how the outcomes of adaptation plans and strategies are distributed, while procedural justice centres on decision-making processes (Paavola and Adger 2002; Shi et al. 2016). The question of justice is also spatial: not only does the distribution of urban resources across space matter, but urban space also has power over the reproduction of marginalization (Dikeç 2001). The notion of just adaptation begs the question of procedural, distributive and spatial justice (Shi et al. 2016), particularly as marginalized communities tend to informally occupy vulnerable spaces yet have little power over decision-making processes. It is thus important to take into account different dimensions of justice in considering both first- and second-order adaptation in informal settlements in coastal cities, and to explore the political-practical-personal spheres of adaptation.

Jakarta

GREATER JAKARTA, also known as Jabodetabekpunjur, is a metropolitan region consisting of three provinces, nine districts and cities, a total population of approximately 30 million people and an area of 6,600 km^2 (BPS Provinsi DKI Jakarta 2016). From 2010 to 2016, population density grew 1 percent per year (JICA 2012; BPS Provinsi DKI Jakarta 2016). As the primary city of Indonesia, Jakarta contributed USD 200 billion,[3] approximating 18 percent, to the national GDP in 2019.

Jakarta has been experiencing an increase in both flooding frequency and intensity due to its geographical conditions and spatial composition. Jakarta is located on coastal and deltaic land with an estuary of 13 major rivers and two canals. Extreme flooding and inundation result from the concurrence of heavy rainfall and tidal flooding. Over the past two decades, the frequency of rainfall and the uncertainty of rainy seasons have grown. Northern Jakarta is also especially prone to land subsidence due to its young soil characteristics.

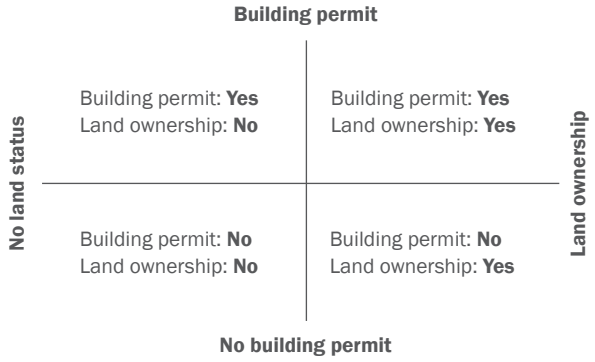
Human activities and urban development further exacerbate flood risks. Groundwater extraction contributes to an alarming rate of land subsidence ranging from 15 to 25 centimeters per year, worsening the impacts of sea level rise and increased tidal floods (Lin and Hidayat 2018). Increasing built-up land and the lack of green open space and blue open space, constituting only 10 percent and 3 percent of the total area of the city respectively, translate to low water absorption capacity and high sensitivity to water problems (Dinas Kehutanan Provinsi DKI Jakarta 2018; BPS Provinsi DKI Jakarta 2014). As a consequence, for example, the years 2007 and 2013 were marked with two devastating flooding events, paralyzing over 60 percent of Jakarta.

The urban poor experience the most severe impacts of flooding. Jakarta has over 600 *kampungs*, spontaneous informal settlements inhabited by the urban poor, who mostly work in the informal sector.[4] Many *kampungs* are located in frequently flooded areas that in addition to regular nuisance flooding experience severe flooding every three to five years. The experience of and response to flooding events by *kampung* residents are at the lowest adaptation level—survival. From 2005 to 2019, flooding resulted in 137 fatalities, 775 injuries and displaced 861,563 people living in DKI Jakarta (BNPB 2020). *Kampung*

residents remained in shelter camps longer than other Jakarta residents—over 14 days—during and after such events.

There are four types of urban *kampung* residents: (i) those that have a clear legal status for both land and building; (ii) those that have a legal building permit, but no legal land status; (iii) those that have legal land status, but no building permit; and (iv) those that have neither legal land status nor a building permit.

Figure 1. Four types of urban kampung residents



Source: Simarmata and Surtiari 2020

As *kampungs* are often located in flood-prone areas and along water bodies, much of Jakarta's flood adaptation effort has resulted in the relocation of *kampung* dwellers. In 2015, relocation affected 30 communities for the purposes of river normalization (12 sites), retention pond development (1 site), city park development (1 site), and others (16 sites) (LBH Jakarta 2015). As Jakarta seeks to improve drainage capacity of the city's water bodies and reduce hydrometeorological disasters, relocations are increasing in number.

The typology above, however, implies that different interventions are needed for the different *kampungs* and their dwellers. For type (i) residents, the provision of additional infrastructure can reduce flood impacts. For type (ii), an administrative investigation is necessary to examine the issuance of building permits despite unclear land ownership. For type (iii), zoning regulations should outline development preconditions in flood plain areas zoned for development. For type (iv) residents, relocation is the only solution because they lack legal status. Future scenarios of flood impacts need to be estimated for all 4 categories in any case.

Jakarta vision

The 2017-2022 mid-term development planning of DKI Jakarta contains a commitment to balancing environmental protection and social development. Compared to the previous five-year programme, it reflects the change in political leadership following the election of a new governor and takes a different, more people-centered, participatory and inclusive approach to flood management (Table 1). Flood mitigation and community development are integrated, and citizens have a say in the development agenda.

In interviews conducted for this research, *kampung* residents confirmed to a certain extent the changes in the state's approach to flood management. Talking about a coastal fishing market revitalization plan, one resident in Kamal Muara said: "Nowadays, the (government) programme... is discussed with the residents. I was invited to the Mayor's Office several times." In Muara Baru, *kampung* residents also agreed that there was better communication between the government and the citizens. One resident of Muara Baru shared how, upon finding a crack in a recently constructed sea wall, residents had reported it to the neighbourhood leaders who then coordinated with the *kelurahan* office.[5] However, despite the improved communication channel, residents still experience slow responses from the technical departments in addressing issues.

The Jakarta government's attitude towards *kampungs* also manifests in its various planning concepts for Jakarta Bay, a waterfront area exposed to sea-level rise and land subsidence. Visions for the bay range from a world-class waterfront city, luxurious development on reclamation land with a giant sea wall (the Great Garuda project), to restoration of the bay's ecosystem. These planning concepts rarely incorporate nearby *kampungs* along the coasts into the development plans and have been challenged and opposed by local civil society organizations (Bakker et al. 2017). The Great Garuda megaproject, in particular, has been criticized as maladaptation for a number of reasons including its disproportionate impacts on urban poor people. Salim and colleagues describe it as a process in which a coalition of "sociopolitical elites is deploying questionable cli-

mate change projections and discourse on threats of *climate violence* to establish new sites for cronyism and capital accumulation" (Salim et al. 2019:65, emphasis in original).

Table 1. Flood management in Jakarta before and after 2017

No.	Flood management strategies	Before 2017	After 2017
1	Approach to improving the capacity of rivers	The term used was **normalization**: the construction of embankments or walls along the Kali Ciliwung and other rivers	The term now used is **naturalization**: efforts to reduce the flow of water from upstream to downstream by developing a number of infiltration wells and greening floodplain zones
2	Response to settlements affected by flooding	Relocation, followed by building *rumah susun* or cheap apartments for relocated flood-affected residents	Land consolidation, keeping residents in flood-affected areas but with major improvements, involving local residents in preparing a local Community Action Plan
3	Flood emergency response	Using water pumps (especially in flood gates) to pump water out and distribute it to the canals, reducing water inundation	Using vertical drainage, putting water into the soil through infiltration wells
		Creating a rainbow team: The blue team deals with inundation; the orange team deals with cleanliness, including clogged drains; and the green team focuses on gardening (greening) the city	The rainbow team still exists, but participation of local community is encouraged to handle local inundation

Source: Simarmata and Surtiari (2020)

Case study: Waduk Pluit

Following a severe flood that paralyzed 60 percent of Jakarta in 2013, one of the city government's adaptation strategies was "normalizing" Waduk Pluit. Waduk Pluit is a reservoir established in the 1960s that has narrowed due to sedimentation. Low-income urban dwellers occupy the banks of the reservoir in informal stilt houses that reach onto the water body. In order to dredge the reservoir and make more space for water, the government relocated residents of nearby *kampungs* to vertical housing. Affected communities had the freedom to select one of three options: (i) vertical social housing in Marunda, 20 km away from Waduk Pluit, with better facilities and more services including microfinance, training, transportation and urban farming; (ii) vertical social housing in Muara Baru, closer to Waduk Pluit, with services limited to microfinance and urban farming; or (iii) self-resettlement. In options (i) and (ii), residents received six months of free rent. Those with a Jakarta ID card received priority in housing.

In the planning and implementation of Waduk Pluit relocation, a lack of transparency and participation led to perceived unfairness among affected families. While the local neighbourhood board stated that they had organized meetings to disseminate information to the people, residents insisted that information did not reach the entire community. Residents reported having attended meetings with a non-profit organization on slum upgrading, but relocation had not been discussed. Rumours were widespread regarding the amount of compensation, the waiting list for vertical housing, and other relevant information. Perception of unfairness also arose from the lottery-based housing assignment. With the exception of families with special needs, such as those with an elderly family member, other needs associated with work and employment, such as storage space for fishing equipment or street vending wagons, were not taken into consideration.

Furthermore, only a few respondents in the study mentioned voluntary relocation. Most respondents had no choice but to move unwillingly. Whereas people do agree in general that relocation does provide access to better quality, permanent housing, they also state that the type of housing, the relocation process and the opportunities to earn a living in the

new location are often not in line with *kampung* dwellers' expectations and needs. Indeed, several households moved back to the informal settlement after the first six months of free rent in vertical housing came to an end.

According to the affected families, relocation has adverse impacts on their lives. First, relocation disrupts the social network that was the foundation of *kampung* lives. Kinship networks and community bonding, major coping mechanisms during times of difficulties and shocks, are broken as people move away (Farbotko 2018). Second, the disruption in social networks also affects people's economic opportunities. After moving, a food vendor loses her income as she no longer has access to her frequent customers, and also has to limit what she sells in order to reduce negative competition in the new market. Third, the rental system in vertical housing proves challenging for the dwellers, many of whom have unstable incomes and are not used to a monthly rental payment system. Finally, access to water remains a problem. In vertical housing, due to incomplete water infrastructure, people still have to buy clean water from private vendors like they used to in the *kampung*. The price, however, is higher in the vertical housing because of the extra effort required to deliver water to higher floors. Some indicate that access to clean water is even worse than in the informal settlement.

Not only did Waduk Pluit residents have varied access to information about the relocation process, the outcomes of relocation also differ based on existing socio-economic and power relations within the affected communities. Residents who have rented a home in the *kampung* for over three decades are likely to accept relocation. One woman expressed her happiness to have the key to her own home in the Marunda vertical housing. She went on to explain that while the rental system was stricter at Marunda, her rent was halved compared to the informal settlement. Moreover, she was lucky enough to leave her job as a street food vendor in Waduk Pluit and get a cleaning job near Marunda.

In contrast to the positive response in the afore-mentioned case, residents who have owned a home with rooms for rent for over three decades in the *kampung* are more likely to experience worsened socio-economic conditions. A former Waduk Pluit dweller stated: "I had more than ten rooms for rent when I was in an informal settlement in Waduk Pluit, and I got money from that. But now I have to pay for myself." People who held power in the informal settlement, often lost their source of income and experienced difficulty adjusting to the new routine of paying monthly rent for themselves. Many residents in this typology thus return to an informal settlement after a while.

A third type of experience is that of renters having lived in the *kampung* for less than two decades and not entitled to vertical housing. Their post-relocation conditions are more precarious. A worker in a fishery business was able to sublet a room in a relative's vertical apartment, yet always had to be ready to move in case of an inspection from the government as the sublease was not legal.

Summary

In the context of climate change, impacted by sea-level rise in the coastal region and land subsidence, Jakarta nevertheless envisions a future as a city free from the threat of flooding and drowning. The government sees the scattered *kampungs* taking up green and water spaces as one of the causes to be managed; for which relocation presents the easiest solution. The case study of Waduk Pluit reflects serious injustice issues behind *kampung* relocation in the face of climate change. While the government of Jakarta tries to formalize *kampungs* by providing formal housing, it fails to reduce long-term vulnerability to uncertainties and the risks that generates; many relocated families get trapped in new risks by returning to the original hazard-prone areas, or remain socio-economically vulnerable. On top of that, the current planning does not address drivers of land subsidence such as groundwater extraction and increasing urbanization (see Garschagen et al. 2018) but is guided by visions of positioning Jakarta as a global waterfront city that is competitive with other major cities in the world.[6] One could argue that some of the large-scale infrastructure measures and upgrading efforts are necessary in view of the high levels of flood exposure and do present transformations in the domain of innovation as they change what the city will look like. In our view, key adaptation approaches pursued in Jakarta are reflective of a business-as-usual political economy that favours elites and reproduces existing inequalities, however, and is therefore preserving the status quo rather than promoting profound changes across the different domains of transformation.

Ho Chi Minh City

SITUATED ON THE WEST BANK of Sai Gon river, Ho Chi Minh City is the key economic zone of Viet Nam and contributed approximately 22% to the national GDP in 2017.[7] It is composed of 22 districts, including 12 urban districts, four rapidly urbanizing inner districts, and six rural outer districts, with a total population of almost 9 million people. The city is faced with complex challenges resulting from a combination of high population density and ineffective spatial planning, including but not limited to human-induced environmental degradation, inundation due to flood plain development, loss of open space, as well as social stratification. By the end of the 1990s, Ho Chi Minh City had 67,000 households living in informal settlements, known as *khu o chuot* in the local language, the majority of which are on undesirable land along canals and other water bodies (Wust et al. 2002). Rivers and canals in the city are heavily polluted due to ineffective domestic and industrial wastewater management.

Urban flooding is one of the city's top concerns. Ho Chi Minh City is exposed to both pluvial floods due to heavy rainfall and fluvial floods from the rivers. Climate change adaptation has integrated fluvial flood adaptation, while pluvial floods are more difficult to manage, especially given the low capacity of the drainage system. Urban development further exacerbates the challenge as it reduces permeable surface and water retention space.

To deal with flooding and water pollution, current strategies mainly focus on hard infrastructural measures. The city has spent approximately 431 million USD[8] to build six tidal control sluice gates and eight kilometers of dykes (Nguyen et al. 2019). There have been more investments in large-scale infrastructural projects than in "soft" measures, such as increasing green and blue spaces to address pluvial floods. Another focus of the city's adaptation effort goes under the slogan "Rescue the Canals". Urban upgrading by restoring canals and eliminating nearby *khu o chuot* has been on the agenda since the 1990s (Coit 1998). In 2002, over 93,000 of the city's housing units were in poor condition and the target of urban upgrading, 25,000 of which were located on the city's canals (Coit 1998).

Ho Chi Minh City vision

With the aim of creating a modern and livable city, in 2015 the government of Ho Chi Minh City

approved and implemented Seven Breakthrough Programmes, including (i) Quality of human resources; (ii) Improvement of administrative reform; (iii) Economic growth and competitiveness; (iv) Transportation and traffic jams; (v) Flood reduction; (vi) Water pollution; and (vii) Urban improvement. Urban improvement is one of the key programmes, aimed at reorganizing informal communities along rivers and canals and renovating degraded apartments. The programme also seeks to improve access to and quality of water, reduce flooding, and create livable spaces. By 2018, according to official statistics, 36,000 households had been resettled as part of the programme (Department of Construction 2018).

Decision making in Ho Chi Minh City is top-down in nature, and as such the central government is the main driver of public sector adaptation efforts (Gravert and Wiechmann 2016). The 2017 New Planning Law requires an integrated approach to planning and improves public consultation procedures and planning transparency. Yet complicated bureaucratic procedures and tight control by the state continue to hinder public participation and transparency. Participation takes the form of public consultation in which state cadres provide opinions on behalf of the people, albeit with an unknown impact on the actual decisions made (Nguyen and Tung 2007).

Case studies: Tan Hoa–Lo Gom and Hang Bang

Tan Hoa–Lo Gom

Tan Hoa–Lo Gom was once a major navigation channel connecting Ho Chi Minh City to the Mekong River Delta, but is currently heavily polluted, encroached and populated. Along and on the canal are dwellings with little access to clean water, sanitation and electricity. Many residents are migrants without residence permits, while others have no title to the land (BTC 2014). Two canal upgrading projects have targeted this *khu o chuot*: (i) Tan Hoa–Lo Gom (I) by the Belgian Development Agency (BTC) between 1998 and 2006 with extended support until 2010 affecting 242 households; and (ii) Tan Hoa–Lo Gom (II) by the local government between 2013 and 2015.

Tan Hoa–Lo Gom (I)

Tan Hoa–Lo Gom (I), under BTC's guidelines and leadership, involved intensive social support and a high level of transparency and participation during land acquisition, compensation and resettlement. First and foremost, leaders of the project worked with the local government to ensure that houses meeting certain conditions would not have to relocate, thus minimizing livelihood disturbances. For those for whom staying was not an option, experienced social workers served as a bridge between the project management and the affected households. Individual household meetings provided residents with clear, transparent information about housing options, compensation and other processes.

Most houses on the canal banks received compensation proportional to the living area, while stilt houses on the water received a flat rate of compensation. Affected households had the freedom to choose among three housing options: (i) an apartment in Lo Gom building near their old settlement (in situ resettlement); (ii) a land plot in Binh Hung Hoa B, ten kilometers away; and (iii) compensation money for housing of their own choice (self-resettlement). A group of representatives consisting of trusted locals presented to the project team the opinions of those opting for in situ resettlement regarding the design of the apartment building. Lo Gom apartments and Binh Hung Hoa B land plots came with varying prices to ensure affordability for all. Moving support, poverty alleviation programmes and savings groups were among the services that affected households benefited from.

Since the Tan Hoa–Lo Gom (I) relocation project, outcomes have varied among households, depending on their existing assets, mindsets and coping mechanisms. At Lo Gom, the apartments on the ground floor are more expensive, but those who can afford them have benefited from better business opportunities. For some people resettling in Binh Hung Hoa B, income has decreased due to the difficulty of adjusting to a completely new market. Others, on the other hand, decided to sell their land, the price of which had increased by 2019, in order to find another home and use the remaining money to start a business.

Finally, there are also cases in which support from the project has become one of the main drivers motivating adaptation to change. Mrs. Y is an example: Mrs. Y's family got a land plot in Binh Hung Hoa B. Mrs. Y's family received USD 1,100 for their stilt house and the option to buy a plot of

land in Binh Hung Hoa B. After spending all the money on the plot, there was still USD 2,600 to pay over the next 10 years. They also received a loan of USD 1,700 from CEP—a microfinance institution founded by the Labour Federation of HCMC—in order to build a simple house. After moving, Mrs. Y tried different businesses. She sold bread, then switched to rice porridge, then joined the cleaning staff at an elementary school. She said: "It was fine to sustain day by day, thus I stay".

Tan Hoa–Lo Gom (II)

In 2013, the remaining parts of Tan Hoa–Lo Gom canal continued to be upgraded under the local government's project. This phase was characterized by rigid, top-down and non-transparent practices of land clearance and resettlement. During the process, there was one joint meeting with all households for public consultation followed by individual meetings with each household for resettlement compensation. The format of the meetings restricted people's ability to voice their opinions. Rumours and uncertainty were widespread, as people did not have access to clear, transparent information regarding compensation rates or housing options. Residents were resettled to Vinh Loc B, 11 kilometres away from Tan Hoa–Lo Gom, their original settlement. While sites and services at Vinh Loc B represent improved living conditions, there are fewer opportunities for relocated households to make a living compared to the original *khu o chuot*. Many affected households commute the long distance back to work near Tan Hoa–Lo Gom every day, while others sold their new house to move back.

Hang Bang Canal

In the 1990s, Bai Say Road was created when Ho Chi Minh City filled up a canal to make space for residential development. It was followed by years of inundation and ultimately an attempt in 2016 to undo the decision. Known as Hang Bang Canal Upgrading, the project involved relocating 160 families living along the canal. It took the same approach as the second phase of Tan Hoa–Lo Gom, with a low level of communication and transparency. Public consultation took place as a formality, and opinions raised by the people were not taken into consideration.

Similar to the previous relocation examples, outcomes of the resettlement project vary among households. Those with better financial assets can afford to buy a new house nearby and continue their businesses, while others move further away and commute back for work opportunities. Many individuals become poorer after the project, some at the verge of homelessness, and are now paying rents rather than living in their own property as before. In addition, the relocation has had adverse impacts on the mental well-being of the affected residents. The elderly, for example, find the process psychologically and socially challenging, and the new living conditions a big shock.

Figure 2. Hang Bang project

Mrs. A and her mother used the money they received as a family to buy a new but smaller house close to their old home. She comes back to the same location along the canal to sell drinks, where an old neighbour lets her use the space in front of their house.

Mr. B runs a business transporting materials around the neighbourhood. From his new home in Binh Tan district, he travels 13 kilometers—30 minutes to one hour of travel depending on traffic—back to the canal on a daily basis so that he can continue the business. After sharing the compensation money with his six brothers and sisters, what he received was not enough for a home closer to work. For him, life is not better, but it continues.

Summary

The cases of urban upgrading in Ho Chi Minh City exemplify the city's desire to transform itself by restoring water bodies and improving the life of urban dwellers. Urban upgrading projects that entail resettlement unavoidably disrupt people's livelihoods and most projects do not yet adopt an inclusive and participatory approach to manage the resettlement process. The Tan Hoa–Lo Gom (I) pilot project did demonstrate, however, that bringing affected households into the planning process and paying more attention to providing social support and meeting people's needs does greatly improve the long-term outcome of a project. Changes in local level governance of upgrading and an innovative social support component did lead to much better outcomes than business-as-usual approaches. The challenge lies in scaling up such fairly small interventions in order to promote transformative change at the level of the city.

Promoting Transformative Adaptation for Greater Justice

USING THE CASE STUDIES discussed above, this section compares and contrasts Jakarta and Ho Chi Minh City climate change adaptation against the background of justice-driven transformative adaptation and the practical-political-personal sphere framework. First it synthesizes the vulnerability of residents of informal settlements in both cities and its underlying causes. It then analyses adaptation and resettlement efforts using the three pillars of justice. Examining injustices in adaptation can illustrate the contentions and conflicts inherent to processes of change and help identify potential entry points for transformative adaptation. As shown below, existing barriers include distributive injustice resulting from the justification of displacement and resettlement by mainstreaming adaptation, procedural injustice emerging from tokenistic forms of public participation, as well as spatial injustices as an outcome of displacement and resettlement procedures.

Vulnerability of informal settlements in coastal cities

In both Jakarta and Ho Chi Minh City, informal settlements situated near the reservoir and canals are subject to multiple layers of vulnerability. In response to a lack of adequate and affordable housing in the cities, residents resort to settling in spaces that are heavily polluted, lacking in services and infrastructure, and highly exposed to floods. They suffer disproportionately from floods due to their limited socio-economic resources as well as lack of legal status. As both cities implement adaptation measures such as reservoir normalization and canal restoration, these same communities are subject to livelihood shocks and displacement.

In the political sphere, inequality and marginalization are structural causes of both the exposure to urban flooding and the lack of socio-economic resources for coping. The populations living in *kampung* Muara

Baru and *khu o chuot* Tan Hoa–Lo Gom and Hang Bang are resource-deprived and socio-economically marginalized. Many of them are migrants without legal resident status, land ownership or building permit, who rely on the informal economy to earn a living. Coming to the practical sphere, causes of the residents' situation include modes of spatial planning and urban governance that do not provide safe, adequate housing; leave little space for blue and green spaces; have inadequate flood management systems; and lack protection for workers in the informal economy.

At the core of the causes of vulnerability, on a personal scale, is a paradigm that recognizes vulnerability as an end point, or vulnerability as a residual of climate change impacts minus adaptation (O'Brien et al. 2004). Rather than adopting adaptation measures that address the needs of the most physically and socio-economically vulnerable in order to increase their adaptive capacity in the long term, both cases provide examples of adaptation measures that reduce exposure (resettlement) yet adversely impact socio-economic conditions and consequently hinder long-term adaptive capacity.

The few but nonetheless more positive responses recorded in the case studies suggest nuances worth investigating in what Anguelovski et al. (2016) categorize as acts of commission. Resettlement, as the literature suggests, helps move people out of precarious environments and into higher-quality housing conditions (Birkmann et al. 2013). In certain cases, it is inevitable and desirable even for those having to resettle. What shapes second-order adaptation experiences, however, is the way in which resettlement is planned and implemented and the power relations among involving stakeholders, which will be explored further below.

Distributive justice in slum interventions

There is an increasing trend in both Jakarta and Ho Chi Minh City of informal settlement interventions, such as urban upgrading or *kampung* improvement, being integrated into flood adaptation, as well as climate change adaptation being mainstreamed into sectoral planning and overall socio-economic development. Critical examination of the design and implementation of this policy trend, and perhaps its adjustment, is necessary if it is to facilitate transformative adaptation.

Integrating slum interventions in climate change adaptation

In Jakarta and Ho Chi Minh City, *khu o chuot* and *kampung* are often located in flood-prone areas, and both governments integrate slum upgrading into their adaptation efforts. In Jakarta, relocation is intended to increase water absorption and create a healthier environment, through mechanisms such as river normalization and retention pond development, among others. Similarly, Ho Chi Minh City's urban upgrading programme, besides improving the lives of people living near canals, also aims to enhance water quality, reduce floods, increase green spaces, and incentivize development. In both cases, the state perceives informal settlements as a loss of blue and green spaces, a cause of urban flooding, an impediment to adaptation, and a hindrance to development. Whether known as kampung *improvement*, kampung *revitalization*, or *urban upgrading*, interventions in informal settlements are often the stepping stone to other adaptation measures, rather than being an end in themselves. The planning concepts for Jakarta Bay clearly demonstrate the use of megaproject development to justify *kampung* interventions, while Ho Chi Minh City's realization of its motto "Rescue the Canals" by clearing *khu o chuot* suggests that the canals can only be protected by eliminating slums.

As a result, urban upgrading and adaptation in both cities involve a great deal of relocation of residents. Both case studies find few attempts at in situ upgrading. Rather, affected dwellers had no choice but to leave their homes and relocate to new housing. Ho Chi Minh City has resettled 36,000 households since the beginning of urban upgrading 20 years ago, while in 2018 alone Jakarta saw the relocation of approximately 300 families and 900 business units. This shows how adaptation becomes a justification for the displacement of informal settlements. It brings forward the question of distributive justice, as the cities benefit from these measures at the expense of the suffering of the affected households.

Mainstreaming adaptation in sectoral planning

While the relocation of informal settlements has become a part of adaptation, adaptation planning is also becoming increasingly comprehensive and integrated in both cities. Seeking to balance socio-economic development with environmental protection efforts through its 2017-2022 development plan, Jakarta has adopted both soft and hard measures for flood mitigation and water

resource management. On the one hand there are the engineering solutions and flood control infrastructures that have traditionally been the major adaptation measures, and on the other hand there is a new commitment to improving institutional and human capital. In the same vein, Ho Chi Minh City via the Seven Breakthrough Programmes also takes an integrated approach to addressing economic growth, environmental and climate change concerns. The National Target Programme to Respond to Climate Change, approved by the Viet Nam central government, requires streamlining climate change adaptation into local and sectoral plans and strategies.

Such an approach to mainstreaming climate change adaptation into existing development planning discourses, however, bears potential risks. On one hand, it implies the recognition that climate change and climate change adaptation are complex, intersectoral issues. Mainstreaming and integrating climate change adaptation have the potential to enhance its and other sectors' efficiency and effectiveness while reducing conflicts. On the other hand, the pre-existing discourses on planning and development, into which climate change adaptation is being integrated, favour (and prioritize) the kind of rapid economic growth that produces vulnerability and inequality in the first place. Research on mainstreamed climate change adaptation in international development and foreign aid has suggested that uncritical adoption of mainstreaming risks obscuring the politics of adaptation and perpetuating injustices (Scoville-Simonds et al. 2020). In Jakarta and Ho Chi Minh City, if the integration of climate change adaptation in urban planning and development manifests in the construction of a giant sea wall, the development of a world-class waterfront city, or the integration of climate change adaptation measures into already rigid, ineffective procedures, then it risks following development-as-usual rather than transformative adaptation.

There is thus a great need to take a critical approach to mainstreaming and integration that fails to place justice as the core value. Mainstreaming and integration without appropriate safeguarding parameters can help legitimize acts of commission (Anguelovski et al. 2016). It justifies foregoing in situ adaptation and considering the relocation of marginalized populations as the go-to policy choice. This also confirms the literature on climate change-induced resettlement and stresses the importance of treating resettlement as an adaptation response rather than as an outcome of climate change. As integration and mainstreaming have already started in both cities, they nonetheless open up an avenue for transformative adaptation through transforming the ideology and practice of urban upgrading. Following O'Brien and Sygna's (2013) framework of personal-political-practical spheres of transformation, the integration of climate change adaptation and informal settlement upgrading provides potential leverage points for transformative adaptation as it is where people and systems interact. One pathway is to design justice-oriented adaptation and community-driven urban upgrading before mainstreaming them, such that after mainstreaming into other sectors these sectors can adopt and scale up the core values of justice.

Procedural justice and public participation

Transformative adaptation according to our normative approach is grounded in a human rights-based approach and driven by a quest for justice in order to redress discriminations and unjust power distribution. It addresses root causes of vulnerability and requires the inclusion of diverse voices and perspectives. Codifying a participatory approach to climate change adaptation into policies and laws, while necessary, may have limited substantive impacts on transformation due to path-dependencies and tokenism. Alternative forms of inclusion and procedural justice, via embracing adaptation outside of formal structures, are thus also crucial.

Formal public participation

Governments in both cities have sought to increase public participation and inclusiveness in decision making. Jakarta's current leadership adopts a people-centered approach to adaptation planning, claiming to minimize resettlement and engage local stakeholders. Of particular significance is the Community Action Plan, in which *kampung* dwellers identify their own priorities and action steps to adapt to climate change. In Ho Chi Minh City, there are fewer channels for community-led planning. Decision making has historically been top-down, imbued in hierarchical government structures and procedures. The law requires public consultation in all projects, but in most cases, consultation remains a formality with little, and limited consideration

of, public input. Nonetheless, the 2017 New Planning Law offers new avenues for change, as it incorporates improvements in transparency and public engagement.

While it is too early to evaluate the impacts of these newly enacted policies, the case studies, which predate the policy changes, show that public participation in decision making already exists—albeit in tokenistic form, with the exception of Tan Hoa–Lo Gom (I). In Muara Baru, Tan Hoa–Lo Gom (II) and Hang Bang alike, participation had a superficial character, mostly taking the form of informing and/or consulting. Local officers met with the residents to communicate plans predetermined by the state. Muara Baru residents denied local officers' assertion that they had disseminated information in advance to *all* affected households, while several Tan Hoa–Lo Gom (II) and Hang Bang residents were unable to attend public meetings scheduled during work hours. In Ho Chi Minh City, despite the requirement by law of public consultation, informants suggested that the project did not take their opinions into account.

Such procedural injustice not only denies the agency of those directly impacted by the projects, but also turns them into passive victims of adaptation measures. The absence of participation and inclusion of voices of affected residents results in vulnerability to livelihood disruption. Tokenistic forms of participation imply that the barriers lie in state officials' lack of capacity to engage with and guarantee citizen power. Thus, policy improvements without stringent reinforcement and capacity development will not be effective due to locked-in tokenistic ways of "doing" participation.

Participation in shadow spaces

In both first- and second-order adaptation, resettlement outcomes are the result of processes of negotiation and resistance outside formal structures of governance, also referred to as activities in shadow spaces (Pelling et al. 2008). The difference observed in Tan Hoa–Lo Gom (I) is correlated with the engagement and leadership of a third-party agency: BTC. This involvement meant that the project circumvented the traditionally rigid bureaucratic top-down approach to resettlement, instead engaging in informal negotiation with the state. This resulted in multiple exceptions that made the resettlement process more participatory and inclusive, including the compensation scheme, and the intermediary role of a group of community representatives and social workers. Nonetheless, it is also important to acknowledge that, due to the project-bounded nature of the intervention, this informal tactic resulted in differential experiences of communities along the same canal (Tan Hoa–Lo Gom (I) and (II)) and thus, to some extent, undermined structures and institutions that were put in place by the government.

Furthermore, in Muara Baru, in the first year of the resettlement process, residents refused to resettle on the grounds that the resettlement housing (11 kilometres distant) was too far away. This led the state to respond by providing other (short-term) incentives as well as an in situ resettlement housing option (the following year). The resistance of the affected community was an important element shaping the resettlement procedures and outcomes in this case.

Second-order adaptation also involves informal institutions with norms and values specific to residents of *kampung* and *khu o chuot*. As a result, the resettlement as planned and implemented by the state was followed by the reselling of resettlement land, illegal subleasing of resettlement apartments, and moving back to an informal settlement nearby. These tactics and strategies take place outside of the formal structures and institutions and were built upon the foundations of social capital and various local norms. They suggest the importance of recognizing and embracing shadow spaces without compromising their "informal nature" (Pelling et al. 2008; Leck and Roberts 2015). Transformative adaptation thus may involve learning from the shadow space adaptation of past initiatives, such as those in this paper, to design future programmes, as well as creating leeway in policies that can allow for more inclusive participation.

Spatial justice in urban upgrading

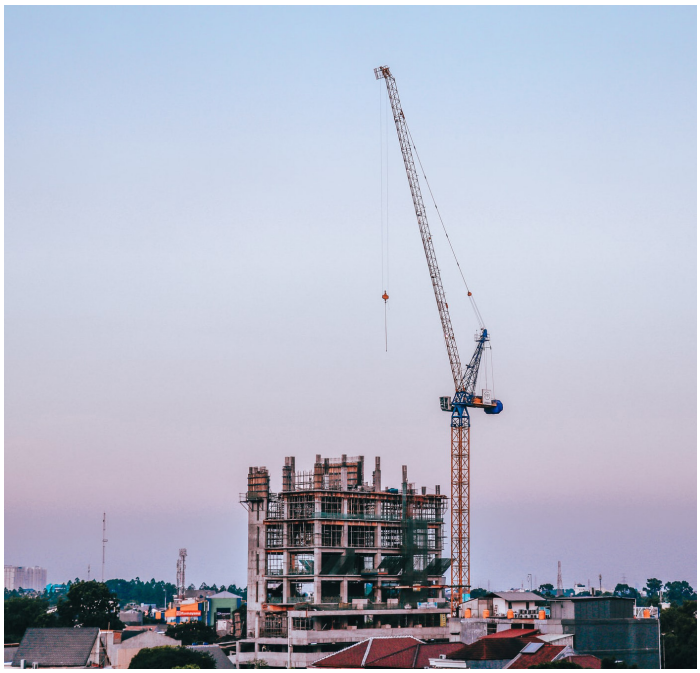
While the literature suggests that resettlement should be a last resort and voluntary, most of the cases studied approach resettlement as part of the adaptation solution. Yet relocating the urban poor living in precarious conditions to locations further away from their social network and economic opportunities amounts to the perpetuation of spatial injustice. Transformative adaptation calls for interventions that build adaptive capacity without

negatively affecting lives in informal settlements. This requires recognizing the characteristics of lives and livelihoods in *kampung* and *khu o chuot*.

Across the cases examined, where resettlement failed to account for the role of social capital and place dependence of affected residents, impoverishment risks increased. A common impact of resettlement was loss of income. It results from the inability of residents to operate a home-based business as they had done prior to relocation (for those who chose to resettle in vertical housing), from having to adjust their business to a new market environment (for those who moved further away), and from losing income from renting rooms (for those who used to lease out rooms in their own home). Many report increasing expenditures after moving, due to water charges, transportation costs and rental fees. Of equal significance is the loss of social network, the risk of homelessness, and the mental burden of resettlement. Even following Tan Hoa–Lo Gom (I), an exceptional and relatively more transformative project, relocated residents still experience adverse impacts.

In particular, failure to recognize informal livelihood activities results in an unequal burden of relocation on affected households. Within each affected community, those who have more access to assets and capital tend to do better in second-order adaptation. For affected households with few assets and capital, second-order adaptation can put a strain on their already limited resources. In Tan Hoa–Lo Gom (I), the varying price options gave affected households choices but still risked magnifying existing inequalities. Apartments on the ground floor, which are more expensive, allow people to open a shop or run a business and thus earn an income. Those with less capital, thus have to resort to upper-floor apartments with restricted opportunities for business. In Muara Baru, residents without an ID card became worse off as it was more difficult to benefit from resettlement housing. People who relocate a distance away from their original settlement and become unable to sustain their livelihood tend to find their way back into precarious living conditions near the canals, where they remain vulnerable.

The cases provide insights into two major factors in resettlement: proximity to original settlement and variety of resettlement options. Among the



resettlement options available to Tan Hoa–Lo Gom (I) and Muara Baru, an in situ apartment appeared to be the most preferred one, chosen by the highest number of people compared to the other options, namely resettlement at a distance and self-resettlement. In the case of Muara Baru in particular, more incentives and services were available to those resettling in an apartment building further away that were not available to those resettling in situ or self-resettling. Yet, the proximity to their original settlement was the determining factor leading to the popularity of in situ resettlement. One explanation is the importance of livelihood, social network and social capital that were based in the informal settlement.

The resettlement projects gave residents varying options of resettlement housing. The availability of different options indicate recognition of differing socio-economic statuses within the affected communities and attention to distributive justice. It allows households to make a choice that best meets their specific needs and means. It also gives households agency in choosing their housing, albeit to a limited extent. Yet the study found that the extent to which this approach can be transformative is limited by its perpetuating of economic differences. This results from a failure to include all voices and perspectives in decision making, and failure to recognize the nature of the informal economy that is the livelihood basis for most affected households.

Table 2. Overview of relocation processes in the different case study areas

City	Affected area	Impact	Resettlement options	Compensation	Social support and services	Community voice	Communication
Jakarta	Muara Baru	Total relocation	1. Off-site apartment, 20 km away, lottery system 2. In situ furnished apartment, available 1 year later, lottery system 3. Self-resettlement		Resettlement option 1: six months of free rent; microfinance; job training; transportation to Muara Baru; urban farming Resettlement option 2: six months of free rent; microfinance, urban farming	No communication	Some households were surprised by relocation due to poor communication
Ho Chi Minh City	Tan Hoa - Lo Gom (I)	Partial relocation, retaining houses in good condition	1. In situ apartment, diverse price options 2. Off-site land, 10 km away, diverse price options 3. Financial compensation for self-resettlement	USD 120.65/ m^2, regardless of land title for all houses on canal banks USD 1,077.2/ m^2 for each house built *on* the water	All households: individual meetings; credit programme; low-interest loan; poverty alleviation; Resettlement option 1: a kiosk in the market; forming saving groups Resettlement option 2: microfinance Resettlement option 3: job training	All households: individual meetings with social workers Resettlement option 1: Design feedback through a group of community representatives, incorporated into actual design and construction	All households had individual meetings with social workers
	Tan Hoa - Lo Gom (II)	Total relocation	Off-site apartment, 11 km away		None	None	Joint community meetings
	Hang Bang	Total relocation	1. Off-site apartment, 4 km away 2. Self-resettlement	USD 1,594.3/ m^2 for houses in an alley USD 1,723.54/ m^2 for houses on main road	None	Affected households requested increased compensation rates, which were not taken into account	Joint community meetings, some households were unable to attend

Source: Own compilation based on Simarmata and Surtiari (2020) and Huynh and Nguyen (2020)

Policy Implications and Recommendations

AS TRANSFORMATIVE ADAPTATION involves justice-driven processes that address root causes of vulnerability to climate change, it entails transformation in the relationships within and among stakeholders, across the global, national and local scales. This means transforming the linkages between urban upgrading and climate change adaptation policies and practices across all levels of governance. In Jakarta, Indonesia, and Ho Chi Minh City, Viet Nam, it means recognizing the triple burden of vulnerability on the urban poor in informal settlements; critically examining the integration of urban upgrading, climate change adaptation and socio-economic development; and adopting alternative ways to achieve justice in urban upgrading and adaptation. Implementing more transformative adaptation requires action at different levels of governance as well as enhanced collaboration among different stakeholders and levels of decision making.

At the local level

Ho Chi Minh City's Seven Breakthrough Programmes and Jakarta's mid-term development planning and water management strategies need updates to incorporate values of justice and human rights. In particular, revisions to these plans need to build upon results from socio-economic vulnerability assessments, and outcome targets should include improvement in the adaptive capacity and decision-making power of the urban poor. The stakeholder consultations conducted for this project have shown that local policy makers do agree with ideas for transformative adaptation, but struggle to integrate social justice considerations into planning and legislation because of the difficulty in measuring and accounting for it, which could be solved through cooperation with researchers and international institutions that can provide technical assistance.

Local governments must lead inclusive processes to create and maintain comprehensive urban upgrading plans at the city level and ensure coordination across districts. Initiatives such as river naturalization in Jakarta and "Rescue the Canals" in Ho Chi Minh City that involve resettlement should recognize slum dwellers as citizens with rights so that their development needs can serve as drivers of change. They should recognize the heterogeneity of slum dwellers and their everyday lived experience, and allow space for autonomy and flexibility at the implementation level to ensure justice for all.

For informal and precarious settlements on and along water bodies in low-risk areas: Rather than targeting only informal dwellings and relocating dwellers to resettlement housing further away, upgrading efforts should cover a larger area while remaining in situ. The surrounding neighbourhood should be infilled and densified to provide resettlement housing to the extent possible. This allows new housing units to tap into existing services, such as water and electricity. Sustainable and adaptive design measures will improve the resilience of the neighbourhood as a whole.

The potential challenge to this approach is push-back from residents that are not in the informal settlements, which nonetheless can be countered with incentives (such as improved infrastructure, or energy efficiency). By taking a co-production approach, the redevelopment would mobilize financial and human resources from both the government and the people, as well as international funding. Both Ho Chi Minh City and Jakarta can learn from successful upgrading examples of the Orangi Pilot Project, Slum Dwellers International and similar institutions.

Overall, cities also need to increase their affordable housing stock via densification and urban infill development in developed areas at low risk of flooding. Residents of informal and precarious settlements in flood-prone areas need to have a voice in urban development processes to foster voluntary relocation and ensure that their needs are met when faced with resettlement. In the long term, the cities may also capitalize on their river and canal network for waterway transportation as alternative public transportation, to prevent further encroachment in the future and to provide additional job opportunities for former slum dwellers.

The remaining low-lying, high-risk land after relocation can be developed using appropriate nature-based adaptation solutions. Options may include aquaculture, swamp, and so on. Residents who stay can be housed in amphibious housing on site. Ownership and management of the site would be under a cooperative model, in which any former slum dwellers and affected residents can be a member. In addition to its ecological adaptive functions, the site can also operate as a community-based tourism and or educational centre, providing additional training and employment opportunities for vulnerable populations. It can also be one way to capitalize on the skill set of rural-to-urban migrants that make up a large proportion of the population growth in both cities.

Community organizing can play a central role in empowerment and transformative adaptation. Trusted neighbourhood representatives can serve as an important intermediary between the residents of informal settlements and the state, ensuring that the people's voices are heard and acted on. Civil society organizations can help in the process of organizing communities and providing training and education with an end goal of creating self-sustaining community institutions as a crucial pillar of co-production. The people, the state, civil society organizations and international agencies need to work collaboratively on the co-production of knowledge about adaptation and transformation, as well as on urban housing and services, and they should foster deliberate social learning.

The differences between the state's approach to flood adaptation and affected households' livelihood needs and responses demonstrate the importance of a co-production approach. Co-production offers an entry point to transformative adaptation by disrupting the dominant power relationships in climate change adaptation and urban upgrading. Both require reimagining the contemporary discourse and going beyond established governance structures. This can be challenging, in particular in more repressive and authoritarian contexts where democratic control and participation are limited, but there are many positive examples of co-production at the grassroots level even in difficult circumstances (see Mitlin 2008). It might have to start therefore with small changes such as existing dwellers in flood-prone settlements working with local governments to identify and act on their immediate needs, such as obtaining building permits, applying for a residence ID card or supporting informal businesses. This helps build trust and a collaborative habit, as a foundation for longer-term efforts such as community mapping and vulnerability assessment that are also important for adaptation and upgrading. Eventually, affected residents, through their trusted representatives, should serve as co-leaders of upgrading efforts from the planning and preparation stage. All affected residents should participate in the development of, and agree upon, in situ resettlement and relocation options prior to programme implementation. Similar to Tan Hoa–Lo Gom (I), residents should

also have an active voice in the design of housing and receive extensive social support after resettling.

At the national level

National governments need to foster the consideration and implementation of international protocols and regulations pertinent to displacement and relocation, including the 1986 Declaration on the Right to Development by the United Nations General Assembly, the UN Guiding Principles on Internal Displacement in 1998, and the World Bank's Resettlement Policy Framework in 2004. Efforts should be made to map out action plans and monitoring schemes with respect to resettlement activities at the national level, and to work with subnational governments to carry out these plans. Stringent relocation and resettlement guidelines grounded in a human rights-based approach should be codified into planning law in both countries.

National governments should work with subnational governments to design policies that protect the rights of dwellers of informal settlements and recognize the importance of the informal economy. The informal sector is a significant component of urban economies and societies. Legal recognition and support for it are the first steps towards livelihood security and improved adaptive capacity.

There is a need to review existing legal frameworks pertinent to issues of climate change adaptation, urban upgrading and resettlement. In mainstreaming climate adaptation in sectoral planning, relevant agencies should design approaches in ways that (i) promote local autonomy to come up with context-specific solutions; (ii) prevent the uncritical adoption of resettlement as preparation for climate change adaptation; and (iii) require consideration of in situ upgrading and in situ resettlement during processes of land acquisition and clearance for adaptation.

Legislative catalysts to foster co-production of knowledge as well as housing and urban services are needed in order to open up new pathways to transformative adaptation. This may take the form of a knowledge platform to facilitate learning processes among all stakeholders and even across borders with other Southeast Asian countries. Communities, local governments and civil society organizations can share and learn from each other's best practices and pool resources to scale up impacts.

At the international level

International institutions also play a central role in reducing the burden of adaptation measures on the urban poor. All funds and policies mandated in response to climate change and flooding impacts should address socio-economic vulnerability to climate variability and consider the equity and justice implications of the planned interventions. To that end, they should provide appropriate financial and technical assistance to help localities conduct vulnerability assessment. More attention needs to be paid to civil society's concerns with regard to existing environmental and social impact assessments as well as resettlement plans that are developed as part of large-scale infrastructure projects funded by bi- or multilateral donors.

Donors and funders should also research new avenues to mandate community participation that gives citizens power and avoids tokenistic participation, by experimenting with innovative channels to facilitate co-production of housing, urban services and adaptive capacity. Shifting away from project-based urban upgrading and climate adaptation, international institutions should provide city-level technical assistance to ensure justice and rights-based adaptation. More work is needed to ensure that funding reaches the most vulnerable (socio-economically and politically)—which for our case studies would mean ensuring that *kampung* dwellers with no land ownership or building permit, migrants living in *khu o chuot*, and informal traders and workers receive priority as well as decision-making power in adaptation efforts.

International partners for future urban upgrading and adaptation efforts should be aware of lessons learned from cases like BTC in Tan Hoa-Lo Gom (I) to capitalize on their unique position and identify appropriate channels to negotiate with national and local governments to circumvent existing institutional and bureaucratic barriers that reproduce injustices. Formally, it may involve requirements for transparency in land clearance and resettlement, and mechanisms for citizen engagement. Informally, it may translate to direct collaboration between international staff and local officials on the ground to best respond to needs in the local context.



Conclusion

USING JUSTICE-DRIVEN transformation as a framework, this paper has explored the interconnection between urban upgrading and climate change adaptation. Through the search for entry points into transformative adaptation, the paper raises three major questions concerning the process, scale and outcome of climate change adaptation in the context of flood-prone informal settlements. First, what should the process of adaptation look like? A participatory and inclusive approach to adaptation and urban upgrading is important to ensure all members of the community regardless of their background have their voices heard and that their right to participate in decision-making processes is respected. As shown in the BTC-led urban upgrading project in Tan Hoa–Lo Gom, when citizens actively engage in the process of change, positive outcomes follow.

Second, what does transformation look like at different scales? Root causes of vulnerability involve different interpretations at each scale of analysis: unequal power dynamics lead to community vulnerability while unsustainable land use perpetuates city-level vulnerability. While procedural transformation is crucial at the community level, city-wide adaptation strategies require thinking beyond community participation to reconfigure land use in ways that ensure climate justice for all. The concentration of the urban poor population in areas that are most frequently flooded foregrounds the need for city-level planning that takes into account future climate change impacts.

Third, what are the implications of climate change and transformative adaptation for conventionally designed urban upgrading practices? As the case studies suggest, resettlement is desirable when it meets the needs of the people but presents challenges when it fails to account for second-order adaptation difficulties. As climate change impacts continue to manifest and disproportionately influence informal settlements in areas with high exposure, relocation and resettlement to safe and developable land is a sound alternative to in situ upgrading. While the urban upgrading literature emphasizes in situ upgrading as a priority, climate change has introduced a new set of challenges that renders on-site redevelopment an inadequate way of creating flood-proof communities. Rather, voluntary, inclusive and just resettlement offers a pathway to long-term adaptation and resilience. Moreover, this does not necessarily render in situ upgrading ineffective as a short-term strategy to adapt in flood-prone settlements. Most importantly, the synchronization across all three factors is important to achieve transformative outcomes.

The paper has also opened up avenues for future research. Studies on the topic of transformative adaptation should examine best practices for cross-scale policy synchronization to better understand how diverse adaptation strategies across scales can best facilitate transformation and over which time scale. Moreover, if in situ urban upgrading is no longer desirable for communities in flood-prone locations, researchers and practitioners alike need further research that investigates the trade-offs between different alternatives in order to establish new best practices in the context of climate change. Finally, more participatory action research grounded in communities' experience is crucial to the development of better policies for transformative adaptation.

Endnotes

[1] https://vietnamnet.vn/vn/bat-dong-san/du-an/can-canh-cac-khu-o-chuot-hoi-thoi-o-nhiem-nang-o-sai-gon-569826.html.

[2] Data collection for the case study papers took place from March to August 2019. The authors conducted policy review, observation and semi-structured interviews both with experts and local residents impacted by adaptation and resettlement initiatives. The draft studies were consulted on and discussed with local stakeholders in 2020 in order to evaluate their relevance and applicability from the perspective of decision makers and adaptation practitioners and to identify barriers to transformative adaptation in each case study context.

[3] USD1 = 14,134 Indonesian Rupiah (IDR) (Oct. 2019).

[4] Historically, *kampung* refers to a residential unit that has continually evolved under the changing political, social and economic conditions of the city, from Dutch colonization until today. For the purpose of this paper, the term *kampung* is used to describe urban informal settlements in contemporary Jakarta.

[5] Kelurahan is the lowest level of government in Indonesia, the equivalent of an administrative village or subdistrict.

[6] https://youtu.be/l_YR6GydZAM?t=207.

[7] Based on Statistical Yearbook of Viet Nam 2019 and Socio-Economic Statistical Data of 63 provinces and cities 2020.

[8] 1 US dollar is approximately 23,208 Vietnamese dong (Sept. 2020).

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Transformative Adaptation to Climate Change and Informal Settlements in Coastal Cities

Entry Points for Jakarta and Ho Chi Minh City

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.

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