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Changing Cityscapes: Signs of Development or Disaster?

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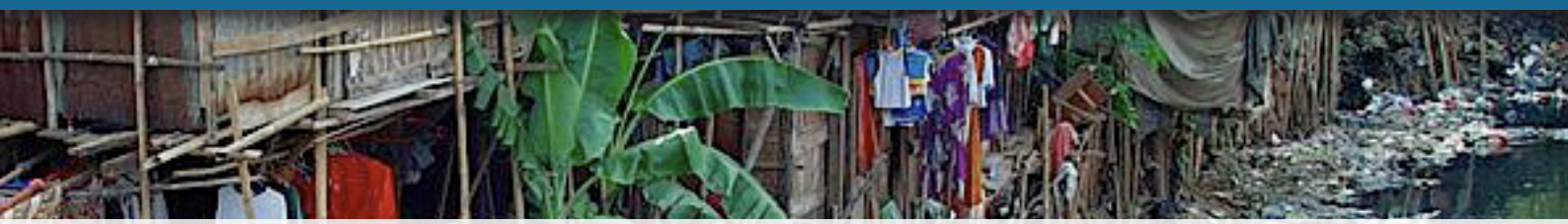
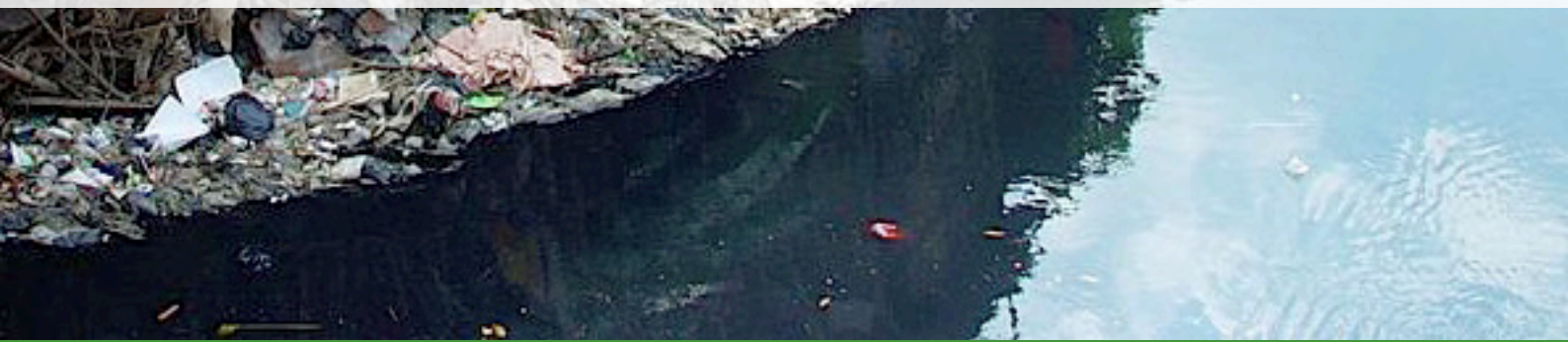


Given the tardy progress in mitigating climate change, adaptation measures are crucial in dealing with the current and future impacts of climate change. Adaptation measures need to be formulated and implemented based on vulnerabilities of different localities. This paper looks at the vulnerabilities of the urban poor in Southeast Asian cities by using the cases of Jakarta and Manila, given that they are already susceptible to regular weather related disasters. While the relation between climate change and extreme weather events may be contested, cities continue to struggle to respond effectively to weather related disasters. This paper argues that various adaptation measures should be a part of holistic urban planning that involves collaborative partnership between local, national and international state and non-state actors.



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Overview

This paper examines the inequalities evident in urbanisation policies, which exacerbate cities' and communities' vulnerabilities to disasters, with a focus on Jakarta and Manila – cities expected to be among the world's 19 megacities (cities with populations of over 10 million) by 2025. Cities in Asia have been enjoying high growth levels and increased development, but have also been facing some problems concomitant with development and urbanisation processes. These problems tend to make urban communities more vulnerable, putting them at a great risk of climate change, particularly that of increasing frequency and intensity of natural disasters. This paper focuses on adaptation measures – building social, economic and structural capacities of communities to reduce the impact of climate change in cities.

Discussion

In the words of the Greek philosopher Aristotle, 'a great city is not to be confounded with a populous one'. The major cities in Asia are fitting examples of where a burgeoning population and size may be confused with its overall progress. The major cities of Asia are at the forefront of economic growth and development, which have been instrumental in poverty alleviation. Industrialisation and trade have facilitated the creation of jobs in the urban areas, thereby attracting many in search of higher wages and better standards of living. Alongside an increase in employment rates, labour productivity has increased too. Urban centres have generated 77 per cent of Southeast Asian countries' wealth on average. This trend is set to grow in the near future as close to 70 per cent of the world's population is expected to reside in urban areas, a majority of which will be in industrialising Asian cities.

On the other hand, these cities face increasing difficulties in meeting the needs of these growing populations, particularly that of poor urban communities; the quality and capacity of urban infrastructure have lagged behind urban population growth. Urban infrastructure, which

was designed to accommodate a much smaller population, has remained relatively unchanged since pre-independence periods. Cities also continue to see a widening gap in socio-economic levels in society.

The difficulties in meeting these needs and the widening socio-economic disparities have rendered cities and their communities vulnerable to the impacts of climate change. Moreover, the impacts of climate change, primarily the projected increased frequency and intensity of weather related disasters, only serve to amplify the risks for those most vulnerable in cities,- i.e. the urban poor. There is, therefore, a need to increase the capacity of these cities to adapt to these changes and to build resilience against the impacts of climate change.

In addition to this, adaptation measures take precedence over mitigation measures for two main reasons – (1) the uncertainty on the materialisation of mitigation efforts; and (2) a need to address those impacts of climate change, which have already been set off due to current levels of carbon emissions in the atmosphere. In doing so, there is also a need to understand the different degree of vulnerabilities, which would thus require nuanced adaptation measures to cater to the various circumstances.

While sustainable and holistic urban planning policies need to be implemented, national governments have faced several obstacles in trying to achieve these goals. Firstly, in a bid to improve economic competitiveness and economies of scale, there has been an agglomeration of municipalities and cities to form metropolitan cities. Secondly, there is a problem of poor coordination between national and local governments. This is exacerbated by the dominance of local elites and interest groups, weak government leadership that tends to micromanage rather than think holistically and strategically, and limited participation and consultation with communities.

This has led to three main forms of social inequalities in cities. Firstly, social inequality, where social classes are polarised (i.e. the haves and the have-nots). Secondly, uneven development, which results in spatial segregation and unequal access to liveable space in cities; and finally, political inequality, whereby urban politics is dominated by interest groups who favour growth-oriented policies, sometimes disregarding the impact of these policies on local communities. Such social inequalities coupled with poor coordination between national and local governments, pre-existing issues of corruption and lack of synergy in multi-sectoral relationships have limited the efficiency of cities in preparing and responding to weather related disasters.

The interest of communities that are most at risk demands a bottom-up approach in urban governance. Civil society organisations (CSOs) can play a two-fold role in supporting local adaptation measures in urban areas that will ensure the protection of poor communities as the most vulnerable to climate change. On the one hand, CSOs such as local non-governmental organisations (NGOs) and representative community organisations could play their part in helping local communities to build their capacity in reducing risk and to represent their needs and concerns to policymakers. On the other hand, CSOs can also play an active role in pressurising governments for stronger accountability in public investments and in ensuring that adaptation measures are incorporated in development planning that would benefit the most vulnerable communities.

Recommendations

The lack of effective multi-sectoral collaboration remains a problem. This paper highlights three main areas for recommendations.

National–local cooperation

- Policymakers need to take on a more holistic and integrative approach to urban planning policies
- Governments should channel more efforts into effective legal implementation and coordination of community-based policies at the local level
- Additional or emergency funds/support for capacity building should be made available

Intensified societal action and support at the local level

- Local governments should support and collaborate with CSOs
- Trust building should be encouraged amongst various sectors and stakeholders

International support for local activities

- International donors should recognise gaps they can best assist in
- Applying decentralised channels of support through government, CSOs and private sectors and ensuring that these channels are made accountable

Introduction

Several Asian cities are at the forefront of economic growth and development, and this economic transformation has been instrumental in poverty alleviation. Industrialisation and trade have facilitated greater employment in urban areas, thereby attracting many in search of higher wages and better standards of living. An increase in jobs in urban areas alongside increased labour productivity has resulted in the generation of 77 per cent of Southeast Asian countries' wealth on average (ADB, 2008). This trend is set to grow in the near future as close to 70 per cent of the world's population is expected to reside in urban areas, many of which are in industrialising Asian cities (UN, 2008). On the other hand, however, these cities face increasing difficulties in meeting the needs of their growing urban populations, and addressing socio-economic disparity in society. As expressed in the words of the Greek philosopher, Aristotle, 'a great city is not to be confounded with a populous one'.

The failure to meet the needs of the growing population, particularly that of the poor urban communities, is reflected in the uneven impact of disasters in Asian cities. Although measures have been taken to improve the capacity of cities to respond to natural disasters, often disaster management itself is not enough. It must be integrated effectively into climate adaptation measures in the wider scheme of effective urban policies. As such, for cities in developing countries to effectively adapt to climate change, flaws in existing urban planning policies must be addressed and avenues to facilitate more effective multi-sectoral cooperation and collaboration for local level disaster preparedness must be increased.

This paper is divided into six sections. It begins with recognising the need to emphasise on adaptation rather than mitigation. It then examines challenges in urban planning, infrastructure and governance that have indirectly contributed to cities' vulnerabilities to weather related disasters particularly in Jakarta and Manila. Thirdly, it demonstrates the ineffectiveness of local level responses to these disasters. Fourthly, it discusses how these urban vulnerabilities are compounded by the impacts of climate change and most amplified in the case of the poor. In section five, it highlights the importance of civil society's role in formulating and implementing adaptation measures. This paper concludes with several recommendations on moving forward.

Why Adaptation rather than Mitigation?

Whilst climate mitigation – the reduction of greenhouse gas emission to limit or reduce the increase of average global temperatures – is at the heart of climate change negotiations, developing countries are increasingly pushing for an adaptation agenda to prepare themselves for potential impacts of climate change and related weather events.

The Intergovernmental Panel for Climate Change (IPCC) defines adaptation as 'adjustments in physical, ecological and human system to reduce vulnerability or enhance resilience in response to observed or expected changes in climate and associated extreme weather events' (Parry, M. L. et al., eds, 2007). Adapting to climate variability has been practiced by societies throughout history. However with the increased exposure to projected climate change risks, there is a need to improve existing adaptive capacities. The capacity of a society to adapt involves not only physical factors but also socio-economic development (Burton, Dirringer and Smith, 2006). Adaptation aims to build or increase the adaptive capacity of communities as part of the means to reduce vulnerabilities that would be exacerbated by climate change.

Vulnerability itself is a widely used yet contested concept among scholars. Füssel (2007) argues that the diversity of vulnerability concepts reflects the wide range of valid perspectives on the integrated human–environment system. However, the vulnerability approach has been used as a means to analyse the best way for society to invest in reducing risks. According to the IPCC Third Assessment report, the concept of vulnerability is defined as 'a function of the sensitivity of a system to changes in climate (the degree to which a system will respond to a given change in climate, including beneficial and harmful effects), adaptive capacity (the degree to which adjustments in practices, processes, or structures can moderate or offset the potential for damage or take advantage of opportunities created by a given change in climate), and the degree of exposure of the system to climatic hazards' (McCarthy, et al., 2001). According to Adger et al. (2003), the vulnerability of a system to climate change is determined by its exposure, by its physical setting and sensitivity, and by its ability and opportunity to adapt to change. Shebinin, Schiller and Pulsipher (2007) suggest that vulnerability can be identified under three aspects, namely system exposure to crises, stresses and shocks; inadequate system capacity to cope; and consequences of poor system recovery. They further argue that vulnerability emanates from the dynamics between macro factors such as the environment, climate change, economic growth, urbanisation and local factors such as socio-economic conditions which then create pressures on the communities. The risks faced by communities from these vulnerabilities have varied as they have emerged from multiple sources, at different scales and at different periods of time. Adaptation measures are pertinent to help communities adjust to and alleviate these risks.

This paper emphasises on adaptation for three key reasons:

Firstly, the Conference of Parties 15 (COP15) in Copenhagen in December 2009 failed to produce a binding agreement on emission reduction. In the run up to the COP15 in Copenhagen, the public demanded a fair, ambitious and binding climate agreement as a successor to the 1997 Kyoto Protocol. However, the Copenhagen Accord produced at the end of the COP15 was not legally binding and failed to quantify an agreed reduction target by 2050. The Accord leaves states to set voluntary reduction targets by 2020 and submit these targets to the United Nations Framework Convention on Climate Change (UNFCCC) by the first quarter of 2010. By the end of March 2010, there were only 110 states signing on to the Copenhagen Accord from 194 that gathered in the COP15 (*Reuters*, 31 March 2010).

The negotiation process in Copenhagen reflected the difficulties in agreeing to a global emission reduction target and the slowness of the UN process (Caballero-Anthony, Kuntjoro and Jamil, 2009). While some progress has been made by encouraging countries to make their own pledges for mitigating their respective carbon emission levels, countries' pledges registered with the UNFCCC for a post-Kyoto framework thus far are hardly enough to meet 'even the lower range of emission reductions required to stabilise concentrations of CO2 at 450 ppm and certainly fall short of goals to reduce concentrations below that level' (Levin and Bradley, 2010). Moreover, the emergence of a report after the Copenhagen meeting that exposed the inaccuracy of scientific evidence on the melting Himalayan glaciers (*The Times*, 21 January 2010) has raised questions about the credibility of the IPCC, which could further affect the process of arriving at an agreement on mitigation.

Secondly, despite notable initiatives and progress that are underway at the international level to mitigate climate change – such as the Reduction of Emissions from Deforestation and Degradation in Developing Countries (REDD), which has ongoing pilot projects in various countries – the current level of carbon dioxide concentration in the atmosphere already commits the world to some climate change impacts. Even if emissions could be successfully reduced within the next 20 to 50 years, concrete actions are still needed at present to address existing vulnerabilities and the future impact of climate change. Rather than contesting whether the growing number of weather related disasters is caused by climate change, it is more urgent to examine how recent extreme weather events demonstrate the vulnerability of cities and communities living in those areas, (Moser and Satterthwaite, 2010). As such, adaptation needs to complement mitigation efforts and needs to be mainstreamed into policies at local, national, regional and global levels. Taking into account the different vulnerabilities of various communities, adaptation measures need to be localised in planning and implementation. In addition to this,

there is a need to mainstream adaptation at regional and global levels to gain the necessary political attention to draw international resources and funding to support national and local efforts.

Different urban areas, depending on their location, their degree of development, the level of risk they are susceptible to, and the quality of governance in the area, would demand different adaptation measures and strategies. This necessitates the incorporation of a wide range of issues namely development, livelihood, disaster management and many more. While adapting to the impacts of climate change is clearly important, there is a need for more research to identify which adaptation measures should be taken or prioritised, such that a particular local community is better equipped to deal with the possible effects of climate change.

Urbanisation's Hairline Cracks: The Case of Jakarta and Manila

As mentioned in the introduction, Asian cities are not only the heart of the centre of trade and wealth generation, but have been important in the rise of Asian economies and for poverty alleviation in the region. Higher wages in urban areas has been a strong pull factor for migration and there has also been a simultaneous rise in productivity levels. Indeed, large cities are more productive than smaller ones and labour productivity increases with city size (ADB, 2008).

Yet, while urbanisation has been a significant factor in the increased levels of economic growth in many countries, there have been difficulties in urbanising efficiently. Firstly, urban planning in Asia, similar to many parts of the global South, are strongly informed by early planning traditions primarily from Western Europe and the US – dating to the colonial period where urban blueprints catered to a smaller demography. These urban planning designs have hardly been upgraded or improved upon since then (Watson, 2009). For instance, Jakarta's drainage system, built 200 years ago to serve a population of 500,000, has not changed since the Dutch colonial period and is still being used to support a megacity with a population of nearly 10 million within the city's boundaries and more than four million in neighbouring areas. The issue of clogged drains and malfunctioning canals has been cited by government officials as contributors to flooding (*The Jakarta Post*, 2 September 2008). The same is the case in the Philippines where flooding during the typhoons has been exacerbated by the fact that 70 per cent of the Philippines' drainage system, constructed in 1975, was silted and clogged up due to indiscriminate throwing of garbage. In addition to this, in some instances where maintenance work was conducted, the pipes' replacements were inadequate in handling water flow (*Philippine Daily Inquirer*, 16 October 2009).

One could however question why Asian governments did not do anything to address these problems after independence, especially since weather disasters have been, at the very least, annual occurrences. One of the reasons

for this is the lack of effective implementation of comprehensive national policies at the local level. This is ironic given the fact that structural changes have been made to bring various cities and municipalities under a central system to increase efficiency and lower costs. Metro Manila, for instance, covers 17 cities and municipalities, which do not always adopt or adhere to the comprehensive development plans prepared by the Metropolitan Manila Development Authority (MMDA) (ADB, 2008). Such plans have not been adopted due to 'jurisdictional fragmentation', whereby responsibility for local services ultimately falls onto the local governments of the metropolitan area but who lack the necessary resources and capabilities. Although these local governments should – at least in theory – cooperate with the MMDA to address this lack of resources at the local level, coordination between national and local governments remains difficult. This is exacerbated by several institutional factors such as the tendency to micromanage cities when strategic thinking is required, factionalism as a result of the dominance of local politics by powerful families and strong interest groups, weak government leadership and limited participation and consultation with communities (ADB, 2008).

Secondly, despite the presumed economic growth as a consequence of urbanisation, there are three primary forms of social inequalities that are inherent in the development of global cities, as argued by Shaktin (2007), namely (1) social inequality, where social classes are polarised (i.e. the haves and the have-nots); (2) uneven development, which results in spatial segregation and unequal access to liveable space in cities; and (3) political inequality, whereby urban politics is dominated by interest groups who favour growth-oriented policies over the interest of neighbourhoods.

These inequalities are clearly apparent when examining the increasing urbanisation of two major cities in Southeast Asia – Jakarta and Manila. In Jakarta, social class polarisation and uneven development is reflected in the fact that approximately 50 per cent of Jakarta's residents do not have access to tap water, and the poorest urban residents have to pay more for basic services such as clean water, sanitation and solid waste removal (*Reuters*, 11 March 2009). In the Philippines, the preference for growth-oriented policies over social interests is reflected in the implications for rural communities living on the fringes of urban areas. In a bid to increase economic growth and expand urban areas, large areas of irrigated agricultural land in the 'rice bowl' provinces of the Central Luzon and Southern Tagalog regions were converted for various urban and industrial uses, export processing zones and industrial estates; institutions such as hospitals and universities; leisure landscapes such as golf courses, resorts and theme parks; and, most significantly in terms of the area involved, residential sub-divisions (Kelly, 1998). This has consequently led to a degradation of arable land that has been a vital source for the economic livelihoods of rural communities. The loss of arable land has thus forced many to migrate to cities in search of better job opportunities, many ending up in low-skilled and low-paying jobs, thus contributing to the burgeoning urban poor community. Migdal (2001) aptly sums up this trend by noting that the effects of the world economy have turned strong societies with viable strategies of survival into weak societies.

Migdal's point is further demonstrated in the way governments 'package' their development policies, that is, although they may be detrimental to the poorer sections of societies, it is deemed attractive. To many disempowered communities, such development plans may even appear as the best option available. This, however, could potentially feed into a vicious cycle of increased vulnerability to the effects of climate change. The case in the Philippines clearly reflects this, where greater urban development occurred when there was strong preference among tenant farmers to convert the land for non-agricultural use, as the lack of irrigation deemed their small plots of land insufficient to sustain their livelihoods on just agriculture (Malaque and Yokohari, 2007). This would suggest that the farmers were not provided options for improved irrigation, which according to Wade and Chambers (1980), is an integral part of development strategies. This thus parallels predominantly piecemeal irrigation investment efforts in South and Southeast Asia, where governments 'screen out' important factors – such as socio-environmental implications – from the very beginning thereby contributing to the poor performance of large, government-operated canal systems. Such inefficient rural development thus contributes to the tendency to migrate or opt for urban areas (as mentioned in the preceding paragraph).

As a result of this tendency of Southeast Asian government officials to formulate development policies that ultimately support urban-based industrialisation, the gap between rural and urban development is further widened (Yap and Lebel, 2009). This is evident in Manila and Jakarta, which have higher proportions of total investments in areas of health, education, electricity and water supply compared to other regions in their respective countries. The lack of these social services in the rural areas thus also contributes to rural-urban migration. Statistics on in-migration in the Philippines demonstrate that the poorer a region is, the more migrants it sends to Metro Manila – namely migrants from the neighbouring provinces of Cavite, Laguna, Batangas, Rizal Quezon (known collectively as CALABARZON) (Malaque and Yokohari, 2007). Every year in Greater Jakarta (which includes the area of Bogor, Depok, Tangerang and Bekasi), approximately 250,000 people migrate from rural areas (Kurniawati, *Jakarta Globe*, 3 November 2009). In 2009, over 25 million people lived in Greater Jakarta. Jakarta needs about 70,000 housing units every year to cater to its growing population. However, the local government is only able to provide 20 per cent of that figure (Kurniawati, *Jakarta Globe*, 3 November 2009). As a result, these poor migrants are forced to live in informal settlements and deteriorated shelter conditions, which provide little protection from environmental hazards such as floods or intense rainstorms.

The urban population in the Philippines accounted for 58.6 per cent of the total population in 2001 and is forecasted to rise to 73.8 per cent by 2030 (Yap and Lebel, 2009). The same data set revealed that the urban population in Indonesia accounted for 40.2 per cent of the total population in 2000 and is forecasted to rise to 61 per cent by 2030. Urbanisation is creating large concentrations of people and physical capital, potentially exposed to natural hazards. For instance, rapid urbanisation, low levels of income and lack of areas allocated for affordable residential developments have led to the proliferation of unplanned, informal and overcrowded settlements (National Land Use Committee, 2000), often in more hazard-prone areas, and this trend is set to continue in the Metro Manila region.

Political inequality in cities is also often supported by the short-term outlook of some politicians who tend to push for investments in big projects

as a way of gaining conspicuousness and to 'look good', often overlooking the long-term ramifications of their actions. Corruption too is a major factor that can affect urban planning and result in inequalities. A case in point is where in the Philippines, the state had ignored the 1977 World Bank study on the Metro Manila region that recommended for development to be 'restricted by the application of controls in three major areas – in the Marikina Valley, the western shores of Laguna de Bay, and the Manila Bay coastal area to the north of Manila' (*Philippine Daily Inquirer*, 16 October 2009). The government instead continued with its urban development plans by building many residential structures in these highly vulnerable areas of Manila. This has been exacerbated by the lack of institutional memory, whereby previous administrations have simply forgotten or paid little attention to the 1977 World Bank study (Esguerra and Aurelio, *Philippine Daily Inquirer*, 16 October 2009).

In the case of Jakarta, former Governor Sutiyoso blamed deforestation and overbuilding in neighbouring areas, which originally were water catchment areas, as contributors to flooding (*The Jakarta Post*, 2 September 2008). In responding to regular flooding in a slum area called Cilincing located on the edge of the North Jakarta Sea, the government blamed the poor communities residing in the area for building structures that obstructed the flow of water and for their improper garbage disposal practices (*Reuters*, 11 March 2009). Although it is true to an extent that the communities do not see sanitation and waste management as their top priority, it is nevertheless unfair to put the blame entirely on these communities as they have limited or no access to affordable healthcare, education or economic opportunities. As a result, they are highly vulnerable to disasters that occur regularly. These examples demonstrate the state's lack of concern for the future of communities in disaster prone areas. It also raises questions of transparency in making civil society aware of such environmental impact assessments, thus affecting the ability of civil society to pressurise their governments to respond to existing vulnerabilities.

Responses at the Local Level

There have been several developments at the local level thus far in response to regular disasters in Manila and Jakarta. Responding to the flooding problems in Jakarta, the Indonesian government has embarked on several projects – namely construction of the East Flood Canal in East Jakarta (*The Jakarta Post*, 22 April 2009) and the Jakarta Emergency Dredging Initiative (JEDI). The latter is a three-year 'mass dredging' project financed by a US$150 million loan from the World Bank since 2009. Building local government capacity is also in the pipeline with an additional US$10 million grant to finance a five-year training programme (*The Jakarta Post*, 18 April 2008). In a bid to facilitate these projects, the local government in Jakarta has had to relocate lower-income communities living along river banks. While the state has made provisions of low-cost housing for the 70,000 families living in slums affected by the floods, there have been two main problems in implementing these policies. Firstly, there have been issues related to land acquisition. Owners of land, which fall under the areas designated

for the flood-mitigation projects, have refused to sell their land at prices in accordance to the taxable property value. Secondly, although low-cost apartments have been provided to some slum dwellers, a proportion of them have opted to sublet their units for profit, and then return to live by the riverbanks, which provides convenient access for their daily chores. Moreover, subletting their units is an opportunity for them to earn more income for their households (*Jakarta Globe*, 16 February 2010). Nevertheless, progress has been made thus far as the East Flood Canal has been constructed and has so far been reported to alleviate any potential floods (*The Jakarta Post*, 17 February 2010).

Given the Indonesian experience, it remains to be seen whether the Filipino administration would be able to make the same degree of changes in Manila. Lebel et al. (2010) noted that while flood mitigation efforts in the Philippines were focused on structural measures prior to the 1990s, between 1990 to 1999, NGOs together with governmental organisations, initiated to work together on non-structural measures. They agreed to look at multi-sectoral partnerships to empower local government units and communities to be prepared against floods. As a result, they created a community-based early warning system which includes activities such as monitoring, information exchange, warning and disaster preparedness response (Lebel, et al., 2010). In addition to this, members of civil society have initiated Community Based Disaster Management (CBDM) activities to compensate for the Filipino government's lack of effective action to disasters. The Citizens' Disaster Response Center/Network (CDRC/N) for instance, was established in 1984 while the Philippine National Red Cross has implemented its Integrated Community Disaster Planning Program since 1994. In 2002, the Philippine Disaster Management Forum (PDMF) was established, a network involving key disaster management agencies and advocates of CBDM.

At the governmental level, there have been recent positive developments. In the wake of the 2009 typhoons, the Filipino parliament was quick to pass its Climate Change Act. President Arroyo herself has been enthusiastic to implement the Metro Manila Transport, Land Use and Development Project, which was recommended in the 1977 World Bank study (*Philippine Daily Inquirer*, 16 October 2009). What remains to be determined is whether these national policies and initiatives will be effectively put into action at the local level, given the various institutional and organisational problems that persist.

Looking at the above mentioned examples of responses, there is clearly a problem of effective implementation. The primary problem is the lack of effective local governance and effective communication and cooperation between national and local levels. These challenges in urban planning, infrastructure and governance have exposed communities living in cities such as Manila and Jakarta to a variety of risks and insecurities. These vulnerabilities would further be exacerbated by the projected impacts of climate change, of which the most at risk would be the urban poor.

Asian Cities as Conduits for Vulnerabilities to Climate Change

The dominance of capital markets and the corresponding job opportunities make cities an attractive destination for migrant labour. This increasing rate of urban populations in cities is not likely to cease in the near future. According to the United Nations population statistics (2008), close to 70 per cent of the world's population will be located in urban areas – with a projected global population of 9.2 billion in 2050, 6.4 billion of these people will be in urban areas (as seen in Table 1). This would be nearly double the global urban population in 2007 of 3.3 billion. Moreover, it is predicted that most of these urban dwellers will be residing in developing countries. According to a study conducted by the World Research Institute, urban population in Southeast Asia will increase to nearly 220 million in 2025 (Ooi, 2009). Out of the 19 megacities in the world today, 11 are in Asian countries. These cities are prime centres of economic growth and development.

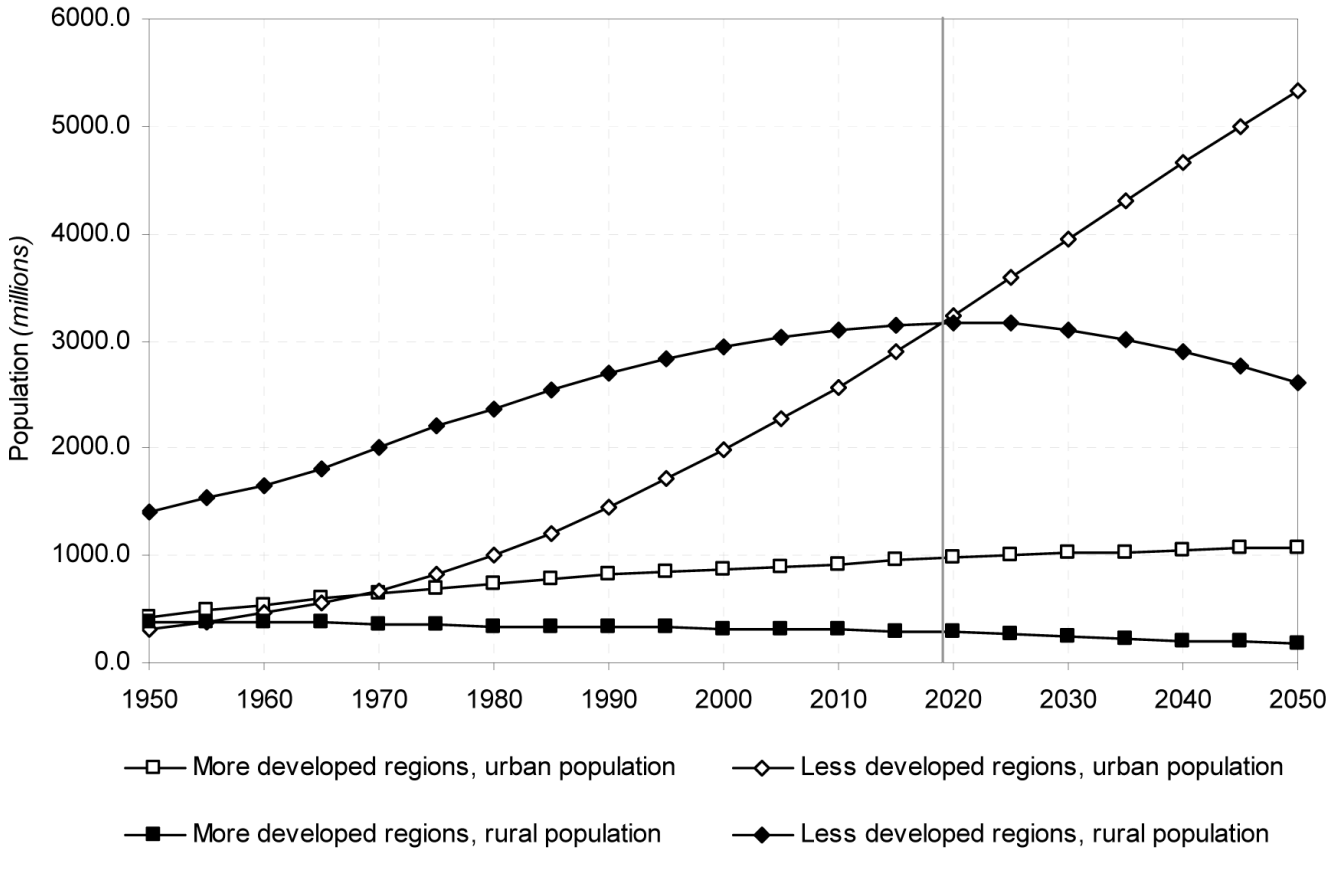
However, as mentioned earlier, the fruits of such economic development for the most part do not benefit the lower urban classes. Increased populations in cities will only serve to perpetuate the inequalities between the minority haves and the majority have-nots. Moreover, the latter are also the least able to cope with the impact of extreme weather events and do not have the

resources to re-build their lives. Thus climate change related events can further exacerbate inequalities because the ability of a community to protect itself from the impacts of climate change would also depend on their income levels.

These dynamics are clearly evident in Jakarta and Manila. While these cities are respectively Indonesia's and the Philippines' 'centres for headquarters of transnational corporations and producer service firms of manufacturing and export-oriented services (Shatkin, 2007), they are also the prime site of weather related disasters. Floods inundating Jakarta have become an annual event while Typhoons Ketsana and Parma in 2009 were argued as one of the worst disasters to hit the Philippines in several decades. Jakarta's 2007 flood alone incurred total damages and losses of an estimated 5,184 million rupiah (approximately US$558,000) (BAPPENAS, 2007) while Typhoons Ketsana and Parma cost an estimated PHP13 billion, approximately US$280 million) in damage to the country's most populous regions of metropolitan Manila and urban centres in the northern Philippines (*ABS-CBN News*, 14 October 2009). Such economic losses as a result of the inability to fend off the impact of disasters are clearly detrimental to the growth and sustainability of cities. They are also likely to increase the vulnerability of communities.

Jakarta's and Manila's sensitivities to geophysical changes are among the highest in the region. According to United Nations statistics, Manila and Jakarta are expected to be the 14th and 19th largest megacities in the world by 2025 (United Nations, 2008). Even the United Nations Under-Secretary-General for Humanitarian Affairs John Holmes has warned of the risks of mega-disasters in some of the world's megacities, as they are located in coastal or low-lying areas that would be threatened by rising sea levels, or in earthquake zones (*Press Trust of India*, 16 June 2009). Socio-economic dynamics in Manila and Jakarta have already sown the seeds for these impeding disasters. In Metro Manila, 61 per

Table 1: Urban and rural populations by development group, 1950-2050



Source: *United Nations Department of Economic and Social Affairs/Population Division (2008)*

cent of its people are squatters, who are often located in unsafe areas; which generates further risks to life, health and property, leaving them vulnerable to climate change (Yuen and Kong 2009). Moreover, in terms of the most vulnerable Southeast Asian province/district to the effects of climate change, Jakarta and Metro Manila are among the top 10 – with Central Jakarta ranked as first; North Jakarta, second; West Jakarta, third; East Jakarta, fifth; metro Manila, seventh; and South Jakarta eighth (Yusuf and Francisco, 2009). Despite Jakarta and Manila's high degree of vulnerability to climate change, it is important to understand the factors behind it, wherein their natural geophysical circumstances have been altered and made more vulnerable by certain urbanisation policies.

Vulnerabilities of the Urban Poor

In cities (including megacities), low-income communities living in informal settlements are at the greatest risk from extreme weather events and especially floods that would be exacerbated by climate change. Climate change increases the risk of sea levels rising, storm surges and associated rainfall. Recent extreme weather events show how the poorest sections of society are often the most affected.

Climate change is said to affect patterns of rainfall in the future (*Science Daily*, 28 February, 2010). Although climate change might reduce annual average rainfall in some areas, it does not necessarily mean a reduced risk of floods. Huq, et al. (2007) warned that rainfall might be more concentrated and may risk areas unaffected before. The impacts of climate change on rainfall patterns and sea levels are compounded by poor urban planning in most of Asia's mega-cities. Cities' infrastructures are often overwhelmed by heavy or prolonged rainfall or increased intensity of storms due to lack of urban planning. The drainage systems are inadequate for large volumes of surface water. Natural drains are often filled to construct new roads or buildings, whereas existing drains have not been well maintained by city authorities.

Low-income communities are more vulnerable to disasters because they own fewer assets to help them reduce risks. Communities with higher income can opt for insurance protection, fortified housing in safer locations and greater access to assets for recovery response. In contrast, low-income communities have limited capacity to respond to a wide range of risks and insecurities. They also live in city areas that are most at risk of disasters. Informal or illegal settlements which are mostly characterised by poor quality housing and drainage systems, and often located in floodplains, are unfortunately the only sites where these communities can afford housing.

The quality of government also affects the degree of risks faced by lower income communities. This is due to three main government responsibilities. Firstly, governments are responsible for the quality of cities' infrastructures. Rapid urbanisation may overwhelm the capacity of infrastructural systems such as drainage systems and water management. Governments have to ensure that not just the wealthier parts of the cities comprising government and business districts are served by improvements in infrastructure but also the marginalised parts of the city where lower income communities reside.

Secondly, governments are responsible for the formulation and the implementation of urban planning. It is essential to have integrated urban planning such that it avoids haphazard development of areas that are most at risk and those that should be left as natural drainage systems. A sound urban planning strategy

should be able to regulate city growth. Economic development and urbanisation lead to the expansion of cities to larger areas which often are hazardous sites (Moser and Satterthwaite, 2010). For example, in Jakarta, settlements are expanded and more roads are built in coastal areas of the northern part of Jakarta, which have worsened the potential of flooding in that area. Moreover, this has resulted in an increased seawater intrusion in groundwater, reducing the availability of fresh and clean groundwater for the communities living in that area. In addition to it, the building of roads and business districts in Jakarta have reduced the availability of the city's natural drainage system and water catchment area which in turn increased the susceptibility to flooding. Governments should be able to regulate urban expansion to safer locations. It is a challenge because the main driver of city expansion and concentration is where business and corporations choose to locate themselves (Huq et al., 2007). The concentration of economic activities influences population and physical growth in an area.

Thirdly, governments should provide adequate provisions for disaster management, ranging from disaster preparedness, response and recovery. When disasters strike a city, higher income communities and business enterprises have more assets to recover in a relatively shorter period of time. They may even choose to relocate to a new, safer location to avoid future risk. The lower income communities, on the other hand, have fewer options for recovery with their limited assets. With climate change projected to exacerbate extreme weather events, informal settlements where most lower-income communities reside would be more prone to disasters such as flooding and storm surges.

Civil Society: Filling in the Cracks

Given these vulnerabilities and widening income disparities within urban societies, it is important to ensure that urban climate adaptation policies acknowledge and, more importantly, overcome these factors in ensuring that the most vulnerable to climate change, namely the poor, are protected. As such, current policies must firstly learn from their past mistakes, and secondly, create greater agency at the local level. Huq et al. (2007) argue that governments are the main driver and therefore should be able to work with and be accountable to communities that are most at risk. This is where CSOs such as local NGOs and representative community organisations could play their part in helping less

privileged communities to build their capacity for risk reduction and to represent their needs and concerns to the policymakers.

Political representation is also pertinent in urban governance. Governments should draw on resources to invest in risk reduction measures along with urban growth. Huq et al. (2007) suggest that investments in protection against floods and sea level rise could co-benefit the development of cities and at the same time reduce the risk faced by lower income communities. However, these communities, which bear the greatest stresses of climate change often lack access to political representation and are thus unable to influence pro-poor policies. The interest of communities most at risk demands a bottom-up approach in urban governance. CSOs can assist here by monitoring the government's urban planning policies and propose improvements where necessary, while providing access to information and discussion with communities at the grassroots level. Prabhakar, Srinivasan and Shaw (2009) acknowledge that there is a need to move from the attitude of looking at local level players as 'implementers' to 'innovators' for which developing a network of self learning and evolving organisations are required at the local level.

CSOs can also play an active role in demanding stronger accountability in public investments made by the government. Creating climate-resistant cities requires better public infrastructure, which are environmentally sustainable and able to withstand climate change impacts and disasters such as flooding, storms and earthquakes. New planning forms will need to acknowledge and support informal activities in both economic and residential spheres if they are to meet the requirement of being pro-poor (Watson, 2009).

However, given the limited resources of national and local governments, investments in water management, energy supply, flood defences, building codes, waste management, drainage management and health systems have proved costly. Government accountability is needed to ensure that urban planning is well-targeted to support adaptation. There are contending views which argue that a focus on climate change will hinder the much needed attention to development, and that climate change will divert limited resources from more pressing needs such as basic jobs, food and health security. It is therefore important for CSOs to play an active role in ensuring that adaptation measures are incorporated into development planning that would benefit the most vulnerable communities. Local adaptation measures to protect from floods such as building better quality housing, drainage systems and waste management can in turn benefit development goals. It is also important for CSOs to monitor government investments in expensive flood defences and building ill-considered dams, which occur at the expense of community settlements in the area.

Conclusion and Recommendations

In light of these developments, it is clear that there is still a lack of effective multi-sectoral collaboration. While policymakers have established policies to address weather related disasters in urban areas, they may have neither recognised the need of, nor gained full support and cooperation from the most vulnerable local communities. Moreover, while there have been some efforts among civil society groups to initiate their own activities, it has for the most part been on a small-scale, and they would be able to function better if they received more support for expanding their activities.

National–local cooperation

Policymakers need to take on a more holistic and integrative approach to urban planning policies. Both rural and urban development policymakers must be in consultation with one another, so as to minimise adverse/undesirable spill-over effects that may occur from one sector to another due to certain development policies. Policymakers need to be prepared to accept the results of environmental impact assessments and act on them rather than ignore them for the sake of short-term economic benefits.

There is also a need for governments to channel more efforts for effective legal implementation and coordination of community-based policies at the local level so as to empower vulnerable communities. However, given the fact that such capacity-building initiatives at the local level are time-intensive, additional or emergency funds and support should be made available to respond quickly when needed.

Intensified societal action and support at the local level

Local governments too should adopt a holistic and integrative approach by supporting and collaborating with CSOs, which have thus far initiated their own programmes to make up for the government's ineffectiveness. Such collaboration would require knowing the strengths and weaknesses of organisations and agencies in the various sectors. There is thus a need to map out the roles and responsibilities of various private and non-governmental organisations, based on their existing capacities. This would allow government officials a greater sense of the potential resources available within civil society – whether it would be financial, social or organisational assistance.

This would however require trust and willingness of various parties to work together despite their differences. Moreover, these levels of trust would be put to the test, particularly during times of disasters. At best, strong bonds of trust amongst various parties may motivate them to work together to overcome the disaster. At worst, however, the lack of trust may serve to exacerbate differences and competition for scarce resources amongst the various groups, especially when levels of desperation run high in the face of ineffective responses to disasters. While the process of building trust between various sectors is time-consuming and stressful, it is nevertheless a necessary step to take and sustain for effective multi-sectoral results.

International support for local activities

The mapping out of existing capacities of various societal actors would provide international donors with a better means of identifying and filling gaps. In addressing urban vulnerability, which is often accompanied by limitations in local government, international support such as financing adaptation can be used both to address this problem and work around it (Ayers, 2009). Decentralised channels of support should be made more accountable so as to allow any international assistance to be efficiently delivered to segments of society that need it most. International assistance could be channelled through CSOs that have direct access to, and a history and knowledge of working with low-income communities. That said, it is also important to ensure transparency and accountability at the local level in an effort to prevent corruption among local officials and groups. Ground level data and support are therefore crucial as a means to inform local governments (and in turn, the national government) of community needs. Whether it be overseas migrant workers wishing to provide a donation or corporate social responsibility projects by multinational corporations – such as DHL in providing transport assistance at airports that are overwhelmed with global aid donations from the international community – governments need to ensure proper avenues to utilise such assistance and thereby improve their ability to better respond to a disaster.

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