ENVIRONMENT AND MIGRATION: THE 2011 FLOODS IN THAILAND

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INTRODUCTION

The floods which inundated Thailand from August to December 2011 were the worst in living memory for most Thais. Originating in the North and Northeast of the country, the floods severely affected sixty-five of Thailand's seventy-seven provinces. In total, over 13 million people were affected, more than 800 were killed, and around 160,000 were displaced. The World Bank estimates that the floods caused $46 billion worth of economic damage, making it one of the top five costliest natural disaster events in history (The Economist, 2012). Although the initial government response to the disaster was faltering, it eventually got to grips with the situation. The decision, however, to divert flood waters to save central Bangkok, causing massive damage and displacement in rural and suburban areas, remains controversial. Moreover, with climate change and rapid development combining to seemingly exacerbate the flooding to which the country is prone, the government's response to the 2011 Floods will be of critical importance for the future peace and stability of the nation.

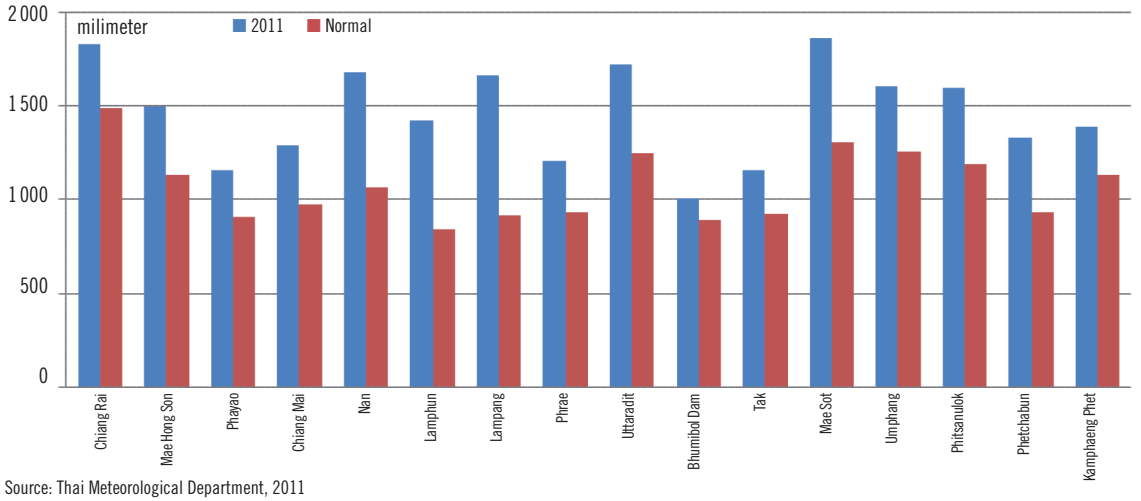
The response of the Thai authorities in this regard may also prove instructive to Thailand's regional neighbours who face similar and, in some cases, more significant threats. According to the Asian Development Bank, in 2010-11 alone 42 million people in Asia and the Pacific were displaced by "extreme environmental events", and the region is "the most prone to natural disasters, both in terms of absolute numbers and populations affected" (Asian Development Bank, 2012) . The scale of this challenge requires innovative thinking and planning on the part of governments and societies across Southeast Asia.

Often only seen as a negative consequence of natural disasters, migration should also be viewed as part of climate change strategy. This chapter will firstly give an account of the 2011 Floods in the Kingdom of Thailand, describing the economic, political and social impacts the floods have had.

Map 1. Map of Thailand

Source: CIA World Factbook

Figure 1. Accumulative Rainfall in Towns and Cities of Northern Thailand, May 1 to October 31, 2011



Source: Thai Meteorological Department, 2011

Next, we will look more closely at the impact the floods had on populations in terms of environmental migration and the government's response to the floods. Finally, this chapter will detail the policy options available to the Thai authorities in the wake of the 2011 Floods, and will recommend that migration should be harnessed within a strategy of national risk diversification and sustainable development. Much of this chapter will address the 2011 Floods as they affected Thailand's capital city, Bangkok. This is not to play down the impact of the floods on other parts of the country, but rather to draw attention to the specific issues faced by Bangkok during the floods, and the challenges it faces in the future.

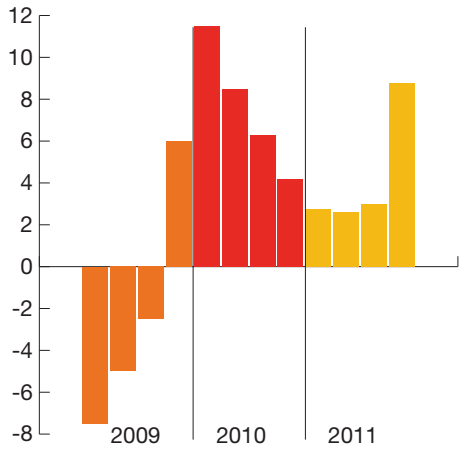
1. THE 2011 FLOODS AND THEIR IMPACTS

The Bangkok Metropolitan Region is situated in the delta of the Chao Phraya River basin, an area of 159,000 km², or around 39% of the total area of Thailand. The region lies in a central floodplain with an average elevation of one to two metres above sea level. Typically floods originating in the north of the country have inundated this floodplain region. These floods have usually taken prolonged periods to drain due to Bangkok city acting as a "bottleneck" to floodwaters, obstructing their natural flow into the Gulf of Thailand (World Bank, 2010a). Bangkok has a tropical monsoon climate, which produces heavy precipitation particularly between May and October. As such, Bangkok is no stranger to large-scale flood events. Major floods have occurred in 1942, 1978, 1980, 1983, 1995, 1996, 2002, 2006, and of course most recently in 2011. According to a recent World Bank report, future flood events in Thailand are set to be more frequent, covering a larger area of land and therefore affecting more of Bangkok's citizens (World Bank, 2010a). The evidence from 2011 certainly suggests this prediction to be accurate.

In the first nine months of 2011 rainfall levels were found to be 32% higher than normal (see Figure 2), as the country felt the effects of three separate tropical storms Nock-Ten, Haitang and Nesat (Thai Meteorological Department, 2011). Severe and violent flooding was first experience in the northern regions of Thailand in August, affecting infrastructure, crops and households in areas such as Chiang Mai, Udon Thani and Nong Khai (Bangkok Post, 2011a). By September, the floodwaters had quickly spread to 55 of Thailand's 77 provinces. The flooding continued to create havoc, destroying crops, inundating industrial parks, and forcing factories owned by multinational companies, such as Honda and Sony, to temporarily shut down (Ten Kate and Yuvejwattana, 2011).

By October the historically- and industrially-rich region of Ayutthaya had been inundated forcing private residences, hospitals and prisons to be evacuated (The Nation, 2011a). Residents of Bangkok prepared for the waters by moving belongings upstairs, stocking up on vital commodities or by getting out of the city entirely. By late October floodwater had breached the barriers of Don Muang International Airport in the north of the city, forcing the government's Flood Relief Operations Centre based there to relocate to dryer ground (The Nation, 2011b). The Bangkok Metropolitan Authority began evacuating neighbourhoods to the north and northwest of the city, whilst monitoring those to the east and west. As November wore on, up to a fifth of Bangkok became submerged. Communities located near and

Figure 2. Evolution of Thailand's GDP 2009-2011



Source: Thomson Reuters Datastream

beside the canals through which the floodwaters surged were severely affected. As the end of the year approached it seemed likely that the majority of Bangkok city centre would be saved by a mixture of government action and pre-existing flood protection measures. All the while, however, many suburban and rural areas surrounding the city remained submerged. By the beginning of 2012 most of the floodwater had drained off from the streets of Bangkok into the Gulf of Thailand. Despite this, the economic, political and social impacts of the 2011 Floods continue to be felt well into 2012.

1.1. The economic impacts

Thailand's 2011 Floods had a significant impact on the national economy. The Thai economy took a sharp dip in the fourth quarter largely due to the floods (see Figure 3). Overall, in 2011 the Thai economy grew by only 0.1% (Robinson, 2012). For an emerging market such as Thailand which in recent years has become used to 5-8% annual growth rates, this sharp decline represented an economic shock. Thailand's economy is highly dependent on exports such as rice, of which it is the world's largest producer, and manufactured goods such as cars and electronics. Thailand is also a major tourist destination; typically this sector makes up 6-7% of annual GDP (Bangkok Post, 2008). The 2011 Floods had a major effect on all sectors of the Thai economy, with manufacturing and tourism taking the hardest hits (Robinson, 2012).

The impact of the 2011 Floods was also felt in the world economy. J.P. Morgan estimates that the floods set global industrial production back 2.5% (The Economist, 2012). Individual companies such as Honda, Toshiba and Western Digital suffered major losses from flood damage and loss of production. Sony, experienced a net loss of $2.1 billion for the final three months of 2011, blaming, among other factors, interrupted production due to the floods for their weak performance (BBC News, 2012). Coming so soon after the Tohoku earthquake and tsunami, as well as a string of preceding natural disasters, the 2011 Floods compounded what has been an extremely costly year in terms of damage caused by natural disasters.

1.2. The political impacts

As well as the economic costs, the political fallout of the 2011 Floods has also been significant. As demonstrated by the violence which erupted on the streets of Bangkok in 2010, Thailand's politics are currently deeply divided. A poisonous political atmosphere infects every issue in Thailand, even ones as seemingly technical as flood mitigation and prevention. During the floods decisions on how, when, and whether to protect central Bangkok from the waters became highly politicised topics. Talk of Bangkok elites having "contempt" for the poor and sacrificing less well-off areas of the city were rife during the floods (The Nation, 2011c). Despite the politics surrounding the issue, the imperative to save central Bangkok from the worst of the flooding was clear. Bangkok is home to almost 12 million inhabitants, contains vital national infrastructure and produces around 42% of Thailand's GDP (World Bank, 2010b). Had the whole city been badly flooded it would have constituted a national emergency. The long-term challenge for the government will be to lessen the vulnerability of Bangkok, possibly through the relocation of some of the country's assets away from its capital city.

In the short-term the government will need to rebuild and repair damaged infrastructure and put in place immediate measures to mitigate the effects of future extreme weather events. In this regard, Thailand is receiving financial and technical assistance from its international partners. The German and Dutch governments have offered valuable technical assistance, and the Japanese government has agreed to provide 8 billion yen (almost $98 million) to help the reconstruction effort and to build new flood defences (Bangkok Post, 2012a). Seeing as much of the infrastructure affected by the floods also serves Japanese businesses based in Thailand, this assistance has advantages for both countries.

1.3. The social impacts

Thailand's international partners, as well as various UN agencies and NGOs, were vital in

responding to the humanitarian crisis caused by the flood. In total, over $20 million was donated to directly aid the victims of the flood. In addition, the Royal Thai Army deployed a total of 56,000 personnel to aid the flood relief effort (World Bank, 2012a). The Thai authorities were also assisted by two U.S. Navy helicopters, deployed to conduct aerial reconnaissance of the flooding (Vaswani, 2011). This international response is symbolic of the magnitude of the floods and the humanitarian toll this disaster took.

It is estimated that as many as 1.5 million homes and other structures were affected by the floods, with around 300,000 homes being damaged in the greater Bangkok Metropolitan Region alone (Aon Benfield, 2012). Livelihoods were also severely affected. Known as the 'Rice Bowl of Asia', rice production plays a highly significant role in Thailand's economic, social and political life. It is estimated that the floods wiped out as much as 14% of paddy fields (Javier and Suwannakij, 2011). This devastation threatened to seriously impact the incomes of farmers and the wellbeing of communities dependent on low rice prices. Due to a mixture of local resourcefulness and government intervention, rice production has not been adversely affected (Sinpeng, 2012). It was not only in rural areas, however, that the impact of the flood was felt.

Perhaps the populations taking the hardest hit from last year's floods were impoverished urban communities based in and around central Bangkok. Such communities are often established around Bangkok's network of canals, in cramped, make-shift settlements (see Figure 4). As such these settlements are extremely vulnerable to flooding. Even before the floods reached Bangkok, these communities were suffering from the rise in vital commodity prices caused by panic buying and shortages (Voice of America, 2011). Production of certain commodities was also severely interrupted by the floods, causing real health threats. In particular, bottled water supplies were affected when the floods knocked out production at all of Thailand's biggest water suppliers (Fuller, 2011a). As a result, members of Bangkok's most vulnerable communities were not able to stock up on essentials before the floods hit, putting them in a bad position to deal with the disaster.

2. THE FLOODS AND ENVIRONMENTAL MIGRATION

In this section we will look more closely at the environmental migration caused by this sudden-onset disaster. The response of the Thai authorities to the 2011 Floods will then be discussed.

2.1. Population displacement and 'trapped populations'

The 2011 Floods were one of the most prolonged periods of flooding Thailand has ever experienced, causing the highest levels of population displacement seen in the country since the Second World War (Tansubhapol, 2011). At their height the number of internally displaced people (IDPs) reached more than 165,000 (World Bank, 2012a). Due to the relatively slow progression of the floodwaters, however, this displacement was generally well-ordered and the authorities, as well as non-governmental organizations and private citizens, were in a good position to come to the aid of the majority of the displaced. At the peak of the flooding around 2,600 shelters took in over 165,000 IDPs (World Bank, 2012a).

Initially, as the floods affected the rural north and northeast of the country, communities were displaced either towards local disaster shelters, to regional cities, or towards Bangkok, depending on their social and financial capacity to relocate. In late October when the flood waters reached Bangkok, the government declared an emergency five-day holiday and urged residents living in flooded or flood-prone areas to evacuate to safer locations. Major disaster shelters were established within Bangkok in sports stadiums, university campuses,

Vulnerable Migrant Communities in Bangkok: Living on the Edge

Since the latter half of the twentieth century Thailand has enjoyed rapid economic development, increasing urbanization and migration towards the capital. There are approximately 3.5 million international migrants in Thailand, the majority of whom originate from the surrounding countries of Myanmar, Cambodia and Laos (IOM, 2011). Thailand also experiences high levels of internal migration, amounting to approximately 1.2 million people annually (IOM, 2011). These migrant communities often live in informal settlements in urban and peri-urban settings which are exposed to variety of vulnerabilities. Firstly, they are often made up of poor quality housing, precariously balanced on the edge of canals (see Figure 4). Such proximity to canals and the poor quality of housing creates a multitude of health, environmental and disaster-related dangers. Secondly, due to the informal and often illegal nature of these settlements they lack the infrastructural and social support afforded to other communities, negatively impacting their ability to cope with floods and other natural disasters. Thirdly, again owning to their often illegal nature, these settlements are periodically targeted by the authorities for relocation (Davivongs *et.al.,* 2012).The precarious legal and environmental existence of migrant communities in Bangkok discourages them from investing in improvements to the quality of their homes and neighbourhoods, increases their social marginalization, and exposes them to a lack support and capital necessary to cope with the impact of floods and other natural disasters.

A view of the Mae La refugee camp in Thailand.

Photo credits : © IOM 2007 - MTH0249 (Photo: Thierry Falise)

and airport terminals. Many residents preferred, however, to flee the city entirely, with large numbers heading towards the southern beach towns of Hua Hin, Pattaya and Phuket, and others towards safer cities in the country (Konglang, 2011). Airports, bus terminals and train stations all became packed to capacity and those wishing to leave by road faced traffic jams of between six to ten hours (Tansubhapol, 2011).

Some of Bangkok's residents did not have the capacity to leave the city and became trapped in their residences with little access to daily necessities for the duration of the floods. According to the government, this trapped population amounted to as many as 800,000 individuals in Bangkok alone (Tansubhapol, 2011). As the floods continued this trapped population became increasingly isolated, and without access to electricity, clean water or easy access to food, this population became susceptible to a variety of health risks including skin infections, dysentery, malaria, dengue fever, accidental drowning and electrocution (Bland, 2011).

The inability or unwillingness of certain sectors of Bangkok's society to move away from flooded or flood-prone areas stemmed from their pre-existing vulnerabilities in society. Sectors with particularly high-levels of marginalization and vulnerability include migrant communities (see Box 1). The floods significantly impacted locations and industries with high migrant concentrations, including industrial parks in Ayutthaya, Pathum Thani and Nakorn Pathom provinces where many migrants are employed. The inundation of these locations put many migrant workers, temporarily or permanently, out of work. The already vulnerable position of migrants was, therefore, further weakened by the 2011 floods. Lacking employment, many migrant workers decided to return to their countries of origin. Between September and November 2011 around 100,000 migrants from Myanmar returned to Myanmar through the Mae Sot border pass (Bangkok Post, 2011b).

2.2. Response of the thai authorities

During the floods the authorities took a variety of steps to manage the disaster, provide aid to victims, and communicate information on the situation to effected communities and the nation as a whole. Initially, the actions of the authorities came across as confused and uncoordinated, displaying a lack of preparedness and an unwillingness to cooperate during a time of national catastrophe. Miscommunication was rife and the newly-elected Prime Minister Yingluck Shinawatra seemed more willing to delegate and "skirt around tough decisions" than get to grips with the situation (Pongsudhirak, 2011). Moreover, political infighting between the government and the opposition-led Bangkok Metropolitan Administration led to contradictory reports, public confusion, and a failure to take advantage of the international assistance offered to Thailand (Alertnet, 2011).

The response of the authorities was supposed to be coordinated through the Flood Relief Operations Command (FROC), an ad-hoc body created by the government. Until the Prime Minister personally took charge of this body, however, its efforts were significantly hampered by infighting

and a lack of coordination with other agencies. The direct involvement of Prime Minister Yingluck appeared necessary as it became increasingly clear that some officials were not obeying her instructions. As well as taking direct control of flood management efforts, the Prime Minister also declared that the Disaster Prevention and Mitigation Act would be thoroughly enforced, a law which includes punishments for disobedient officials (Fuller, 2011b). With the chain of command clarified disaster management efforts seemed to improve. Political questions still persist, however, over the response of the authorities, especially their decision to safe-guard central Bangkok, while keeping surrounding communities inundated.

Anger was particularly directed at the use of 2.5 tonne sandbags, employed to protect central Bangkok (Alertnet, 2011). While offering protection from inundation to some, these sandbags trapped flood waters in neighbourhoods particularly in the north of the capital for weeks destroying homes and livelihoods and enflaming communal tensions. For the fledgling government of Prime Minister Yingluck, elected on a largely populist agenda, the decision to appear to sacrifice poorer neighbourhoods on the outskirts of Bangkok for the privileged city centre has made many question the governments' loyalties.

There was also a controversy over the treatment of migrants and discriminatory distribution of assistance. During the floods many migrants avoided evacuating to disaster shelters for fear of arrest and deportation. Those who decided to seek shelter in their countries of origin faced extortion at the hands of border officials and opportunistic gangs (Petty, 2011). There have also been reports of discrimination against migrants in the delivery of flood assistance, and activists have claimed that the Thai authorities failed to help migrants trapped in houses and factories (Win, 2011).

Since the end of the crisis period the government has embarked on a major programme of recovery and reconstruction the estimated cost of which is THB 1.5 trillion, approximately $50 billion, over five years (World Bank, 2012a). A recent World Bank report, written in collaboration with the Thai Ministry of Finance, has presented an initial policy framework which may provide a clue as to the direction of recovery and reconstruction (World Bank, 2012a).

The first policies presented are directed towards providing financial and infrastructural support to affected populations, with a particular focus on poorer and more vulnerable groups. The second branch of this policy framework looks at investing in a more climate resilient Thailand. The report proposes strengthening flood and water management mechanisms, hazard mapping, early warning systems, and upgraded infrastructure as a means to this end. Thirdly, the report highlights the need to take advantage of the opportunities the reconstruction period present to rethink development priorities, review land use practices, improve economic planning and environmental management, all with a view to reduce vulnerability to hazards and ease social conflicts (World Bank, 2012a).

3. POLICY OPTIONS AND RECOMMENDATIONS

In this section we will review some of the policy options available pursuant to creating a more climate resilient Thailand. Firstly we will explore the development and migration challenges faced by Bangkok in relation to urban flooding. Secondly we will detail the policy options, of both a structural and non-structural nature, open to the Thai government in the wake of the 2011 Floods. Finally this section will make a case for integrating migration and migrants into the policy response.

3.1. Migration and urban flooding in Bangkok

Over the past thirty years rapid urbanisation has created greater urban sprawl throughout the entire Bangkok Metropolitan Region, creating one of Southeast Asia's largest mega-urban regions. As such, this region attracts migrants not only from rural areas of Thailand, but also from all around Southeast Asia. To provide employment for these newcomers developers have built commercial centres and industrial zones all around the Bangkok Metropolitan Region. Bangkok and its vicinity has thusly become a highly dynamic urban region accounting for nearly one half of all industrial production in Thailand (World Bank, 2010a). But it has also caused a variety of new environmental hazards, and has enhanced existing ones. One such hazard is urban flooding.

The Bangkok Metropolitan Region, owing to its nature as a fertile floodplain, was originally settled as a site for agriculture. As such, irrigation systems, constructed to facilitate farming and transportation, have been present in this region for centuries. Since the onset of rapid urbanization, however, many of the canals that make up these systems have been filled in or have been allowed to fill up with silt and debris through neglect. This has meant that agricultural areas surrounding urbanized zones have suffered from the disruption to irrigation system and have become untenable, making possible the continued outward sprawl

of urbanisation (Naivinit *et.al.*, 2008). This continued urbanisation has further altered land use, changing water flows and expanding impermeable surfaces, thereby enhancing the flood hazard (World Bank, 2012b).

The challenge to Bangkok has not only been the extent of urbanisation, but also the form that some of this urbanisation has taken. The phenomenon of seasonal migration poses a particular challenge for urban planners in Bangkok. This variety of migration has long been practiced by rural households as a response to "land pressure, economic crisis and/or opportunity, and the seasonal nature of rice cultivation in Thailand" (IOM, 2011: p. 14). Insufficient resources have, however, been dedicated to this additional population, resulting in urban poverty, unsafe and unsanitary living conditions, and a particularly weak level of resilience to floods and other natural disasters within these communities.

As climates become more uncertain and extreme weather events more frequent, the need to build ecologically sound and well planned urban regions has become a priority for countries everywhere. Uncertain climates will also provide incentives and, in some cases, imperatives for populations to migrate. The ways in which Thailand faces the twin challenges of continued development and increased migration will determine the resilience of the nation to future floods and other natural disasters.

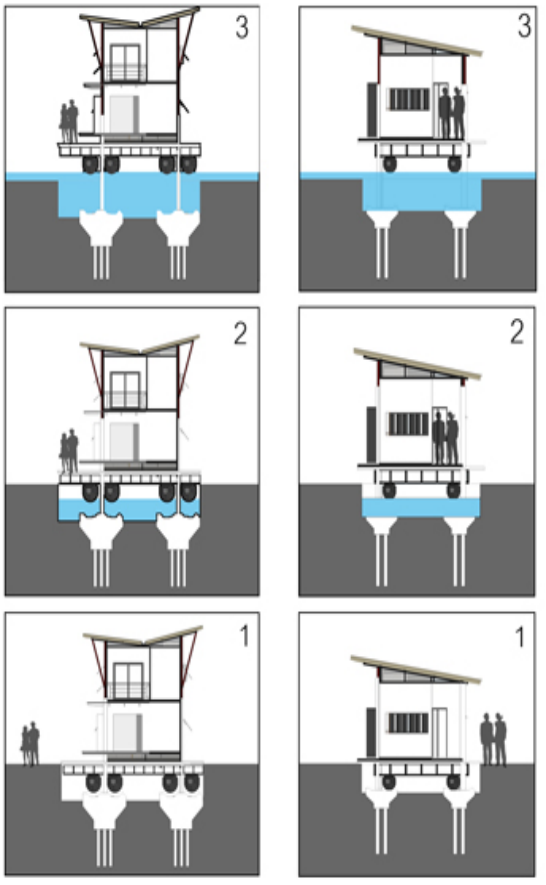
3.2. Policy options: structural measures

Structural measures in flood risk management are changes induced in physical environments engineered to manage the risk of flooding. Such measures typically include 'hard-engineered' solutions, such as dams and irrigation channels, but may also include 'complimentary or alternative' measures such as wetland creation (World Bank, 2012b). Although these measures are taken to modify the natural environment, they also have a social impact. A particular theme of heavily-engineered responses is that they tend to transfer flood risks from one location to another (World Bank, 2012b).

One structural measure already touted as a possible solution to Bangkok's urban flooding problems is the dredging of canals. By dredging and clearing the debris from canals the authorities hope to improve the capacity of these canals to carry floodwaters safely out of the city. Currently, dredging projects are being carried out in 18 districts in the Bangkok Metropolitan Region, with a further 12 having been targeted for such projects (Dredging Today, 2012). These projects will hopefully also improve the environmental condition of Bangkok's canals, and improve the lives of those living close to them, as well as reducing the risk of flooding within these areas.

Another structural measure being adopted by the Thai authorities is the creation of water retention areas, covering a total of 4,800 km² of farmland. Districts in eight provinces, including in Ayutthaya Province, have been particularly targeted for the creation of water retention areas intended to absorb the bulk of floodwaters before they reach highly-populated areas. The creation of new floodplains is not entirely popular however, and petitions have already been lodged at the Administrative Court by farmers whose land has been targeted by this scheme (Bangkok Post, 2012b).

Figure 3. Site-Specific's Amphibious House Project



Source: http://asitespecificexperiment.wordpress.com/2011/05/12/amphibious-house/

A perhaps more popular government programme would be one that seeks to improve the quality and resilience of housing, as part of a 'build-back better' campaign. In earlier eras Thai buildings were built with floods in mind, in that they were built high off the ground on long stilts. In conceiving of modern buildings that would be able to cope better

with flooding events, Thai architecture firm Site-Specific have come up with an innovative solution that harnesses elements of traditional Thai architecture to mitigate the effects of flood disasters. They have developed the concept of 'Amphibious Houses' designed with a prefabricated steel flotation systems which sits in a trench underneath the house. In times of flooding the trench will fill with water, activating the flotation system and giving the house buoyancy (see Figure 5). Site-Specific has recently been given $90,000 by the National Housing Agency to see if their 'Amphibious Housing' project could become a reality (Tang, 2012). If this concept proves to be practical it may well become part of a wider programme to build-back better after the floods.

3.3. Policy options: non-structural measures

Non-structural measures in flood risk management are non-physical measures taken especially to enhance capacities to cope and respond to flood events (World Bank, 2012b). This category of flood response typically involves issues of governance, planning and awareness. The success of non-structural measures requires community engagement and clear communication. If these measures are successful they can reportedly provide "multiple benefits, over and above their flood management role" (World Bank, 2012b: p. 288).

During the 2011 floods the response of the authorities to the unfolding disaster often seemed confused and contradictory. Government miscommunication created unnecessary panic and hampered disaster management efforts. Jerry Velasquez, a Senior Regional Coordinator with the United Nations International Strategy for Disaster Risk Reduction, has stated that the problems of disaster response were due to the fact that there are "about eight institutions centrally that deal with water in Thailand" (Global Ecology Network, 2011). Having a more streamlined system of disaster management with a clear chain of command would have multiple benefits. It would help to improve the coherence of the government's response, enable increased national preparedness, and improve the clarity of government communication.

Another non-structural measure that could be promoted in Thailand is the greater uptake of property insurance schemes. This measure could aid land use governance and enhance community resilience. Currently the level of household insurance coverage in Thailand is low. Increasing coverage, in conjunction with improved urban planning, could improve community resilience by providing funds for repairs and improvements in the wake of future floods or other natural disasters. Moreover, through financial disincentives insurance schemes could be used to discourage inappropriate or dangerous land use (World Bank, 2012b). Thailand as well as other emerging nations may become increasingly important markets for insurance companies in the future.

Improved disaster response and resilience requires a combination of both structural and non-structural measures. The Thai government should also take this opportunity to rethink the development policy of the nation and try to address the unbalanced nature of economic development in Thailand. One way to re-balance development would be to encourage the migration of people and industries to locations elsewhere in the country other than the Bangkok Metropolitan Region.

3.4. Policy recommendation: integrating migration into the disaster response

As pointed out by *The Economist*, "a growing share of the world's population and economic activity is being concentrated in disaster-prone places" (*The Economist*, 2012). As one of Southeast Asia's most dynamic mega-urban regions, which is also at continued risk of disastrous flooding, the Bangkok Metropolitan Region is an example of this trend. Rapid development and urbanisation have aggravated environmental hazards and endangered the lives and livelihoods of more people. Moreover, the unbalanced development of Bangkok in comparison to the rest of Thailand has placed many economic assets at unnecessary risk. This was exemplified by the massive economic damage caused by last year's floods. Encouraging the migration of people and industries away from the Bangkok Metropolitan Region could form part of a strategy of national risk diversification, and could help spread the benefits of development more evenly across the nation.

As part of a build-back better policy agenda the government should also look to develop national infrastructure links, such as airports and highways,

Migration towards Disaster Zones

As well as prompting population movements away from disaster zones, sudden-onset disasters can also pre-empt movements towards the affected areas. In the case of the 2004 Asian Tsunami migrant workers from rural areas and surrounding countries arrived in Thailand to take up reconstruction jobs (IOM, 2007). Such employment will also be available in the wake of the 2011 Floods. As such, immigration policies may need to be modified to adjust to an increasing need for migrant labour.

in locations other than the Bangkok Metropolitan Region. This would encourage the movement of industries to underdeveloped regions, would lessen the strain on Bangkok's infrastructure, and may well help to improve the environmental and ecological health of Bangkok and its surroundings by decreasing the pollution levels. While employing such a strategy, however, the authorities should be cautious not to simply re-locate the problems faced by Bangkok to other locations. Any policy agenda aimed at building a more climate resilient Thailand should look towards achieving a more environmentally sustainable development model as part of a campaign to build-back better.

Finally, attention should also be given to the plight of migrant communities in the wake of the 2011 Floods. They are some of the most marginalized and vulnerable communities in Thai society, whose lives and livelihoods have been severely affected by the floods. In the labour-intensive public works programmes soon to be initiated by the government, priority employment should be given to vulnerable and marginalized sectors of society, such as migrant communities (World Bank, 2012a). Migrant communities should also be more productively engaged by the authorities in order to improve their resilience to floods and other natural disasters and to integrate them further into society. After the 2011 Floods Thailand should not only aim to be a more climate resilient society but also a more just and inclusive one as well.

CONCLUSION

Thailand has seen a strong economic recovery in the wake of the floods, experiencing a 0.3% GDP increase in the first three months of 2012 (Yuvejwattana and Munoz, 2012). The nation should therefore take this opportunity to start investing in a more climate resilient Thailand. With this aim in mind the government of Thailand should encourage the re-balancing of the Thai economy, towards underdeveloped upcountry locations and away from the over-burdened central plains area. Such a strategy would help to mitigate the risks associated with climate change, and may also help to ease tensions between urbanites and rural communities.

Finally, special attention should be given to migrant communities in the recovery process. These communities were perhaps some of the hardest hit during the floods, and some of the least able to respond to such an impact. Yet in the recovery period their labour will be crucial. Such employment will hopefully mean that migrant communities will not be so vulnerable in the future and will become more valued sectors of Thai society.

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