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The Political Ecology of Urban Climate Injustice in Thailand

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This paper addresses a gap in the literature on urban climate justice by examining inequity at the “urban scale” and adds to growing discussions and acknowledgment about the need for climate justice at the city scale. This is accomplished by drawing on work in geography and urban political ecology on climate justice and urban governance. Such a perspective builds on the concept of a climate-just city, a perspective which prioritizes the needs and issues of those most marginalized and vulnerable to the effects of climate change. In particular, this study focuses on Bangkok, Thailand, a city not only highly vulnerable to the effects of climate change, but also with one of the highest carbon emissions per capita in the world. To highlight instances of climate injustice at the urban scale, the paper presents three case studies from within the city: Bangkok’s public transportation sector, the state’s response to the 2011 floods in Bangkok, and coastal erosion in southern Bangkok. As evidence, the paper draws on a mixture of primary sources—interviews conducted with government officials, activists, and community members in Bangkok during 2014-15, policy discourse analysis, and city plans— and secondary sources. Ultimately, the main argument presented is that the city’s governance of climate change has unjustly benefited the upper echelon of society, while low-income communities have been adversely affected.

KEY WORDS: urban climate justice; Bangkok climate change policy; 2011 Thailand floods; Bangkok urban governance; urban political ecology

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Introduction

In June 2015, a group of civil society organizations (CSOs) from a number of Asian countries issued the People's Declaration for Climate Justice. The declaration asserted:

The burning of fossil fuels by big polluters has been found to be primarily responsible for emitting large amounts of greenhouse gases. We refuse to accept the 'new normal' and demand for climate justice by holding the big polluters and their respective governments to account for their contribution to the climate crisis (Greenpeace 2015).

The polluters highlighted here are from the Global North. Climate Justice Now, an international network of CSOs, further asserting the links with the North, demanded "huge financial transfers from North to South based on historical responsibility and ecological debt" (Bond 2008). The focus of these quotations characterize much of the discourse on climate justice (see also Brown 2008, Posner and Sunstein 2008, Asian-Pacific Resource & Research Centre for Women 2009) which is primarily focused on justice on an international scale. During recent years, there has been an increased, if still limited, focus by both civil society and academics on climate justice at the national scale. However, despite a number of scholars, activists, and policymakers being in agreement that urban governance significantly shapes responses to climate change, only a few academics have written about urban climate justice (MacCallum et al. 2011, Steele et al. 2012, Hillier et al. 2013, Bulkeley, Edwards, and Fuller 2014).

I seek not only to add to the emerging body of work on climate justice at the "urban scale" from the perspective of urban governance but also to expand the geographical scope of the literature. To do so, I focus on Bangkok, Thailand, in mainland Southeast Asia. Bangkok is not only one of the most vulnerable regions to the impact of climate change, but also a region with one of the fastest rates of urbanization in the world. As a case study into examining urban climate justice, Bangkok provides particular insight because while it has one of the highest per capita carbon emissions in the world (7.1 tons CO₂ per capita in 2005) (UNEP 2005), it is also highly vulnerable to the impacts of climate change.

At the same time, Bangkok is exceptionally vulnerable to climate change. The urban population is exposed to coastal flooding as a result of climate change. On average, the city is only one metre above sea level, sinking annually due to anthropogenic land subsidence. Additionally, Bangkok is located next to the Gulf of Thailand, which has been rising a quarter of a centimetre annually (Marks 2011). Furthermore, Bangkok continues to experience increasing drought and floods; as seen in 2011, Bangkok experienced its worst floods in decades. Together, given



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Bangkok's unusual characteristics of both high-level carbon emissions and its high vulnerability to the impacts of global-wide emissions, two key questions of equity and justice emerge, which I address in this paper. First, how is Bangkok itself a climate-just city, or not? More specifically, following Steele et al. (2012), does the governance of the city prioritize the needs and issues of those citizens who are most marginalized and vulnerable to climate change? Second, how does the urban governance of Bangkok seek to reduce the emissions? Does it proceed with an emphasis on those who emit the most, or on those who are least able to afford to reduce them?

In addressing these questions, I rely on the concept of a "climate-just city" to recognize that vulnerability to climate change in any city is largely determined by political-economic processes. The benefits and costs are uneven, and climate change policies may actually exacerbate existing inequalities and create unfair outcomes by marginalizing certain groups (Steele et al. 2012). This concept recognizes that a city's degree of fairness in mitigation efforts, or lack thereof, is further outcomes of these processes. Given the high degree of income and political and social inequality in Bangkok, as well as the widespread literature on the city's rapid urbanization and climate change, (e.g., UN Habitat 2011, Dodman, Bicknell, and Satterthwaite 2012), this approach is important. I argue that it is worth delving beneath the obvious assumptions in urban governance to explore exactly how and why climate injustices stem from Bangkok's governance and specific instances of injustices and why they have occurred. By revealing these injustices and the power relations that underpin them, the analysis presented can be considered one move towards imagining the governance of the city into a city that is more climate-just.

To make this argument, I first review the literature on urban climate justice and link it to the concept of political ecology. Next, I apply this framework of urban climate justice specifically to Bangkok by first looking at how climate change has been addressed as an object of urban governance. I do so by reviewing and evaluating the city's plans to address climate change and analyzing the city's governance of water and disasters. I then draw upon three case studies to investigate whether Bangkok's governance response to climate change in the city are just. The first case study looks at the city's transportation sector. This sector emits more carbon than London's transportation sector, and this case study discusses how Bangkok has not only failed to curb emissions in this sector, but rather, recent policies have encouraged increased carbon emissions by the growing use of cars by middle and upper income residents. Second, the study uses the city's response to the 2011 flooding as a further case study. Although the floods were slightly affected by climate change, policymakers framed them as primarily caused by climate change.



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The paper argues that the city's response to the 2011 floods made communities in the outskirts of Bangkok, many of them low-income, more vulnerable to the flooding, while at the same time this response reduced the vulnerability of those living in the inner city, which has concentrations of middle- and upper-income households. Evidence in this section draws upon interviews with low-income community leaders and residents who personally experienced heavy flooding. Third, the paper investigates coastal subsidence in Bang Khun Thian, detailing how social processes making coastal communities even more vulnerable to the rise in sea level. I conclude with a summary of my findings and a discussion of the value in urban-scale investigation of climate justice in Asia.

The Climate-Just City and Its Relationship to Political Ecology

Since climate justice is a form of environmental justice (EJ), to begin to conceptualize a climate-just city it is useful to begin with a brief summary of the EJ movement. Steele et al. (2012, 10) suggest that at the heart of EJ is a struggle for a more equal "access to and use of 'nature' in its various aspects." A basic insight of the movement is that 'distribution of environmental goods and harms' has a tendency to "follow that of economic goods and harms" (MacCullum et. al 2011, 1). As Schroeder et al. (2008) assert, the core of EJ struggles is universal and part of broader patterns of injustice of global significance. Schlosberg (2007) usefully theorizes that there are three types of environmental injustices: distributive (how environmental goods and harms are unevenly distributed), procedural (whether different groups have equal access to decision-making regarding the environment), and lack of recognition (whether groups have been discriminated against due to their identity).

Two questions are therefore central to the EJ framework. First, what patterns of good or bad in social inequality exist in relation to the environment? Demonstrating different levels of social vulnerability is therefore a key component in showing "that not all people are equally affected by an equivalent environmental burden or able to cope with or recover from its impacts" (Walker 2012, 46). This question is one of distribution, in which a contextual process claim is being made. It analyzes a specific situation, such as the 2011 Bangkok floods, and historically traces local patterns of development and decision-making. Second and more complex, how are these inequalities being produced, who is responsible, how have decisions been made, and how are government policies and practices created and then enacted? The second question is one of procedure and recognition, examining how a society operates, mechanisms for distribution of power, which groups are recognized and marginalized, and, consequently, how uneven environmental outcomes arise. Undoubtedly, these injustices are linked: those who are more vulnerable to harms have not been fairly recognized nor involved in decision-making processes.



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The concept of climate justice draws from the EJ framework. According to the Environmental Justice and Climate Change Initiative, climate justice is a “vision to dissolve and alleviate the unequal burdens created by climate change. As a form of environmental justice, climate justice is the fair treatment of all people and freedom from discrimination with the creation of policies and projects that address climate change” (quoted from Russell and Moore 2011, 18). This definition successfully captures two of Schlosberg’s types of justice (distribution and recognition), though it fails to include procedural justice. To complement this definition, Paavola and Adger (2006) usefully add that a just response to climate change must first incorporate the principle of prioritizing the most vulnerable. This group is comprised of those most in need in terms of redistribution, but also these people’s rights must be recognized so their voices are included in decision-making processes.

As mentioned in the introduction, the framing of climate justice, such as the right to be protected from climate change and the responsibility to cut emissions and provide compensation, has mostly been done by academics, activists, and policymakers at the international scale, thereby focusing on the nation-state as the key actor or site in this debate. However, one problem with this framing, as Harris (2010, 215) argues, is that it “fails to account for rising greenhouse gas emissions among affluent people in less responsible states of the developing world,” despite the fact that many of them emit carbon at a same level as compared to inhabitants of developed countries. This insight suggests that some cities, such as Bangkok, should bear a greater responsibility to reduce its emissions when compared to lower-emitting ones. Further, within such cities, affluent populations who emit most should bear a greater responsibility to lower their emissions (Bulkeley, Edwards, and Fuller 2014). However, while most urban policymakers, including throughout much of Asia, espouse a vision of a low-carbon urban future, in reality they continue to enact policies which force much of their population to maintain a car-dependency (Steele et al. 2012).

Additionally, by focusing on the climate justice debate primarily at an international scale, the climate justice agenda has hardly influenced climate change discourses within cities. Urban policymakers continue to present responses to climate change as technical solutions. In most urban climate change plans, there is little discussion of justice, focus on vulnerable communities, or consideration of the social and cultural consequences of climate change (Hillier et al. 2013). As a result, as MacCullum et al. (2011, 6) contend, “The ‘imagined communities’ of the metropolitan plans are the middle class, not those most vulnerable to climate change impacts.” Further, many urban scholars and practitioners have framed adaptation responses to climate change around a discourse of city system resilience. However,



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this discourse of urban resilience, as Friend and Moench (2013) point out, rarely emphasizes issues of equity. Nor does this discourse argue that the urban elite should bear the costs in the interests of the most vulnerable. Consequently, this discourse can be easily manipulated by vested interests.

To begin to address these issues, a handful of scholars have conceptualized the climate-just city. In addition, a handful of urban-based NGOs in the US, such as the East Michigan Environmental Action Council (EMEAC), are advocating for climate justice at the urban level. Together with key community members, EMEAC convened the Detroit Climate Justice Alliance. This coalition is developing “a shared vision for a just transition for our city as well as a strategy to get there” (Climate Justice Alliance and Our Power Campaign 2012, n.p.).

Invoking this concept of the climate-just city is valuable in a number of ways. First, the concept advocates urban climate change responses to more fairly protect rights and allocate responsibilities among different groups within cities. Second, seeking to understand the production and performance of climate change discourse by key urban actors can inform us about the ways in which climate change is being imagined by policymakers and how their responses may reproduce inequalities or further marginalize the most vulnerable groups. This increased understanding can help to better shape these discourses, to insure a more fair and inclusive consideration of these groups (MacCullum et al 2011).

Third, scholars have usefully added the dimension of urban political ecology (UPE) to their concept of the climate-just city. With a strong Marxist leaning, UPE originates from geographers perceiving landscapes and urban infrastructures of cities “as historical products of human-nature interactions” (Keil 2003, 724) which are “controlled and manipulated and serve the interests of the elite at the expense of marginalised populations” (Swyngedouw and Heynen 2003). The urban element of the framework developed from the work of David Harvey and Henri Lefebvre. In his seminal work, *Social Justice and the City*, Harvey begins with the position that the city is both a tangible, built environment and also a social product (1973). Further, cities are built for the purpose of circulating capital, including people, commodities, or finance. Using this Marxist framework, he argues that “cities are founded upon the exploitation of the many by the few” (314) and posits that the roots of urban inequality are the scarcity and high value of land in good locations. Often the poor live in cheaper areas that are not well-situated and therefore must face the brunt of urban environmental problems. He therefore characterized cities as landscapes of power. Urban political ecologists have expanded upon Harvey’s theory of the city, viewing the urban as a “site where ecology, economy, and society collapse on



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another and must be untangled” (Sassen and Dotan 2011, 825) both spatially and temporally. Thinking of the city as a socio-spatial hybrid enables us to see how the “social production of urban space unevenly spreads the vulnerability to hazards, exposure to risk and ecological breakdown” (Murray 2009, 171). Scholars such as Murray, Pelling (1999), and Collins (2010) argue that the spaces of environmental degradation and high exposure to hazards, just as spaces of protection against hazard threats, are unevenly distributed over the topography of the city. Thus, vulnerability to climate change in a city is largely determined by political-economic processes. Further, urban climate justice scholars conceptualize the city “as the spatial manifestation of the complex of economic and political processes . . . that shape and condition the urban experience” (Whitehead 2013, 1352). Therefore, urban responses to climate change cannot be separated therefore from such processes. It is from this research into climate justice that reveals how injustice is created, enhanced, and challenged (Bulkeley, Edwards, and Fuller 2014). Reforming urban governance therefore is a key component in moving toward a more climate-just city.

Climate Injustice in Bangkok

Now that I have detailed the theoretical framework of the climate-just city, I apply this framework to Bangkok. As mentioned, Bangkok not only emits a high level of carbon emissions, but is also highly vulnerable to the impacts of climate change, in particular pluvial flooding, and coastal erosion. A study by Dutta (2011) predicted that due to sea-level rise, the city’s total area of inundation could enlarge up to 26 percent by 2050. In 2009, The World Bank estimated that by 2050 the sea level in the Upper Gulf of Thailand, along which Bangkok sits, would rise 12.3 centimetres (cm) due to climate change. Combined with a predicted additional 20 cm of anthropogenic land subsidence, the sea level would a rise of total 32.3 cm (World Bank 2010). Additionally, the number of dengue fever cases have spiked in recent years, reaching 136,000 in 2013 – the highest in two decades – with the greatest concentration of cases in Bangkok and Chiang Mai. Thai health officials have blamed climate change as a contributing factor (Lefevre 2013).

Concurrently, Bangkok is host to a number of low-income communities. As of June 2013, according to the statistics from the Bangkok Metropolitan Administration (BMA), there are 2,054 low-income communities in Bangkok. In these communities reside 2.1 million people. Within those low-income communities, there are 692 slum communities, comprising 700,000 people (Saito 2014). These communities are highly vulnerable to effects of climate change, particularly to flooding. Due to their limited infrastructure (such as floodwalls), poorer quality of housing, low level of financial resources, lack of access to decision-makers, and, in some cases,



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land tenure insecurity, these communities have a limited capacity to cope with floods. They are also more frequently exposed to floods: many reside along canals or in the outskirts of the city, areas which are first to flood and are less protected by infrastructure than the inner city (Marks 2015). Given these communities' high degree of vulnerability, a question that needs to be raised is this: does the urban governance of the city prioritize the reduction of low-income communities' vulnerability to climate change? An examination of BMA's climate change plans should reveal if and how climate change has been thematized and whether social concerns and notions of justice have been included.

A review of the 'Bangkok Assessment Report on Climate Change,' published in 2009, is revealing. In this document, BMA discusses how it has sought to mitigate climate change by "the ninth day of each month" to raise awareness of global warming concerns among Bangkok residents, and suggests how they can take part in reducing the city's greenhouse gas emissions (Bangkok Metropolitan Administration 2009). The document highlights some of the awareness events held in 2007 and 2008 such as:

- 'Stop! Warming up Bangkok City': a campaign which encouraged people living in five major roads to turn off electric lights for 15 minutes
- Renewable Energy Use': a campaign which promoted the collection of used cooking oil in order to be re-used to produce bio-diesel fuel.
- 'Stopping Engines While Parked': a campaign which encouraged drivers to turn off their engines when they are parked at traffic lights

In another example, BMA joined 7,000 other cities worldwide by encouraging residents to switch off their lights during 2015's Earth Hour, thereby reducing emissions by 1,127 tons (NNT 2015). This is an insignificant amount compared to the city's emissions of over 43 million tonnes. As many would expect, such events have had negligible success in reducing the city's emissions, which are incessantly increasing. Thematizing the mitigation of climate change as a volunteer awareness-raising activity does not create large enough incentives for individuals to make major changes to their carbon footprint and the events are too small in scope to create any long-lasting change in the city's emission trajectory.

Moreover, the document neither sets an emission target nor discusses the need for or a plan to make deep structural changes to the city's transportation, energy, and building sectors, which constitute the largest source of emissions. The few mitigation policies it has recommended include constructing buildings more sensitive to climate change, such as by lowering their energy consumption,



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reducing pollution, and by promoting further awareness-raising projects (Bangkok Metropolitan Administration 2009). These policies are not integrated with economic policies. Moreover, there is no discussion of notions of justice or mention of ethical responsibility of Bangkok's higher-emitting citizens need to reduce their emissions. Likewise, the document's adaptation measures are mostly technical. These include promoting better communication between city officials and scientists, improving early warning systems for disaster and emergency preparedness, preventing contamination of the potable water supply, and educating health officials about climate-related health risks. A major shortcoming of these proposed measures is that they are vague. There are no numeric targets, specifications as to which agencies will implement what measures, and integration with existing city policies.

An additional problem is that the document ignores any discussion of how to reduce the vulnerability of the most vulnerable, particularly low-income communities. Once again, it fails to incorporate notions of climate justice and the socio-economic factors which interact with climate change to create these uneven vulnerabilities. Another major problem is that the plan has not resulted in any changes: upon completion of the so-called plan, it was business-as-usual for BMA and Bangkok's residents. BMA governors and other top officials have so far paid lip service to these climate change plans, making no major effort to initiate these measures, in particular in the area of vulnerability reduction (Hutanuwatr 2011). BMA has thus "simultaneously rendered" these measures as "non-political" (Li 2007, 8), thereby making urban adaptation policies "appear as uncontested, neutral, and natural processes isolated from societal or political priorities, biases, and choices" (Joy et al. 2014, 960). Consequently, these solutions merely perpetuate the status quo.

Investigating the city's governance of land and water, which are two key interrelated sectors that affect vulnerability to climate change, reveals that anthropogenic changes to the built environment has made the majority of the population of Bangkok, in particular low-income communities, more vulnerable to climate change. Yet the Thai elite, whom Farrelly identifies as "politicians, bureaucrats, capitalist business leaders, and military officers" (2013, 283), have benefited from these changes and are better protected from the impacts of climate change. For example, as discussed below, the areas where they live and work have the highest concentration of flood-control infrastructure.

One of these changes is the city's heavy land subsidence that began in the 1970s. Bangkok's ground has already sunk more than one metre since then (Phien-wej, Giau, and Nutalaya 2006). This has occurred mainly because of



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excessive groundwater pumping, particularly by industries. The state failed to curb expanding water demand, which rose as a result of the city's expansion. Demand for groundwater surpassed the threshold of the city's aquifer system and, consequently, over-extraction occurred. This problem was exacerbated by the lack of a proper city plan to manage the city's land usage, infrastructure, and utility development. While the government did succeed in curbing the pumping rate during the early 1990s, it rose again in the late 1990s due to the city's expansion into outer areas where no surface water supply was available (*ibid.*). The industrial sector was responsible for nearly all of this pumping, which finally fell again during the past few years (Endo 2011).

A major effect of this subsidence is that it debilitates the city's flood protection: flood walls and dikes subside steadily as the ground sinks and the city therefore needs to make greater efforts to pump and drain potential floodwater through canals (Phien-wej, Giao, and Nutalaya 2006). Another serious effect of this pumping has been on coastal areas of Bangkok, where subsidence has contributed to coastal erosion, decreasing the shore line by at least 400 metres over the past 30 years. This coastal erosion has particularly affected low-income farming communities which reside along the coast of the Gulf of Thailand (Jarungrattanapong and Manasboonphemphool 2009). Overall, what has happened



Figure 1: Actual land use in designated green zone area in eastern Bangkok (Mehl and Banasopit Mekvichai 2013)

Google earth

miles 1
km 1





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suggests that industry owners benefited largely from groundwater pumping while the city's overall population has become more vulnerable to climate change.

Second, BMA has wisely designated swathes of eastern and western Bangkok as green zones in order to retain these as drainage areas, which would reduce the city's risk of flooding. Under this designation, the government has prohibited approximately twenty uses of the land in this area, including housing estates. However, an investigation by Mehl and Banasopit (2013) found that the current reality differs starkly from BMA's intended policy (see figure below). Real estate developers have built housing estates on both sides of roads, disregarding spacing regulations. A study by Weesakul (2013) counted over 28,000 houses constructed in the eastern floodway. Similar to groundwater pumping, poor enforcement of existing laws has only furthered this problem. Enforcement agencies have been unwilling or unable to stop powerfully-vested developers, including powerful land-owning families, business tycoons, and politicians, who simply ignore land-use regulations and construct in these areas (Plumb 1999). In previous decades, some developers paid bribes to government agencies in order to obtain housing permits in these areas, although this practice has, for the most part, stopped now (Bangkok Real Estate Developer, personal communication, August 27 2014).

During the 2011 floods, the water that was diverted to these green zones not only severely damaged these estates, but was also blocked from flowing south into the Gulf of Thailand by all of these buildings (Mehl and Banasopit 2013). Thus, practices by real estate developers who have profited handsomely from building these estates contributed to the exposure of those residing in northern Bangkok to floodwater for a longer period of time than residents in other parts of the city, particularly the inner city.

Governance of the water sector has likewise created distributional injustices. The government either filled in the city's hundreds of canals or did not stop landowners from doing so. Until the end of the nineteenth century, life revolved around an aquatic network of canals. Not only did these canals serve as transportation routes, they also retained water during times of heavy rainfall and when water flowed down from the north. However, to build new roads and housing estates around the city, developers filled in many of the canals or reduced them to drainage ditches and open sewers (Roachanakanan 2012). According to George Olson, a former manager of a United States engineering firm that worked on flood protection projects in Bangkok a few decades ago, the government ignored recommendations that canals should not be filled in to accommodate vehicular traffic (Macan-Markar 2011). Bangkok's weak legal regulations also contributed to this canal-filling trend. Landowners are allowed to take any action on their land,



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including filling in canals. A study found that 97 percent of the filled canals were in privately-owned areas (Davivongs, Yokohari, and Hara 2012). Thus, just as in the land sector, the city’s laissez-faire urban development has created distributional injustice in terms of exposure to climate change vulnerabilities, particularly in flooding. These practices were procedurally unjust too: communities were never consulted about these decisions nor given any opportunity to be involved in the decision-making processes.

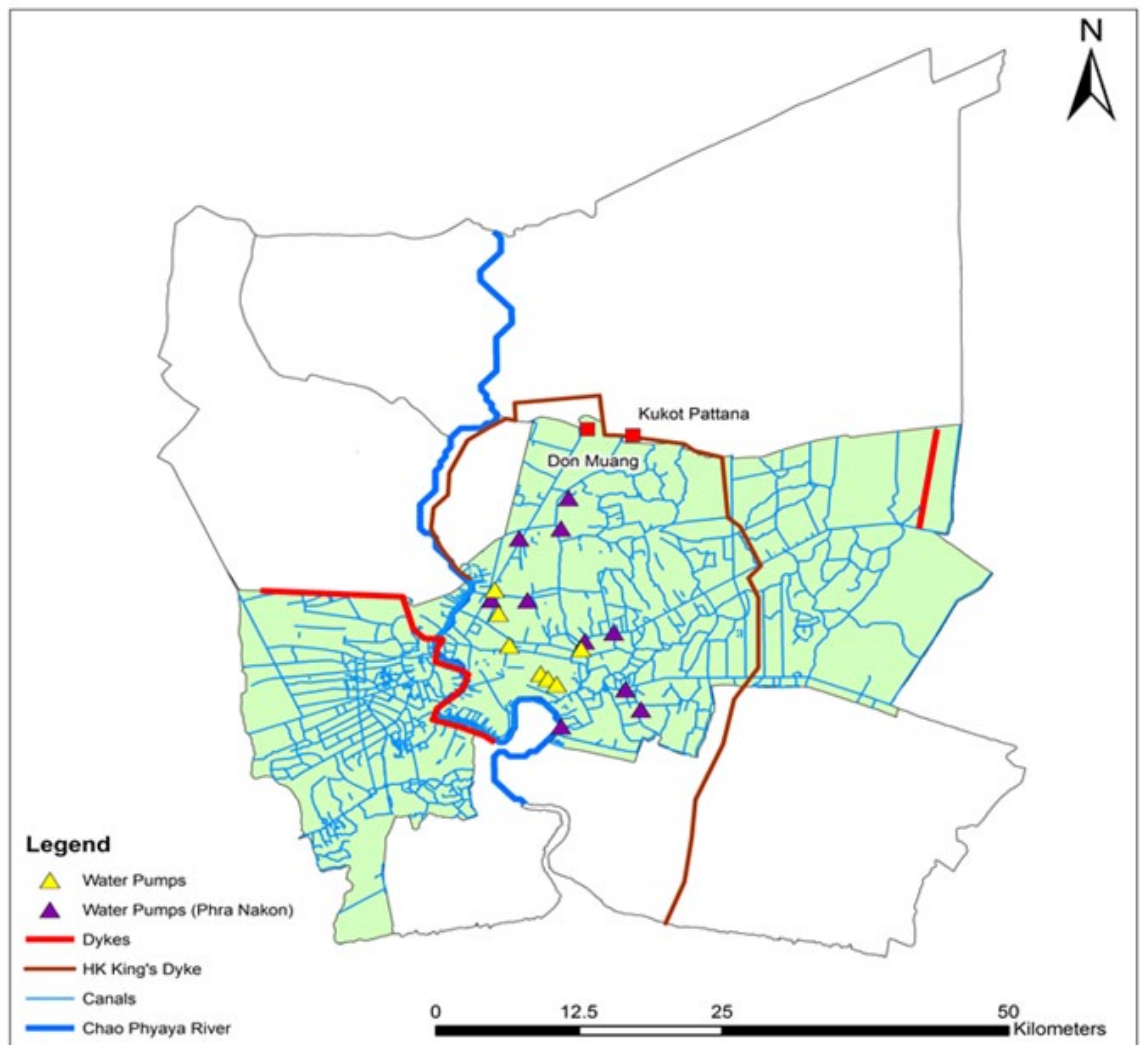


Figure 2: Bangkok’s flood protection and drainage system prior to the 2011 Floods (Map drawn by author with data obtained from Fernquest 2011)

Second, the city’s flood protection is mostly concentrated in the inner city, the location of the workplace of many the elite (the central business district and government offices) and of many of these people’s residences. Following heavy floods in the 1970s and 1980s, the government invested heavily in flood protection



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infrastructure to protect the inner core of Bangkok. A number of pumping stations were installed and the King's Dyke was built (see Figure 2), a roadway around Bangkok. They also designed the system so that the floodwaters would be diverted to the aforementioned green zones to the east and west of Bangkok and that the areas outside the dyke could serve as a retarding basin for the Chao Phraya River. However, beginning in the 1980s, the city's expansion in the form of housing estates beyond the King's Dyke, but without the construction of additional dykes and pumping stations, created uneven exposure to pluvial and fluvial floods (Ohtsu 2014).

The discussion in this section suggests that the overall governance of Bangkok's land and water sectors has been unjust. As a result, low-income communities are more vulnerable to climate change while the elite have been protected and benefitted economically from these changes. Further, BMA's plans to address climate change have not taken into account ethical obligations. The plans have failed to curb the city's emissions, particularly those of its highest emitters, and its adaptation policies are primarily technical which do not address the needs of the most vulnerable. Moreover, BMA has implemented next to none of the measures listed in the plan and the national government has done little to push BMA to do more. National-level climate change policies are likewise weak, uncoordinated, and backed by a meagre amount of resources (Marks 2011).

At the United Nations Climate Change Conference in Paris in 2015, the Thai national government pledged a meagre contribution of 7-20 percent greenhouse gas emission reduction by 2020. According to the government, the extra 13 percent would only occur if Thailand received international assistance. However, this claim is especially questionable because the military government, which seized power in 2014, is promoting coal usage. In the latest national Power Development Plan (PDP) 2015-2036, the government plans to increase the country's coal usage from 15 percent to 20-25 percent. It seeks to build nine more coal power plants and 20 natural gas plants. Further, current Prime Minister Prayut Chan-o-cha has declared that renewable energy is expensive and insufficient to deal with rising electricity demand. It seems, therefore, that the government plans to increase carbon emissions for the foreseeable future (Kongrut 2015).

Case Studies of Climate Injustice in Bangkok

To complement this discussion of the injustice of Bangkok's climate change governance, the paper now presents three case studies of climate injustice in Bangkok: one on the mitigation side and the other two on the adaptation side. They all are examples of distributive injustice and the latter two also reveal procedural and lack of recognition injustices. These case studies therefore help to further tease out specific instances of climate injustice in the city.



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Bangkok's Unequal Transportation Sector

As mentioned earlier, Bangkok's transportation sector is a major contributor to its overall emissions. Also, as the chart below indicates, as of 2005, it is higher per capita than those of other major world cities:

	London	New York	Milan	Mexico City	Bangkok
Base year of emissions values	2006	2005	2005	2000	2005
Total emissions (MtCO ₂ e)	44.2	63.1	7	33.5	42.8
Emissions per capita (tCO ₂ e per capita)	5.9	7.7	5.4	3.9	7.1
Transportation sector emissions per capita (tCO ₂ e per capita)	1.28	1.69	1.1	1.68	3.53
Building sector emissions per capita (tCO ₂ e per capita)	4.19	5.94	4.22	0.93	2.48
Energy consumption per capita (MWh per capita)	20.7	24.6	21.7	10.9	20
Electricity consumption per capita (MWh per capita)	5.2	6.7	5.3	1.7	4.8
Carbon intensity of energy capita (tCO ₂ e/GWh)	284	310	250	3317	300
Energy intensity of GDP (kWh/\$)	0.45	0.48	0.61	0.76	2.55
GDPppp (purchasing power parity) (\$ per capita)	46.2	52.8	35.6	14.3	7.8

Table 1: Emissions values and indicators of major global cities (Crocì, Melandri, and Molteni 2011, 278)

Although no statistics are available, it is highly probable that emissions from Bangkok's transportation sector have grown rapidly in the last few years, particularly after Prime Minister Yingluck Shinawatra's government enacted the first car tax rebate scheme. To help stimulate the economy after the 2011 floods, her Cabinet passed a scheme in 2012 that gave up to a 100,000 Baht (US\$ 2,900) tax rebate to first-time auto buyers. The scheme was resoundingly popular in Bangkok: according to the Land Transportation Department, the number of registered vehicles in Bangkok at the end of 2012 was almost 10 percent higher than it had been at the end of 2011. It helped the automobile industry, car dealers, and gasoline companies to quickly rebound from the floods. However, the scheme worsened traffic in Bangkok and created a number of negative environmental impacts, particularly an increase in the city's carbon emissions (Yongcharoenchai 2013). As Techawongtham (2012) points out, the 70 billion Baht (US\$ 2 billion) used to fund the rebate could have been spent to expand electric train transportation in Bangkok, a much cleaner form of transportation.

Another policy contributing to Bangkok's high emissions is the government's energy subsidies, particularly in the automobile sector. In August 2014, the Cabinet met and decided to maintain the country's energy subsidies. They raised the price of



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diesel only 0.14 Baht, from 29.85 (US\$ 0.86) to 29.99 Baht (US\$ 0.87) per litre, while keeping the price of natural gas for vehicles (NGV) and lowering the price of petrol 3.89 Baht (US\$ 0.11) (Bangkok Post 2014). In 2012, Thailand ranked fourteenth globally (240 billion Baht [US\$ 6.9 billion] per year) in terms of fossil fuel subsidies (Howes and Wyrwoll 2012). The main reason behind these subsidies appears to be a political strategy of the government to show that it assists the public (International Institute for Sustainable Development 2013). However, these subsidies make it more difficult for renewable energy to become commercially viable and, in the case of the diesel and petrol subsidies, increase carbon emissions.

Last, many middle- and upper-income Bangkok suburbanites have no option but to drive to work in the inner city. The city's most recent five-year land use plan bans the construction of large office and commercial building in the outskirts and only allows low-density residential units in these areas (Bangkok Real Estate Developer, personal communication, August 27 2014). Further, due to a number of governance issues, Bangkok is currently decades behind in building an integrated, large rail network. The issues include the constant change in government which has resulted in a lack of continuity with expansion plans, the lack of coordination between the eleven agencies that are responsible for the expansion but have competing interests, and the lack of an integrated transport planning framework (Marks and Brown 2014). These separate issues compel residents to drive long distances daily, back and forth between the suburbs and inner city, enlarging their individual carbon footprint as well as raising the city's overall emissions. In contrast, members of low-income communities either work near their residences or use public transportation to travel to work, in particular in buses and vans, or on motorcycles. The majority of them cannot afford to buy cars (Kukot Pattana community leader, personal communication, December 15 2014).

In summation, a combination of both national and urban policies have not only contributed to the transportation sector's high level of emissions, but have also created highly unequal carbon footprints compared between low-income and middle- and upper-income Bangkok residents (a distributional injustice). The national government's first car buyer scheme and energy subsidies created additional incentives for the latter to buy more cars and drive them frequently. Further, the dearth of public transportation and the city's land use plans force those living in the suburbs and outskirts to commute long distances to work. The governance of this sector has created the wrong incentive structure and it does not push high emitters to lower their emissions.



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Bangkok Floods of 2011

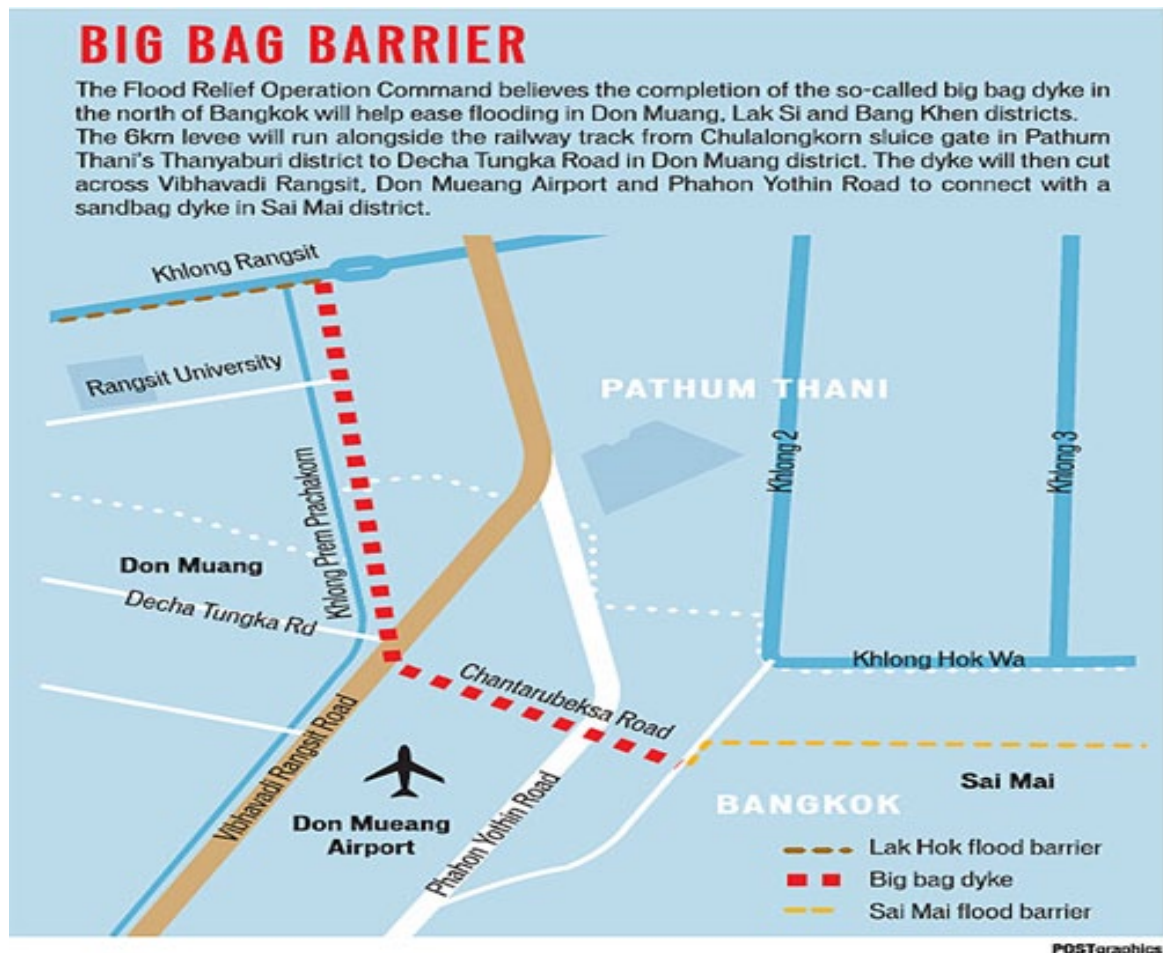
The next case study moves from examining the governance of climate change mitigation to adaptation by looking at injustices that revolve around the state's response to the 2011 floods in Bangkok. It should first be noted that, according to a group of scientists, climate change was a minimal factor in that year's excessive rainfall. They find that 'the amount of rain that fell in the catchment area was not very unusual' as it fell inside the range of natural climate change variability based on 100 years of weather records (Van Oldenborgh, Van Urk, and Allen 2012). Further, the unusually high coastal tide in October also affected the floods. High coastal tide pushed back the runoff from the north, stopping it from flowing into the Gulf of Thailand, thus contributing to flooding along the Chao Phraya River. However, while the tide's high level was mostly caused by an irregular alignment of the Earth, moon, and sun (Lemonick 2011), sea-level rise, which has risen 12-22 cm due to climate change over the last century, also had a minor effect. Climate change played a role, albeit a minor role, in the 2011 floods. Scientists do believe, however, that the frequency of active monsoons in Thailand will increase from 10-20 percent by 2010 due to climate change (Van Oldenborgh, Van Urk, and Allen 2012). Further sea-level rise will make it more difficult in the future for the Chao Phraya River and flood runoff to drain. Therefore, the 2011 flood is relevant as a case study because not only climate change contributed, but also presages what could happen in the future. With climate change trends, particularly sea-level rise and increased extreme precipitation events, it is likely that Bangkok will face more floods.

Indeed, non-meteorological anthropogenic factors played a greater role in causing and determining the height, duration, and location of the 2011 floods (ibid.). While I do not address these factors in-depth here (see also Marks 2015), in this case study my focus is on what happened once the water reached the Bangkok Metropolitan Region and whether and where instances of injustice arose. In October, following months of heavy rain and the release of water from Bhumibol and Sirikit dams, as the massive run-off slowly swept south towards the capital, the national government's Flood Relief and Operation Centre (FROC) and BMA erected huge sandbag barriers to protect the inner city of Bangkok. At the same time, they closed water gates to protect BMA's boundaries when some of those boundaries were breached in the city's central districts. While this scheme kept the city centre dry, those outside the city's inner core bore a great cost: these walls held up the floodwaters in northern, western, and eastern areas, submerging those areas for weeks (ibid.). These decisions generated considerable discontent among local residents of those areas who believed that they were "forgotten by authorities preoccupied with saving the shopping malls and skyscrapers of downtown Bangkok" (Wake 2011). One resident of Don Muang, a northern suburb of Bangkok, angrily



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complained, “The government is only concerned about impacts to the economy. It does not think about how people outside [of the inner city] are suffering” (Yucharoen community member, personal communication, July 20 2014). In response, throughout October and November, these residents expressed their anger through frequent protests and attempts to destroy the sandbag walls.



A lower middle-income community in Don Muang, Yucharoen, felt a deep sense of injustice about the placement of a wall of big sandbags which blocked the water from leaving their community. In Figure 3, this community is located above the big bag barrier.

FROC neither consulted with nor informed the community that it was placing the big bag dyke there. FROC did not tell the community how long the dyke would be in place. After almost a month of living with smelly, waist-high water that had inundated all of the houses in the community, causing the death of one elderly



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Figure 4: Photos of Yucharoen protesting against the big bag dyke in Don Muang and eventually breaking them down (Yucharoen community leader 2014)

man who had fainted and drowned in the water, the community became angered and decided to work together to demand that FROC remove the sandbag barrier (Yucharoen community leader, personal communication, March 19 2014).

Led by their community leader, community members began to organize protests next to the sandbag barrier (see Figure 4). They convinced others in nearby communities to join with them. During one of the first protests, they held a public hearing and voted on whether or not to remove the sandbags. The result of that vote was a unanimous decision for removal. ‘We are quality citizens in Bangkok’ was their repeated slogan. They demanded that the government recognize not only those living in the inner city, but also them, as members of Bangkok. They then demanded that FROC respect their constitutional and human rights, including the right to hold a public hearing about the barrier and their right of movement. The barrier blocked transportation along Viphawadi-Rangsit Road. After legally pressuring the government, they called on the government to negotiate, and unbeknown to the government, a TV reporter arrived to capture and televise the negotiations. Finding himself live on air, FROC’s negotiator felt pressured. After listening to the protesters’ demands, he conferred with the head of FROC, and subsequently promised that within a couple of days, FROC would remove the bags. However, when the deadlines passed for the government to remove the bags, the people did so themselves. They used knives to cut through the bags. The water began to melt the sand. The police did not stop them from cutting open the big bags. And according to the Yucharoen



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community leader, the water level sank rapidly once the bags were cut open (Yucharoen community leader, personal communication, March 19 2014).

Similarly, in Lam Luk Ka, local communities were heavily flooded. One community, Kukot Pattana is a slum community located along Khlong Hok Wa, which marks the boundary between Bangkok and Pathum Thani Province. In October, the floods reached up to roughly two metres from ground level. Seeking to keep Bangkok completely dry, BMA blocked water from entering into Bangkok from Lam Luk Ka. This move exacerbated the level of flooding in Kukot Pattana and other communities in Lam Luk Ka. BMA built a 2.5 metre-high sandbag wall in October—before the floods came. This wall was placed on the southern side of Hok Wa canal. Remnants of the wall can still be seen today. That wall prevented water from flowing out of the canal into Sai Mai. According to an ex-community leader whose house was located on the southern side, between the wall and the canal, the height of the wall was chest-level (at least one metre). The flooding in this man's house, which was below the ground on which the sandbags were placed, was neck-high (personal communication, April 2 2014). His house as well as all of Kukot Pattana remained flooded for almost three months. In addition, Kukot Pattana residents inspected the nearby BMA-operated Khlong Song water gate, which led into a sub-canal in Bangkok's Sai Mai District. These people discovered that the water level was two metres higher on the Lam Luk Ka side than on the Sai Mai side. Their finding clearly proved that BMA protected Bangkok at Pathum Thani's expense.

According to one local resident, because BMA fully protected Bangkok, people in his area were 'like floating ducks.' Flooded for many weeks, in November, a group of 40 people from this community, led by their leader, plus residents of other communities, protested at a big bag site. This site had blocked the water from draining out of their area. The protesters were successful. They had persuaded the BMA to lower the level of the bags. A few weeks later community members negotiated successfully with BMA to open the water gate wider. Both of these measures led to a lower level of floodwater in their community (Kukot Pattana community leader and community residents, personal communication, December 13 & 15 2014).

Examples from both of these communities suggest that all three types of environmental injustice had materialized during the 2011 floods. First, the government did not equally distribute an environmental harm, in this instance, the floodwater during the floods. Rather, they sought to keep those in the inner city of Bangkok dry. Moreover, the government promised that it would give sufficient assistance and compensation to these citizens who were inundated. However, local residents in Don Muang felt let down by the government, claiming that the assistance and compensa-



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tion were inadequate (Yu Charoen community members, personal communication, December 15 2014). Second, the government did not consult local communities about the location, height, and duration of the sandbag walls, nor about the management of water gates. Last, the government failed to recognize communities either outside Bangkok's legal boundaries, such as in Lam Luk Ka, or on the outskirts of the city, such as in Don Muang. Instead, they were treated as secondary citizens. As further evidence, in mid-November 2011 at the ASEAN Summit in Indonesia, Prime Minister Yingluck stated: "It's certain the inner zone of Bangkok will be safe from floods, as the measures to hold floodwaters have been successful" (Bangkok Post 2011b). She declared success even when those in the peripheries of the city were still suffering from the floods and while residents of these areas who had evacuated could not yet return to their homes.

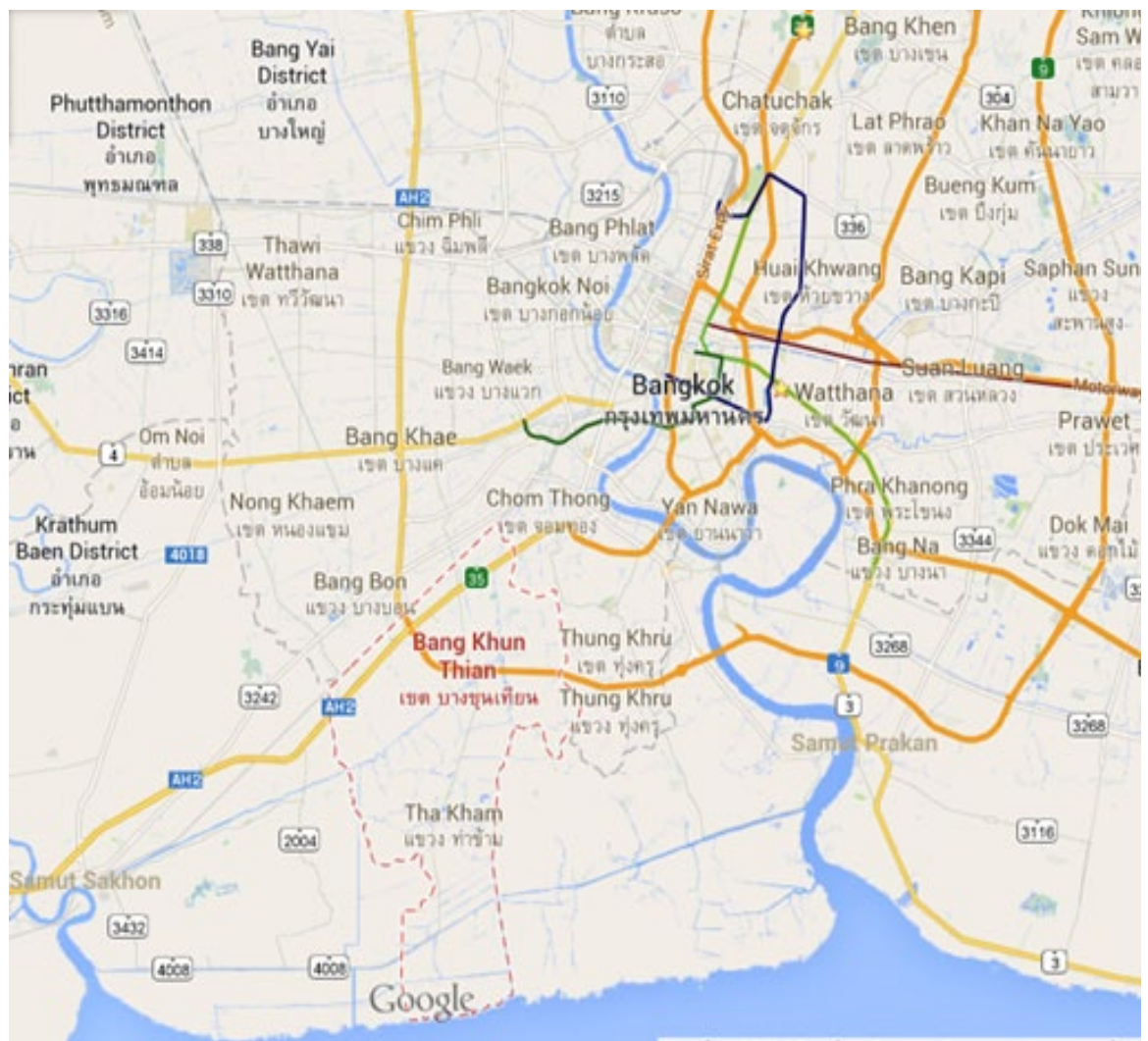


Figure 5: Map of Bang Khun Thian district in Bangkok (Google Maps)



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After the floods subsided, the Yingluck government proposed a new water management plan. This plan would only create a new set of injustices. The 350 billion Baht (US\$ 10.1 billion) water infrastructure plan allocated almost 90 percent of the budget to manage water in the Chao Phraya River basin. This included the construction of 20 new dams, two 300 km diversion canals to divert water from the north toward the sea, infrastructure to convert 640,000 ha into water retention areas, the clean-up of canals and waterways, and widespread replantation. The plan met fierce criticism from civil society, academics, and several local communities. There was also resistance from the judiciary. Civil society advocates charged that the government had not sought adequate public input on their plans – the government held no public hearing before releasing the plan (Cleanbiz.Asia 2013). In Samut Songkhram Province, which is west of Bangkok, thousands protested against one of the proposed flood diversion channels, declaring that the government failed to recognize their livelihoods: the water from one of the new floodways would hurt their fishing and agricultural activities as it would divert water from the central part of the Chao Phraya River Basin to their western side (Attakhor 2013). Once again, the government had given higher priority to those in Bangkok than to those outside the city. Consequently, a local NGO, Stop Global Warming Association of Thailand, filed a lawsuit in Thailand's Administrative Court. The claim was that the bidding procedures for the mega-project violated Thailand's constitution because the government did not adequately include local communities in the decision-making process and further, had failed to carry out mandatory environmental and health impact assessments. In late 2013, in agreement with the lawsuit, the Administrative Court ruled that the plan must be put on hold until public hearings and environmental and health impact assessments were conducted (Janseen 2013). However, after the military junta seized control in June 2014, they scrapped the plan and asked a group of advisors along with the Royal Irrigation Department to devise a new plan by October 2014. Given that flooding in the Chao Phraya River Basin will likely become more frequent and intense as the impacts of climate change accelerate, it is likely that without change to Bangkok's governance structure, it is likely that similar types of injustices will only arise again and again.

Coastal Erosion in Bang Khun Thian

Bang Khun Thian is the only district in Bangkok located on the coast (see the figure below), with 4.7 km of coastline. The sub-district of Tha Kam is the only district on the coast, with a population of approximately 39,000.

In Tha Kam, coastal erosion is severely damaging community livelihoods. The area's primary source of income is small-scale shrimp and blood cockle farming. In the past 30 years, the shoreline has retreated between 500-800 metres, eroding



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by 20-25 metres annually. The main impact these farmers face is the risk of losing aquaculture. In response to erosion, these residents have built stone breakwaters and bamboo revetments and heightened pond walls to protect their ponds. They must maintain these structures at an approximate annual cost of 23 percent of their income (Jarungrattanapong and Manasboonphempool 2009). A survey concluded that most believe that these measures are inadequate to prevent future economic losses. These people are worried that future impacts will be even more severe. Over half of those surveyed stated that they suffer from stress (ibid).

This coastal erosion has occurred due to a number of reasons. First, climate-induced sea-level rise is one factor. As mentioned, the sea level has been rising a quarter of a centimetre annually. Jarupongsakul (2006) predicts that due to climate change, the sea level at the Upper Gulf of Thailand will rise 10-100 cm in the next 50 years. Second, the building of dams upstream in the Chao Phraya River Basin, particularly the Bhumibol and Sirikit Dams, has reduced the supply of sediment in the coastal area. A study found that the construction of those two dams has reduced coastal sediment by 75 percent downstream. This means that there is less sediment available to counterbalance erosion losses (Winterwerp, Borst, and de Vries 2005). Third, as mentioned earlier, excessive groundwater pumping in previous decades has caused the land in Bangkok to subside, including in Bang Khun Thian. Fourth, mangrove forests, which play a critical role protecting coasts against coastal erosion and storm surges, have almost all been felled (Jarungrattanapong and Manasboonphempool 2009), thereby hastening erosion. There are two major sources of mangrove clearing. One is for the harvest of trees. Harvested trees are for export timber, primarily to Japan, and for charcoal production. Charcoal is used for cooking purposes. The other source of mangrove clearing is aquaculture development. Beginning in the 1950s, shrimp producers cleared mangroves in order to build shrimp ponds next to the sea (Winterwerp, Borst, and de Vries 2005). These four causes of erosion are not primarily the result of the community's actions. While some cleared the mangrove forests to build shrimp ponds and harvest the trees, many of them did not. Others from outside the community partook in these activities as well. Moreover, these people are hardly responsible for the land subsidence, the sea-level rise, and a reduction in sediment supply.

So far, BMA has done little to help residents of these communities. While it has built a stone breakwater along the shoreline, along with other small protection structures, these measures are short term and small scale and will not help these communities in the long run. Further, in its coastal protection plan, BMA has not included sea-level rise as a result of climate change. Nor does the plan address land subsidence, sediment reduction, or propose mangrove restoration as one solution.



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Consequently, the plan fails to address the underlying causes of the continuing coastal erosion. Moreover, local government agencies in each coastal area legally bear the responsibility of addressing coastal areas. These separate agencies make their plans independently, without coordinating with each other. Thus, coastal protection efforts are weakened. While the national government ought to address this problem, so far has done little (Jarungrattanapong and Manasboonphempool 2009).

In this case study, once again the three types of climate injustices materialized. Both the impacts of climate change and Thailand's socio-environmental policies have created the problem of Bang Khun Thian's large-scale coastal erosion, which is severely threatening the livelihoods of these communities. The residents of these communities did not create these problems, yet they suffer and bear the brunt of the impacts. Further, BMA has never consulted with the communities about how they want to address the problem. BMA has not begun to address the root causes of erosion in its coastal protection plan. The national government does not seem to recognize these communities' struggles, either. It has ignored the problem, leaving it to local governments who lack the capacity and resources to address their situation adequately.

Conclusion

As the impacts of climate change accelerate in Southeast Asia and the region simultaneously becomes more urbanized, future urban governance and policy response to climate change will inevitably become more important. To enable all residents in these urban areas to flourish, as Hillier et al. (2013) declare, scholars and practitioners alike must raise questions of justice. It is necessary to investigate who dominates and who benefits from these responses and who is most adversely impacted and left behind. The concept of urban climate justice offers a framework that moves beyond investigating climate change at the international level or through the framework of urban resilience. It astutely draws upon two approaches: (1) the environmental justice movement, questioning whether urban responses to climate change are fairly distributed, conducted in a just procedure, and fairly recognize the rights of all groups; and (2) UPE literature, arguing that political-economic processes largely determine the vulnerability of urban inhabitants to climate change.

Unfortunately, little scholarship has so far applied this concept of urban climate justice to any cities of countries outside Australia (other than Bulkeley, Edwards, and Fuller [2014] who gave brief and incomplete case studies). I have not merely shown that Bangkok's governance of climate change is unjust, but have revealed how and why it is unjust. Moreover, I have given examples of how the



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city's governance has primarily benefited the upper echelons of society, who have also dominated the policymaking process, while low-income urban communities have had to live with the adverse effects and been left behind. Their voices have been marginalized and their rights not recognized. The examples range from the government's response to the 2011 floods once they reached Bangkok and the coastal erosion in Bang Khun Thian to the governance of the city's transportation sector. Further, my analysis of the city's plans to address climate change exposes them as primarily empty technical, non-political solutions that do not incorporate notions of justice and equity.

Certainly there have been instances when previously marginalized voices were incorporated and, consequently, climate governance was more just. As the case studies demonstrate, during the 2011 floods, the high number of protests did reduce the vulnerability of protesters and did alter the unjust spatiality of the floods. In another instance, a group of farmers in Ayutthaya who would have been negatively affected by a floodwall that was built after the 2011 floods sued the Department of Rural Roads (Department of Rural Roads officer, personal communication, April 17 2015). In the end, the two sides compromised and the Department of Rural Roads lowered the road by 50 cm. And in 2013, in the Western fringes of Bangkok, thousands of citizens who reside in this area joined with activists to protest the construction of a floodway proposed by the Yingluck government. These thousands declared that the water from the floodway would hurt their fishing and agricultural activities and they successfully halted its construction. Despite these successes, my overall analysis for the future portends that unless changes to the city's governance are made so that low-income communities are given more voice and their rights are recognized, these injustices will likely continue to arise and the most vulnerable people will suffer even more limitations in their capacity to flourish.

I have sought to contribute to the scholarship on urban climate justice by applying the framework of urban climate justice to cities in Southeast Asia. I have helped to reveal how economic and political processes shaped the conditions of climate injustice in one particular Southeast Asian city, Bangkok. Given that each city has a different set of such processes, as well as different biophysical environments, it would be useful to carry out this research in other Southeast Asian cities, such as Manila, Jakarta, and Hanoi. These investigations would likely reveal that broad generalizations about how and why climate injustices arise do not necessarily apply to every city. They would fruitfully expand the scholarship on urban climate injustice as well as inform urban policy responses in a way that would centre them around the goals of climate justice.



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