
Asian Cities Climate Resilience

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Understanding children's risk and agency in urban areas and their implications for child- centred urban disaster risk reduction in Asia:

Insights from Dhaka, Kathmandu, Manila and Jakarta

BY DONALD BROWN AND DAVID DODMAN



Understanding children's risk and agency in urban areas and their implications for child-centred urban disaster risk reduction in Asia

Asian Cities Climate Resilience Working Paper Series

This working paper series aims to present research outputs around the common theme of urban climate resilience in Asia. It serves as a forum for dialogue and to encourage strong intellectual debate over concepts relating to urban resilience, results from the ground, and future directions. The series is also intended to encourage the development of local research capacity and to ensure local ownership of outputs.

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Plan has been working for, and with, children for more than 75 years. With no religious, political or governmental affiliations, we work in 50 developing countries across Africa, Asia and the Americas to promote child rights and lift millions of children out of poverty. We focus on the inclusion, education, and protection of the most marginalised children, working in partnership with communities, local and national government and civil society.

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Abstract

This paper presents the findings of a study undertaken by IIED in partnership with Plan International on urban children's risk and agency in four large Asian cities: Dhaka (Bangladesh), Kathmandu (Nepal), Manila (the Philippines) and Jakarta (Indonesia). The study involved focus group discussions with street children, working children and squatter and slum children, and key informant interviews with relevant local, national and international agencies involved in child rights and/or disaster risk reduction in each city.

The findings show that girls and boys who live and work on the streets or in low-income informal settlements are among the most vulnerable and susceptible to environmental hazards, disasters and the impacts of climate change, primarily because of their poor-quality living and working environments. Yet, the majority of disaster risk reduction programmes in urban areas of Asia are dominated by preparedness, early warning and response – and fail to address the particular risks facing boys and girls.

This paper therefore argues for a much greater focus on linking disaster risk reduction with long-term action that can address the provision of protective infrastructure and basic services as key determinants of child-health and disaster and climate resilience. It concludes by outlining a set of priority action areas for Plan International and other child-centred organisations that seek to reduce children's long-term risks in Asian cities.

Abbreviations

ADB	Asian Development Bank
CBDRR	Community-based Disaster Risk Reduction
CBOs	Community-based Organisations
CCA	Climate Change Adaptation
COSs	Civil Society Organisations
CSPs	Country Strategy Programmes
DRR	Disaster Risk Reduction
HUDCC	Housing and Urban Development and Coordinating Council, the Philippines
HVCAs	Hazard, Vulnerability and Capacity Assessments
IDS	Institute of Development Studies
IFRC	International Federation of Red Cross and Red Crescent Societies
IIED	International Institute for Environment and Development
ILO	International Labour Organization
IPCC	Intergovernmental Panel on Climate Change
LGUs	Local Government Units
MoHA	Ministry of Home Affairs, Government of Nepal
MOST	Management of Social Transformations
NGOs	Non-Governmental Organisations
UNDESA	United Nations Department of Economic and Social Affairs
UNSECO	United Nations Educational, Scientific and Cultural Organization
UNFPA	United Nations Population Fund
UNICEF	United Nations Children's Fund
UNISDR	United Nations International Strategy for Disaster Reduction
UPES	Urban Poor Empowerment Society
VDC	Village Development Committee, Nepal
VMSDFI	Vincentian Missionaries Social Development Foundation Incorporated, Manila
IIED	International Institute for Environment and Development
ILO	International Labour Organization
WHO	World Health Organization
WWF	World Wide Fund for Nature
YDRR	Youth for Disaster Risk Reduction

1 Introduction

The world's population is increasingly urban; urban areas are increasingly recognised as being susceptible to the impacts of disasters and climate change; and a high proportion of urban residents are children. Yet despite the growing acceptance of each of these realities, relatively little research, policy, or practical attention has been paid to how each interacts with the other. Consequently, urban policymakers and practitioners throughout the region know very little about the specific risks that girls and boys face or the factors that can contribute to their resilience, especially in the context of urban poverty.

1.1 Purpose of the report

This report examines children's risk and agency in four large Asian cities – Dhaka (Bangladesh), Jakarta (Indonesia), Kathmandu (Nepal), and Manila (the Philippines) – and makes recommendations for child-centred urban disaster risk reduction (DRR). It enhances understanding of the nature of vulnerability to disaster- and climate-related risks in urban settlements in Asia, with a particular focus on the vulnerability of children. This analysis complements existing understanding of vulnerability and resilience, and helps to provide a sound empirical basis for a range of urban, national and global stakeholders to make programming and policy decisions.

To support this analysis and generate new conclusions, the report builds on recent work on the nature and scale of urban risk in low- and middle-income countries and its implications for humanitarian preparedness, planning and response (as summarised by Dodman et al., 2013). This work highlights the main factors that contribute to vulnerability in urban centres – in particular, poor-quality housing on land exposed to hazards, coupled with underlying drivers of poor quality provision for water, sanitation, drainage, infrastructure, healthcare and emergency services – and how risk will evolve in the future because of urban and climate change.

It also builds on work on the particular implications of urban environmental problems and climate change for urban children (e.g. Satterthwaite, et al., 1996; Bartlett 2008). This describes how urban children are less well equipped to deal with deprivation and stress because of their more rapid metabolisms, immature organs and nervous systems, developing cognition, limited experience and behavioural characteristics.

Although urban children are generally better off than their rural counterparts, this is not true for the hundreds of millions living in urban poverty. At the same time, although children are disproportionately at risk on many fronts, it is a mistake to think of them only as victims: with adequate support and protection, children can also be extraordinarily resilient in the face of stresses and shocks. This report therefore builds on the ample evidence that if children and young people are active, informed and involved in responding to the challenges in their lives it yields benefits not only for their own learning and development, but also for the energy, resourcefulness and knowledge that they can bring to local issues (e.g. IDS 2009, 2012).

The primary audiences for this report are child-focused community-based organisations (CBOs) and non-government organisations (NGOs) that work in Asian cities, with the expectation that the findings will strengthen the effectiveness of programming around DRR, as well as climate change adaptation (CCA). The findings will also enable CBOs and NGOs that prioritise DRR in urban areas to engage more appropriately and effectively with children and young people.

As stressed throughout the report, local government institutions play a central role in shaping and reducing risk in urban areas.

It is hoped that the report can contribute to the development of more appropriate plans and policies that reduce the disaster- and climate-related risks that children face in urban areas. Finally, all of these organisations operate within political, financial and economic systems at a range of scales – from national government policies to global agreements – and the report highlights priority areas for action within these policy and planning frameworks.

1.2 Structure of the report

The report firstly reviews the ways that risk is understood in urban contexts. Although exposure to hazards is central to this understanding, the emphasis is placed on the individual and neighbourhood characteristics that shape susceptibility to harm. The concept of the ‘spectrum of risk’ is introduced to show that it is frequently smaller and more frequent events (e.g. seasonal flooding, disease epidemics, fires, heat waves, etc.) that have the greatest negative impacts on the health and wellbeing of children and other urban residents as compared to larger, less frequent disasters. City profiles have been constructed for each location as a means of highlighting the demographic, socio-economic, and hazard contexts that provide the backdrop to the experiences of individual children.

The main sections of the report draw on fieldwork conducted in each of the four cities, primarily involving focus group discussions and in-depth interviews with children, and key informant interviews with significant actors in this area of work. The examination of key trends in child-centred urban DRR highlights: the growing number of NGOs that are doing in this type of work; the challenges these actors face in operating in urban areas and the scope of their work (which primarily focuses on preparedness, response, and recovery rather than on risk reduction); the limited extent of work on DRR by child-centred NGOs; and the existing focus on activities such as school-based disaster safety management programmes.

Subsequently, the report describes the particular risks experienced by street, working and squatter and slum children (while acknowledging that these categories are not mutually exclusive). It highlights the differential experiences of girls and boys, and emphasises how multiple underlying factors come together to shape children’s experiences, and the harm that they suffer from disasters.

The final section presents the main conclusions and priority areas for future action. It highlights the importance of both ‘small’ and ‘large’ disasters, and how individual and neighbourhood characteristics shape the ways that the impacts of disasters are experienced. It emphasises the importance of basic infrastructure and services, and shows that urban programming to reduce the risks that girls and boys face must engage with long-term development issues. Finally, it highlights the importance of urban governance and planning to reduce risk, and argues that this area cannot be ignored if CBOs and NGOs are to achieve meaningful impacts.

2 Understanding urban children's risk and agency

Several key themes emerge from the literature on children, climate change and disasters that illustrate important shifts in thinking regarding how risk is understood and acted upon in an urban context. These include a growing focus on 'who' within an urban population is most at risk; the disproportionate risks that children living in urban poverty face; the factors that underpin children's risk from disasters and small everyday hazards; and children's capability and right to participate in DRR as agents of change and resilience. This section presents these themes and their implications for developing a better understanding of children's risk and agency in urban areas, and how this affects different children in different ways.

2.1 'Who' is at risk?

A growing body of literature is calling for a greater focus on the question of 'who' within an urban population is at risk. This question focuses attention on how risk is produced through the interaction between hazards and the social (e.g. networks), economic (e.g. income), political (e.g. exclusion) and demographic (e.g. urbanisation and age dynamics) factors that determine exposure and vulnerability (Hardoy, et al. 2001; Wisner, et al. 2003). To develop an understanding of how these factors determine 'who' is at risk, Schensul and Dodman (2013) put forth a set of questions proposed by Hardoy and Pandiella (2009, p. 11) that begin to unpack the links between geography, the built environment and urban poverty, and the characteristics that create and reinforce vulnerability among people. These questions include:

- Who lives or works in the locations most exposed to hazards?
- Who lives or works in locations that lack protective infrastructure and services?
- Whose homes and neighbourhoods face the greatest risks when impacts occur?

The answer to all of these questions is those who live and work in overcrowded informal settlements concentrated in hazard-prone areas that lack protective infrastructure and services (Hardoy et al., 2001; Satterthwaite et al., 2007; IFRC 2010; UNISDR 2009, 2011; UN-Habitat 2011; World Bank 2010; Baker 2012; Dodman et al., 2013). This answer highlights the need to incorporate people in the context of their environments in addressing 'who' is exposed and 'why' them (being the factors that contribute to exposure and vulnerability) (Schensul and Dodman 2013).

In cities with high levels of poverty and inequality, these questions become particularly important when considering the wide disparities between high- and low-income children and the significant differentials in risk that exist between them (UNICEF 2012). For example, slum populations are generally younger and die sooner than non-slum populations, which tend to have lower child mortality rates and higher life expectancy (UN-Habitat 2006). The higher risk of ill-health, injury and pre-mature death among children living in low-income informal settlements – which house up to 50% of the population in many Asian cities (Mitlin and Satterthwaite 2013) – is a clear indication that significant proportions of the population are not benefiting from the advantages and opportunities of living in cities (UN-Habitat 2006).

2.2 Urban children at risk

National averages based on development indicators generally suggest that urban children are better off than their rural counterparts. However, the ‘urban advantage’ does not hold true for the hundreds of millions of children living in urban poverty (Van de Poel, et al., 2007; UN-Habitat 2003, 2006; UNICEF 2012). Research suggests that a significant proportion of the urban poor have little or no advantage, “sometimes even suffering an ‘urban penalty’” (Sverdlik 2011, p.140). Studies also indicate that low-income informal settlements have higher infant and child mortality rates and a greater prevalence of underweight or stunted children (*ibid*). As noted by Dye (2008, p.768), “no investigation has yet shown that the health benefits of urban living generally outweigh the health risks”.

Complicating matters further are disasters, which often intensify poverty among children living in urban areas (UNICEF 2012). Children from low-income households as well as those without parents or carers are more exposed to hazards because they are often forced to settle on the street or in hazard-prone areas (e.g. steep slopes, floodplains, low-elevation coastal zones) due to a lack of affordable alternatives (Satterthwaite et al., 1996). Children are at high risk in these locations, since they seldom have access to protective infrastructure (e.g. drains and storm water management systems, paved roads, etc.) and information, including early warning systems and disaster preparedness training (UNICEF 2012). Children in general are more susceptible than adults because of their developing cognition, limited experience and risk-prone behavioural characteristics, which render them less able to avoid and cope with hazards (Bartlett 2008; UN-Habitat 2011). As a result, children who live in urban poverty are among the most at risk to injury and death from disasters.

A number of other cross-cutting factors often interact with income to determine which children within an urban population are most at risk. These include (but are not limited to) gender, age, caste, education, ethnicity, health status, immigration status, occupation, disability and the nature and extent of social networks (Satterthwaite et al., 1996; Hardoy, et al., 2001; Wisner, et al., 2004; Peek and Stough 2010; Alirol, et al., 2011; IPCC 2012; UNICEF 2012; Schensul and Dodman 2013). Gender is widely recognised to play a particularly significant role in influencing disaster and climate change risk (Alber 2009; Neumayer and Plümper 2007). However, the links between age and gender remain largely overlooked, albeit with some notable exceptions within the literature on climate risk (Swarup, et al. 2011) and humanitarian response (Mazurana, et al. 2011, 2013). Research on the unique risks faced by girls and boys in urban areas, particularly in Asia, is also lacking. Consequently, urban policymakers and practitioners throughout the region know very little about the specific risks faced by girls and boys or the factors that can contribute to their resilience, especially in the context of urban poverty.

2.3 Urban children and the spectrum of risk

Although disasters are considered to be exceptional events that cause significant losses to life, health and property, growing evidence suggests that the cumulative impacts of what can be termed ‘everyday hazards’ (e.g. illness from a foodborne or waterborne disease) and ‘small’ disasters (i.e. low numbers of people killed or injured or properties damaged, but too small to be classified as a disaster) are actually much higher than the impacts of ‘large’ disasters (i.e. meeting criteria for inclusion in international disaster datasets) (Table 1).

Reflecting this spectrum, the UNISDR has developed the concepts of extensive risk (i.e. risk of illness/injury, premature death and impoverishment from all events whose impact is too small to be classified as major disasters) and intensive risk (i.e. risk from major disasters with the potential for 10 or more deaths and/or 600 or more houses destroyed or seriously damaged in one municipality/local government area) (UNISDR 2009, 2011) (Table 1).

Table 1. Risk spectrum, including extensive and intensive risk

Nature of event	Disasters (e.g. tsunamis, earthquakes, typhoons)	Small disasters (e.g. seasonal flooding, shack fires, localised landslides)	Everyday risks (e.g. disease epidemics, traffic accidents)
Frequency	INFREQUENT (perhaps return periods of 50- 100 years)	FREQUENT (often seasonal)	EVERYDAY
Scale	LARGE or potential to be large: 10+ killed, 100+ seriously injured	3-9 people killed, 10+ injured	1-2 people killed, 1-9 injured
Impact on all premature death and serious injury/ illness	Can be catastrophic for specific places and times, but is low overall	Significant and under- estimated contribution, especially for injuries and loss of property	Main cause of premature death and serious injury
Intensive or extensive	INTENSIVE RISK	EXTENSIVE RISK	

Adapted from: Bull-Kamanga, et al. (2003)

It is becoming increasingly recognised that distinguishing between extensive and intensive risks can have significant limitations if the very large number of urban dwellers who suffer from ill-health, injury and premature death from extensive risks is overlooked (Hardoy et al. 2001; Bull-Kamanga et al. 2003; UNISDR 2009, 2011). This is particularly evident when considering infant and child mortality rates associated with small everyday hazards. In some large cities, there are what could be defined as ‘disasters’ every day, as it is common for more than 10 children to die from infectious diseases or household accidents (Bull-Kamanga, et al. 2003). UNICEF (2012) also notes that many hazards in urban areas (e.g. seasonal rainfall that floods homes, prolonged droughts that erode scarce water supplies, heat waves that turn shacks into ‘ovens’) are too small or slow-moving to meet the criteria for disasters, but ultimately affect many more children and their families.

While disasters disproportionately affect children (Bartlett 2008), and girls in particular (Swarup, et al. 2011), their contribution to ill-health, injury and premature death over time is relatively small (UNISDR 2011). This is why a greater focus needs to be placed on integrating an understanding of disaster risk (and ‘who’ is most vulnerable) with risk from everyday hazards and small disasters, so that the underlying factors can be understood and acted upon (*ibid*; Hardoy, et al. 2001; Bull-Kamanga, et al. 2003).

2.4 Urban children as agents of resilience

Research on children, climate change and disasters has typically focused on vulnerability and protection (Tanner 2010). These two dominant narratives have reinforced the popular belief that children are passive victims, and parents have the sole responsibility and capacity to make decisions and act on their behalf (*ibid*). However, growing evidence shows that children can act as protagonists for action in reducing risk, and catalysts for behavioural change and collective action in communities (Wisner 2006; IDS, 2009, 2012; Mitchel, et al. 2008; Tanner, et al. 2009; Seballos and Tanner, 2011). The research presented later in this report demonstrates the capacity and agency of children when they are provided with adequate support and protection by their parents, particularly when supported by a child-centred NGO. But in other

circumstances, children's participation can be much more tokenistic when parents and adults are unwilling to share their power with younger age groups (Hart 1997).

These power dynamics, combined with the dominant belief that children are passive victims, present key challenges for rights-based approaches to child-centred DRR. Recent experience from implementing the Children's Charter on DRR endorsed by UNISDR further indicates a number of barriers facing children's participation, including parental disapproval, domestic responsibilities, work obligations, being out of school, the exclusion of the disabled, and safety concerns, especially among girls (Bild and Ibrahim 2013). Moreover, most research has tended to focus on rural areas without considering how children's participation might be influenced or conditioned by the complex social and political dynamics inherent in urban communities. As a result, little is known about how children can actively participate in urban areas, or the unique barriers and challenges they may face in this context, highlighting another important research gap.

2.5 Implications for research

The themes outlined above provide a useful framework for identifying research questions that are capable of addressing key focal areas and knowledge gaps surrounding children's risk and agency in urban areas. It is evident that much more attention needs to be paid to developing a better understanding of the differentials in risk between children in cities with significant socio-economic inequalities. This is a particularly important area of enquiry since very little is known about the risks faced by children living in urban poverty beyond what we know about environmental hazards (Satterthwaite, et al. 1996) and the probable health effects that climate change is likely to have on young children (Bartlett 2008).

Yet, little is known about these effects or those from disasters on children in particular situations, especially in the context of urban poverty; about the factors that can contribute to children's resilience in particular situations (*ibid*); about the experiences of children's participation in urban DRR; and about the implications for child-centred NGOs that are now beginning to develop DRR programmes in urban areas.

Four research questions emerge:

1. Which urban children are most at risk and why?
 2. What are the factors that underpin urban children's risk across the spectrum?
 3. How can urban children participate in DRR as agents of change and resilience, and what are barriers and challenges they face in urban areas?
 4. What are the implications of this understanding for the development of child-centred urban DRR programmes?
-

3 Research aims, approach and methods

In response to the issues raised above, this research aims to generate an empirical evidence base on children's risk and agency in urban areas that Plan International can use to inform the development of its Country Strategy Programmes (CSPs) and urban DRR programmes in Asia. Specifically, the focus on developing a better understanding of which children are most at risk and why opens up the opportunity for the research to explain the factors that determine urban children's risk and resilience as a basis for identifying action areas for addressing them. Given that this research targets urban areas, it also seeks to illuminate the challenges for practitioners who are increasingly working in this often unfamiliar context.

Qualitative methods involving focus groups were utilised in order to learn first-hand from children about the risks they face in urban settings. Specifically, the focus groups took place in Dhaka, Kathmandu, Manila and Jakarta during August-September 2013. These cities (profiled in Section 4) were chosen for four main reasons:

1. Plan International offices were present in each city as a practical requirement for coordinating the field work.
2. IIED had established networks of partners in each city with the potential to contribute strongly to the outcomes of the research in collaboration with Plan International's existing knowledge and networks in the area of child-centred development and DRR.
3. Recent reports (e.g. WWF 2009) have identified the target cities as being among the most at risk from disasters and the impacts of climate change in Asia.
4. The focus on large capital cities was intended to complement other research on children's risk in secondary Asian cities that IIED is conducting in partnership with Save the Children. Together, it is envisaged that the findings of this research will be relevant to a broader set of NGOs that are either child-centred or involved in child rights and/or DRR, but lack information on children's risk and resilience in urban areas.

To engage the most vulnerable children across the four cities, three groups were targeted – street children, working children, and squatter and slum children – based on a review of the relevant literature (Satterthwaite, et al. 1996; Bartlett, et al. 1999; Hardoy, et al. 2001), which commonly identifies them as among the poorest and most vulnerable in urban areas. Given that these groups of children are particularly hard to reach, Plan International organised focus group discussions with local NGOs that target them as beneficiaries. Ultimately, a total of 341 children participated in 16 focus groups (four in each city), including 183 girls (53.7%) and 158 boys (46.3%) between the ages of 8 and 20, achieving a relatively even gender balance and broad age distribution.

Complementary in-depth interviews with children were also conducted immediately following the focus groups. Purposive sampling was utilised by the researchers in consultation with staff from each host organisation to select specific children from the focus groups with experiences, stories, identities and backgrounds relevant to emerging themes. Since most focus groups took place at drop-in centres, schools and shelters, many children had existing obligations that prevented their participation. Nonetheless, 12 in-depth interviews were successfully completed, including two in Dhaka, 2 in Kathmandu, 3 in Manila and 5 in Jakarta.

Key informant interviews were also undertaken in each city to engage policymakers from relevant government departments and practitioners from local, national and international CSOs and development agencies, as well as donors. Respondents were selected based on stakeholder mapping reports developed by consultants in each country, resulting in a total of 34 interviews. These reports were also utilised to identify key themes in child-centred and urban DRR programmes across the four countries, which are presented in Section 5.1.

The qualitative data generated by the focus groups, in-depth interviews and key informant interviews in combination with the stakeholder mapping reports were analysed using ‘reflexive iteration’ (Hopwood 2009) whereby the data was continuously (re)visited during the identification and refining of the emerging themes across the four cities. The findings of this analysis are presented in section 5.2 on urban children’s risk and in section 5.3 on urban children’s agency. The following city profiles outline key demographic trends, socio-economic conditions and hazard contexts to provide a backdrop for these findings.

4 City profiles

Two population dynamics are making a focus on urban children increasingly important for DRR and CCA in Asia: The first is the urban transition involving the shift in national population distribution from rural to urban areas; and the second is the ‘youth bulge’ describing the very large proportion of the population that consists of infants, children and adolescents. Urban transition is a consequence of rural to urban migration, and of the relatively higher birth rates of urban areas (caused, in part, by the higher prevalence of people in the reproductively active age group). The youth bulge is evident in the population pyramids displayed below for each city. Both of these dynamics are prevalent in Asia, which is the world’s most rapidly urbanising continent (UNDESA 2013) and also contains more than one-quarter of the world’s children (UNICEF 2010).

Population dynamics have several important implications for policy and programmes (Schensul and Dodman (2013):

- Demographic projections provide a snapshot of the size and composition (including age) of the future population, which can be matched with the timeline of climate impacts to inform DRR and CCA.
- Population issues are closely related to socio-economic development. Age structure, fertility, migration, spatial distribution, household size and composition linked to ethnicity, gender dynamics, formal and informal economic development, access to social safety net and services and other aspects of development are all essential components of resilience to disasters and the impacts of climate change.
- Some population dynamics provide a direct link to DRR and CCA. For example, children are disproportionately at risk from extreme weather events and the impacts of climate change (Bartlett 2008). When the factors that link children (as well as other groups) and their vulnerability are understood, the analysis of population characteristics (e.g. proportion of girls and boys in the population) and dynamics (e.g. urbanisation) can be a powerful tool for DRR and CCA programming.
- Demographic trends and profiles influence overall economic potential and the ability to respond to shocks and stresses: a high ‘dependency ratio’ (wherein a large proportion of the population is young or elderly) can limit productivity; conversely, the ‘demographic dividend’ that results from a bulge in the economically active age group can provide substantial economic benefits.

With these implications for programming in mind, this section profiles urbanisation trends and projections; age and gender structures; key socio-economic development indicators; and disaster trends and future climate projections in Dhaka, Kathmandu, Manila and Jakarta. The profiles show that each city is rapidly growing, albeit at different rates, and that each country is at varying stages of urban transition, with Nepal being the least urbanised in 2010 (16.7% urban), followed by Bangladesh (28%), the Philippines (48.6%) and Indonesia (49.9%) (UNDESA 2013).

Although urbanisation can contribute to poverty reduction, the four target cities show how it can also contribute to higher concentrations of poverty and risk in the absence of effective urban planning and management (see also Satterthwaite 2004; Montgomery 2009). Consequently, the geography of exposure to disaster and climate impacts has expanded rapidly, particularly for the growing numbers of squatter settlements and slums concentrated in hazard-prone areas (as discussed in Section 5.2.3). Thus, urbanisation should only be characterised as a problem when it is unplanned and unmanaged, and especially when the consequences have disproportionate impacts for the poorest and most vulnerable groups.

The profiles further reveal a predominance of infants, children and youth in the age-sex structures of each country. This means that children ought not to be viewed as a special interest group, since they comprise the large majority of the population. Moreover, in rapidly urbanising countries, such as Bangladesh, Nepal, the Philippines and Indonesia, where the level of children in the population is already high (as indicated by the steep triangular shape of each country's age-sex population pyramid, which suggests high fertility rates and low life expectancy), their absolute numbers will continue to grow (UNFPA 2007). This also means that people under the age of 25 will play a big part in urban transition (*ibid*). The future of these and other Asian cities will therefore depend increasingly on what is done to address children's risk, and the broader urban development issues that threaten their health, protection and survival at different ages and stages of their lives.

Figure 1. Children go about their daily routines in a squatter settlement in Parañaque City, Metro Manila



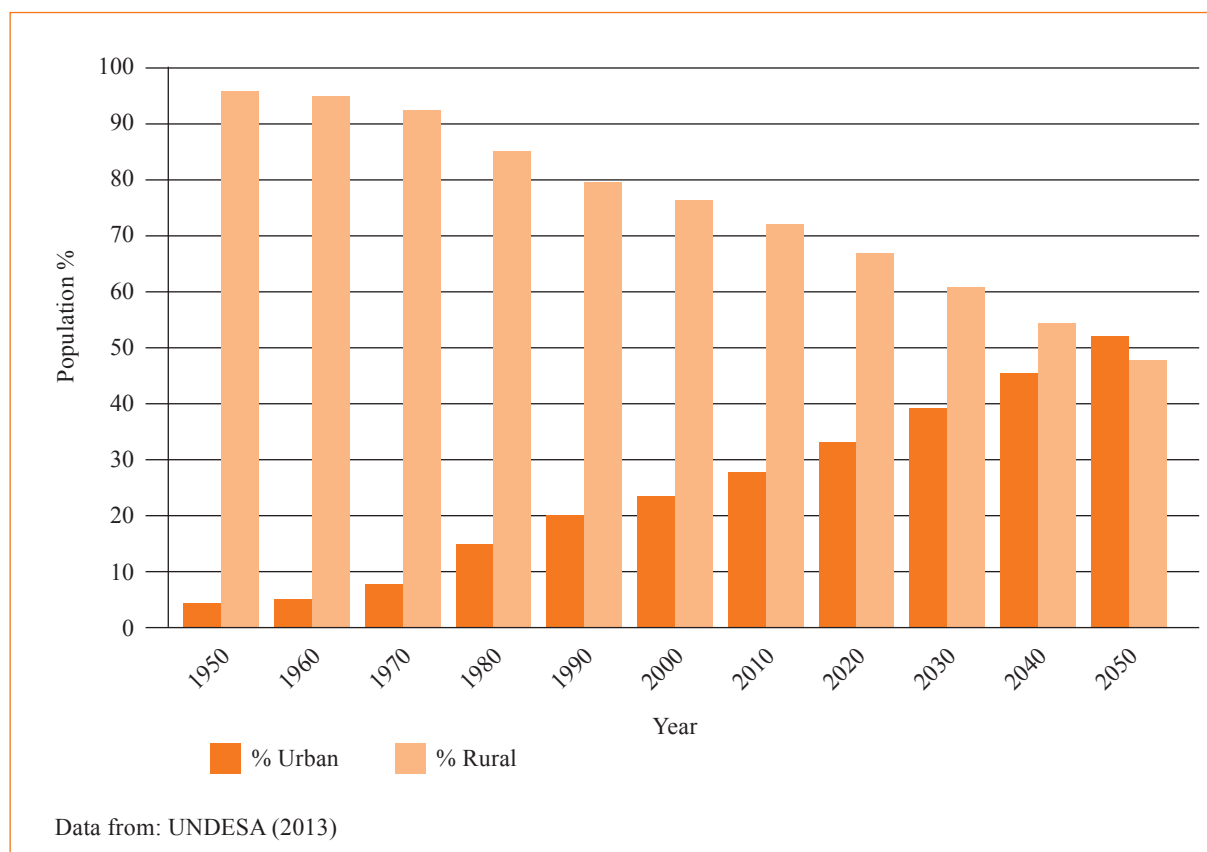
Photo credit: Donald Brown, 2013

4.1 City profile: Dhaka

Bangladesh is in the initial stages of urbanisation and is expected to become predominately urban around 2050. As the capital, Dhaka is the largest and one of the most rapidly growing cities in Bangladesh, with an annual growth rate of around 3%. With a total population of 15.4 million people, it also qualifies as mega-city. The economy has grown strongly (Muzzini and Aparicio 2013a), but poverty and inequality remain extremely high, as the prevalence of slums shows.

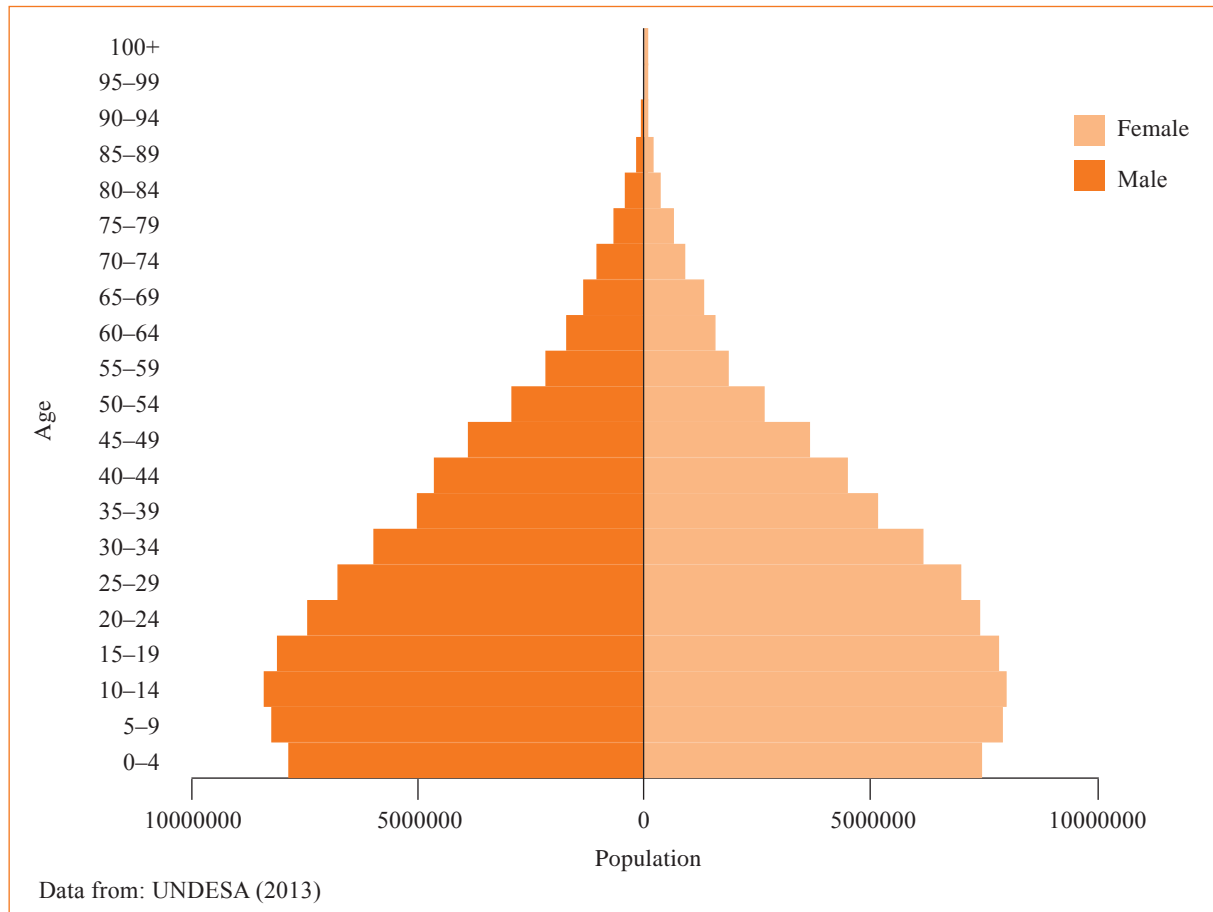
Most of these settlements are concentrated in areas that are highly prone to waterlogging and flood-related disasters, a situation made worse by Dhaka's location in the catchment area for the Brahmaputra, Ganges and Meghna. Large portions of the city are also only several metres above sea level, which means that climate-induced sea level rise and the increasing frequency and intensity of storms will intensify these risks (Alam and Rabbani 2007). However, Dhaka faces a range of other climate and non-climate related hazards, which can quickly become disasters for the large proportion of infants, children and youth in the population. For example, the population of children aged 0–19 was 63,716,341 in 2010, accounting for 42 per cent of the total population (UNDESA 2013).

Figure 2. Bangladesh’s urban transition



National socio-economic snapshot (World Bank 2013)	Demographic trends and projections in Dhaka (UNDESA 2013)	Slum prevalence	Natural hazards	Human-induced hazards
Total population in 2010: 151,125,475 (28% urban)	Population in 2011: 15.4 million	% of population living in slums: c.60%	<i>Slow on-set</i> Sea level rise Temperature increase	<i>Sudden on-set</i> Building collapse Fire Water-logging
GDP growth rate in 2011: 6.7%	Land area: 815.8 km ²		<i>Sudden on-set</i> Earthquake Heat waves Flooding	
Per capita GDP 2008–12: US \$747	Population density per km ² in 2011: 28,071			
Poverty headcount ratio at \$1.25 a day (% of population) in 2010: 43.3%	Urban population growth rate 2010–15: 3.04%			
Gini-coefficient in 2010: 32.1	Estimated urban population by 2025: 22.9 million			

Figure 3. Bangladesh's national population pyramid, 2010



4.2 City profile: Kathmandu

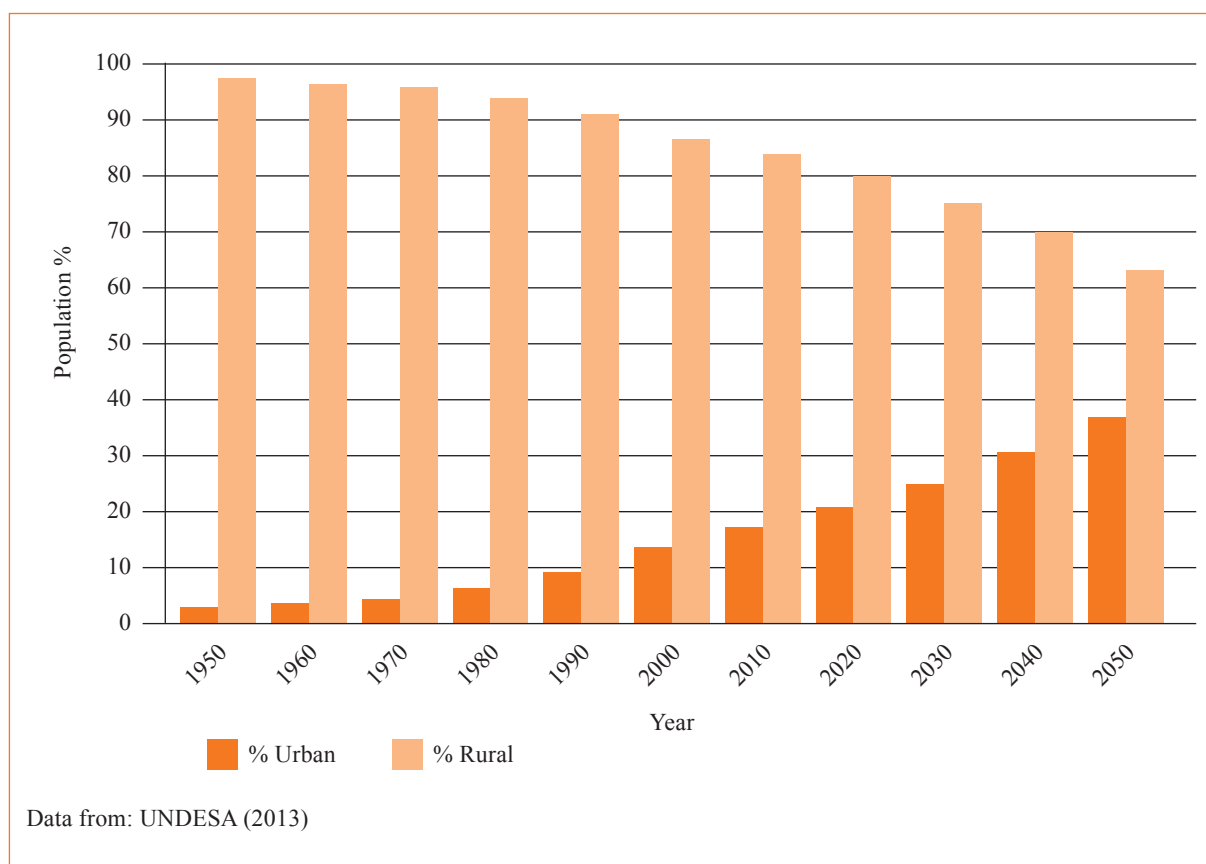
Although Nepal is the least urbanised country in South Asia, it is the most rapidly urbanising. Kathmandu Metropolitan City (referred to here as Kathmandu) is the capital and the largest city in Nepal, with a population of more than 1 million (qualifying it as a 'large' city) and an annual growth rate of about 4%.

The municipalities surrounding Kathmandu are also rapidly growing and expanding, including Kirtipur (growing at 5% per year), Madhyapur Thimi (5.7%) as well as the outlying peri-urban areas (4.8%), which remain classified as rural areas (Muzzini and Apparicio 2013b). Together, these municipalities make the Kathmandu Valley one of the most rapidly growing urban agglomerations in the region.

The inability to plan and manage rapid growth has resulted in inaccessible land-for-housing markets and has significantly increased vulnerability to disasters, particularly to earthquakes. Squatter settlements are also continuing to concentrate on floodplains, which leaves them more at risk from the increasing frequency and intensity of floods and storms (Baker 2012). Epidemic disease, however, claims the most lives in Nepal, with overcrowded urban settlements at particularly high risk from gastro-enteritis, cholera, encephalitis, meningitis, dysentery and diarrhoea, which account for more than 50% of epidemic-related mortality (MoHA 2011).

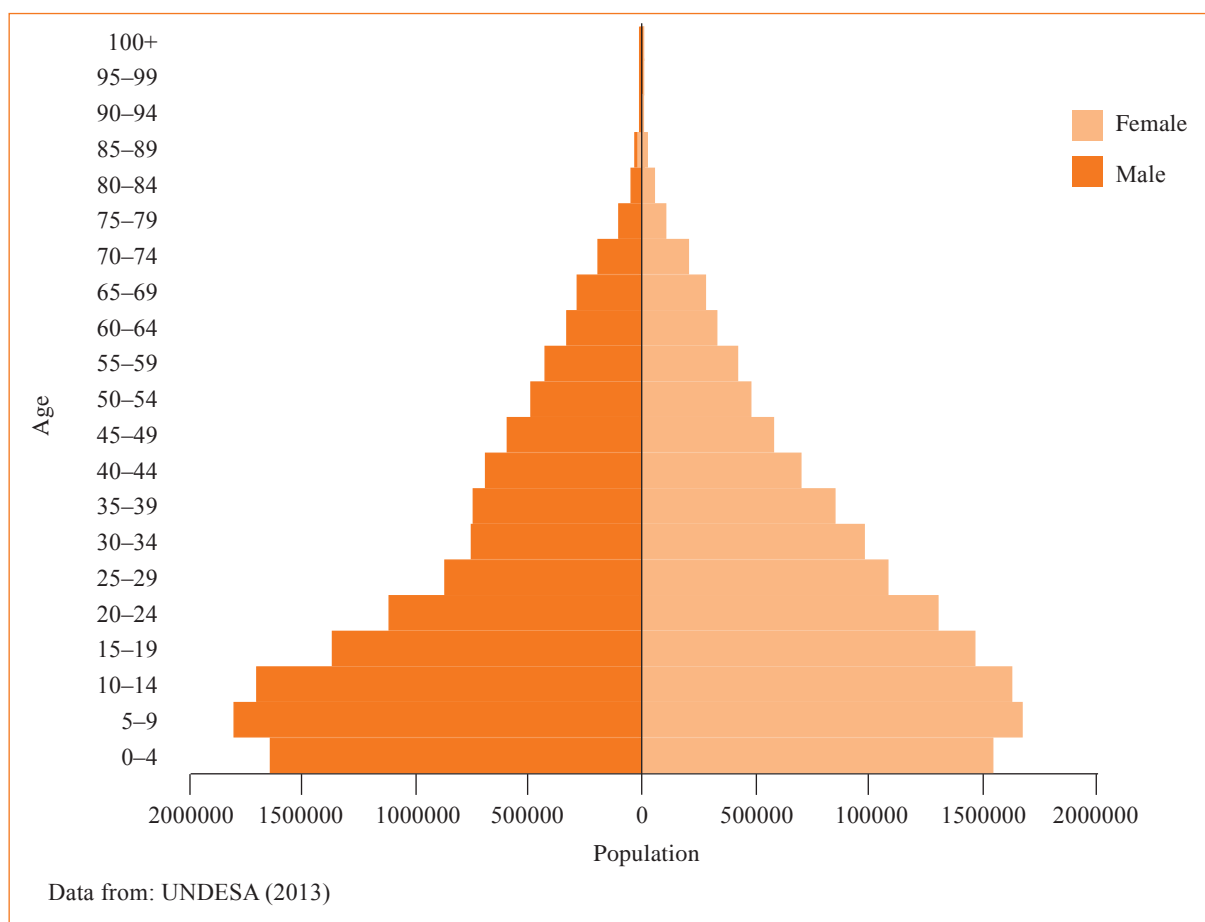
Children are more susceptible to disease, including water and sanitation-related illnesses (Bartlett 2008). They are also less able to avoid physical hazards than adults (*ibid*). The need to address children's risk is of immediate and increasing importance considering that 12,795,561 people in Nepal were aged 19 or younger in 2010, accounting for 48% of the total population (UNDESA 2013).

Figure 4. Nepal’s urban transition



National socio-economic snapshot (World Bank 2013)	Demographic trends and projections in Kathmandu (UNDESA 2013)	Slum prevalence	Natural hazards	Human-induced hazards
<p>Total population in 2010: 26,846,016 (16.7% urban)</p> <p>GDP growth rate in 2011: 3.9%</p> <p>Per capita GDP 2008–12: \$707</p> <p>Poverty headcount ratio at \$1.25 a day (PPP) (% of population) in 2010: 24.8%</p> <p>Gini-coefficient in 2010: 32.8</p>	<p>Population in 2011: 1 million</p> <p>Land area: 50.67 km²</p> <p>Population density per km² in 2011: 19,735</p> <p>Population growth rate 2010–15: 4.1%</p> <p>Estimated urban population by 2025: 1.8 million</p>	<p>% of population living in slums: Unknown because of lack of data, but estimated at c.7% (Lumanti 2005)</p>	<p><i>Slow on-set</i></p> <p>Temperature increase</p> <p><i>Sudden on-set</i></p> <p>Earthquakes</p> <p>Heat waves</p> <p>Cold waves</p> <p>Flooding</p>	<p><i>Sudden on-set</i></p> <p>Building collapse</p> <p>Fire</p>

Figure 5. Nepal's national population pyramid, 2010



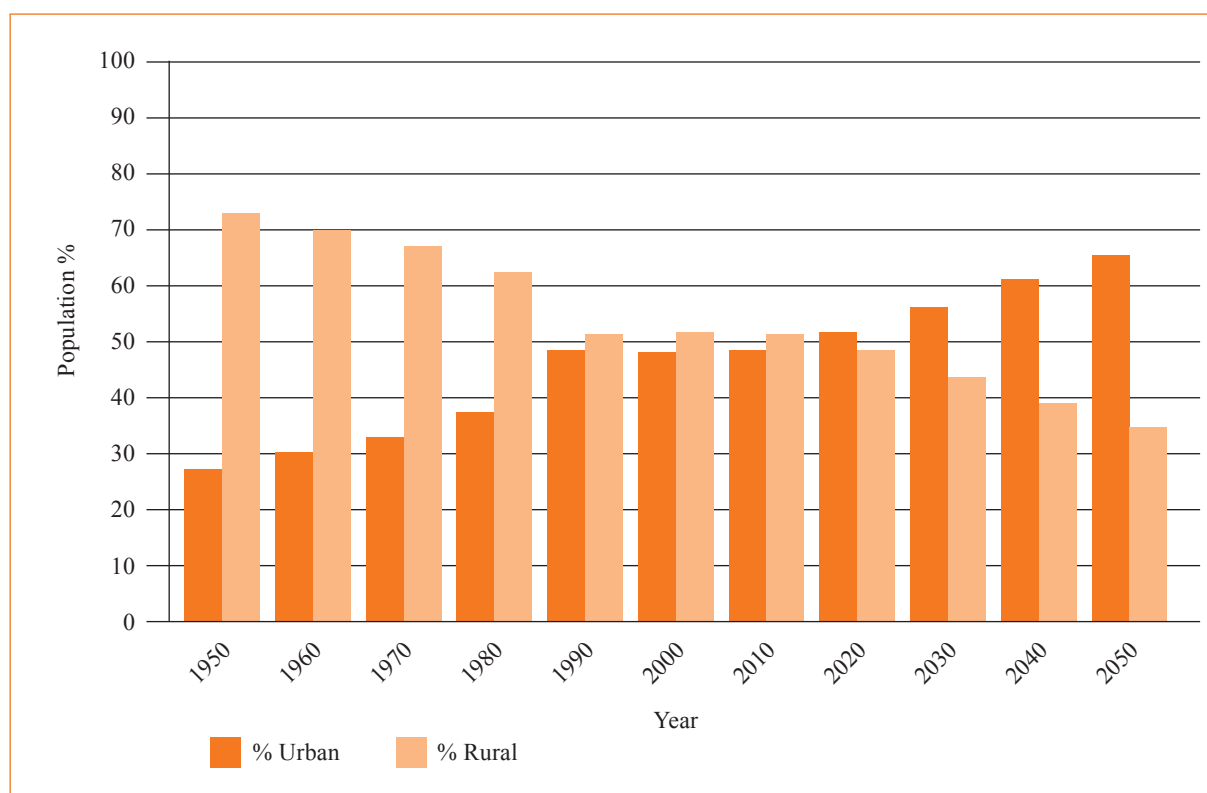
4.3 City profile: Manila

The urban population of the Philippines was 48.6% in 2010 and is expected to reach its rural-urban tipping point around 2015. The capital Manila is the largest city, with a total population of 11.9 million, which qualifies it as a mega-city. Manila encompasses an urban agglomeration (referred to as the National Capital Region or Metro Manila) that spans 4 districts with 5 municipalities and 12 cities.

Despite its size, Manila continues to experience fast-paced growth at just below 2%, which is an increasingly important population dynamic in light of the heightened risk to sea level rise, storm surges and cyclones in low-elevation coastal zones (McGranahan, et al. 2007). Moreover, a recent reclamation project initiated by the national government is showing initial signs of intensifying floods and high-tide invasions (Lagmay, et al. 2010; Rodolfo 2013).

A recent survey also indicates that 30% of 210,000 urban poor households in Metro Manila live in hazard-prone areas, suggesting that the urban poor will be disproportionately affected (Australian Aid 2011). As urban growth continues, increasing numbers of children will be born in these rapidly expanding at risk settlements. As of 2010, the population aged 19 and under was 42,671,826, accounting for 47.5% of the total population (UNDESA 2013).

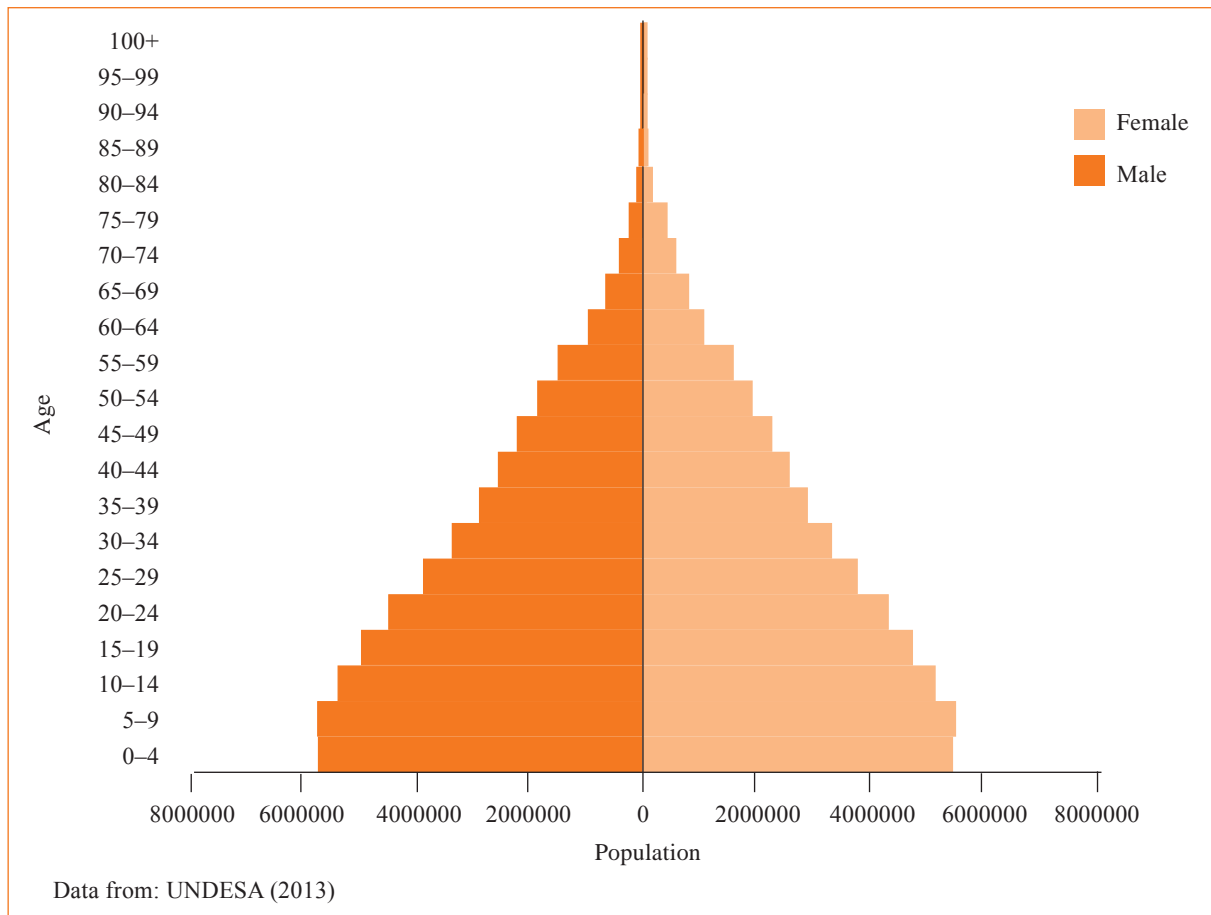
Figure 6. The Philippines’ urban transition



Data from: UNDESA (2013)

National socio-economic snapshot (World Bank 2013)	Demographic trends and projections in Manila (UNDESA 2013)	Slum prevalence	Natural hazards	Human-induced hazards
<p>Total population in 2010: 93,444,322 (48.6% urban)</p> <p>GDP growth rate in 2011: 3.6% GDP per capita 2008–12: \$707</p> <p>Poverty headcount ratio at \$1.25 a day (PPP) (% of population) in 2010: 24.8%</p> <p>Gini-coefficient in 2009: 43</p>	<p>Population in 2011: 11.9 million</p> <p>Land area: 638.6 km²</p> <p>Population density per km² in 2011: 18,635</p> <p>Population growth rate 2010–15: 1.96%</p> <p>Estimated urban population by 2025: 16.2 million</p>	<p>% of population living in slums in 2010: 37%. It is estimated that the slum population in Manila will reach 9 million by 2050 (HUDCC and LGUs 2008).</p>	<p><i>Slow on-set</i></p> <ul style="list-style-type: none"> Sea level rise Temperature increase <p><i>Sudden on-set</i></p> <ul style="list-style-type: none"> Earthquakes Heat waves Flooding Storm surges Cyclones Tsunami 	<p><i>Sudden on-set</i></p> <ul style="list-style-type: none"> Fire

Figure 7. The Philippines' national population pyramid, 2010



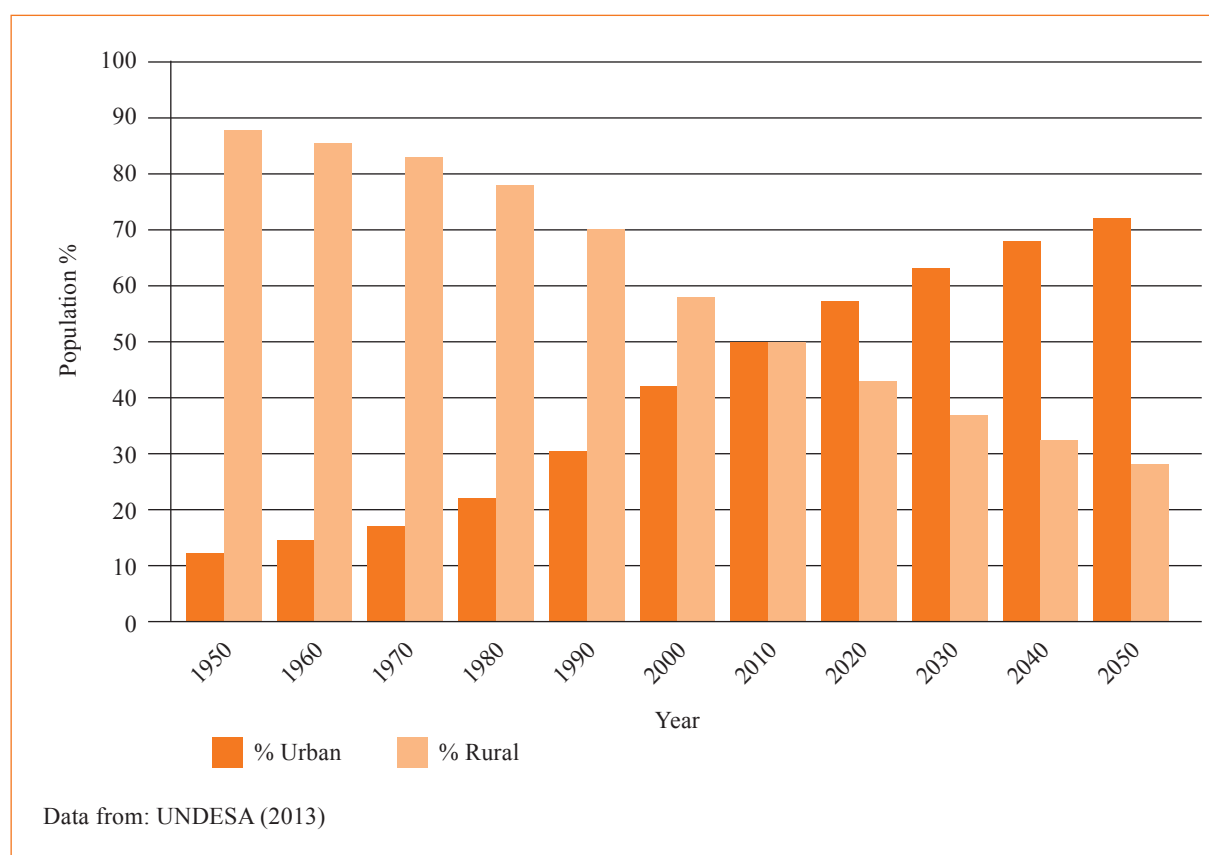
4.4 City profile: Jakarta

The population of Indonesia is nearly 50% urban as the proportion of the population living in rural areas continues to decline. The nexus of urban growth has been concentrated in the capital Jakarta, which is the largest city with a total population of 9.7 million in 2011. It is considered to be the second largest mega-city in Southeast Asia, following Manila.

As in Dhaka, however, sustained growth in Jakarta's population and economy has exerted significant strain on the city's infrastructure base. Urban disparities between rich and poor have also continued to grow. This is reflected in the prevalence of low-income informal settlements and their concentration in low-elevation coastal zones and floodplains (World Bank 2011), particularly along the banks of the Ciliwung river, which is highly prone to seasonal flooding and contains one of the highest concentrations of the urban poor (Surbakti, et al. 2010).

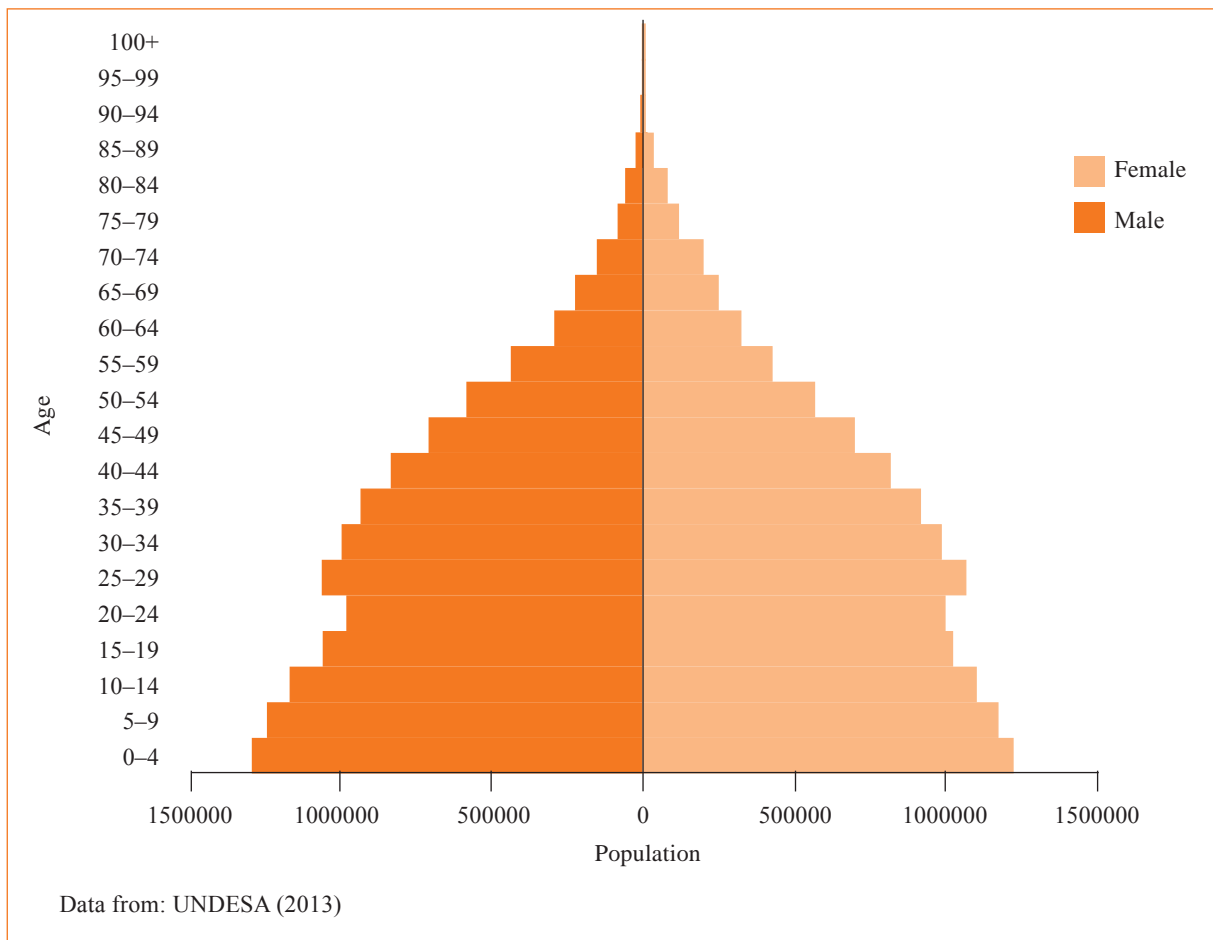
About 40% of the city is below sea level, which renders it particularly vulnerable to sea level rise, storm surges and flooding. As a result, flood-related hazards often affect the city, causing disruptions to traffic, damage to homes and threats to health and survival, particularly among the urban poor (Baker 2012). Like the other target cities, children in Jakarta are at disproportionate risk, especially given their large numbers. As of 2010, the population aged 19 and under was 92,571,958, accounting for 38.5% of the total population (UNDESA 2013).

Figure 8. Indonesia’s urban transition



National socio-economic snapshot (World Bank 2013)	Demographic trends and projections in Jakarta (UNDESA 2013)	Slum prevalence	Natural hazards	Human-induced hazards
Total population in 2010: 240,676,485 (49.9% urban) GDP growth rate in 2011: 6.5% Per capita GDP 2008–12: \$ 3,557 Poverty headcount ratio at \$1.25 a day (PPP) (% of population) in 2010: 18.1% Gini-coefficient in 2010: 35.6	Population in 2011: 9.7 million Land area: 740.3 km ² Population density per km ² in 2011: 131,028 Urban population growth rate 2010–2015: 1.67% Estimated urban population by 2025: 12.8 million	% of population living in slums: official estimates are widely recognised to under-represent slum prevalence (World Bank 2011). Some suggest that the level of the population living in slums is likely to be c.25%	<i>Slow on-set</i> Sea level rise Temperature increase <i>Sudden on-set</i> Earthquake Heat wave Flooding Storm surge Cyclones Tsunami	<i>Sudden on-set</i> Fire

Figure 9. Indonesia's national population pyramid, 2010



5 Findings

This section presents the findings from the field work, beginning with an examination of a number of key emerging themes in child-centred and urban DRR across the four target cities. The findings from the focus groups with street children, working children, and squatter and slum children are also presented, followed by an examination of how children contribute to urban DRR as agents of change and resilience. Key conclusions arising from the findings are identified in section 6.0 alongside corresponding priority action areas for developing child-centred urban DRR programmes.

5.1 Key trends in child-centred urban DRR

Consultants in each of the four cities prepared stakeholder mapping reports to assess programming trends among CSOs and humanitarian agencies involved in child rights and DRR activities. The reports indicated a number of difficulties in identifying the focal areas of many CSOs due to a lack of publicly available information regarding strategies, affiliations, size, target populations, financial resources and capacities, and relations with government. This is an important finding in itself because it indicates the fragmented nature of the NGO sector, and the challenges this brings for coordinating actors that are often difficult to identify and assess in urban areas. Although it was not possible to determine the focal areas of all organisations in each country, a total of 54 were mapped, which included many of the largest international organisations, in addition to a variety of smaller and more local CSOs (see Appendix 1).

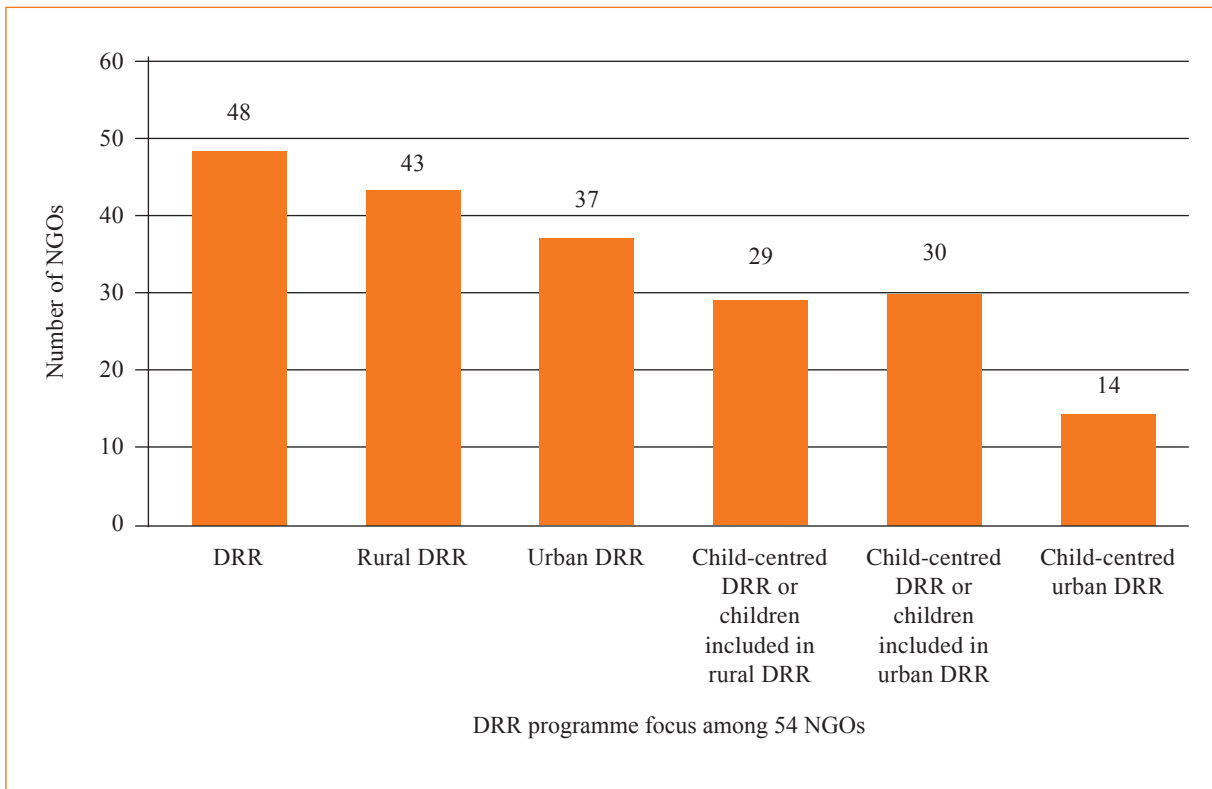
This section presents four main programming trends that emerge from the mapping reports and identifies a number of emerging challenges faced by DRR practitioners working across the four cities. It also draws on the literature on humanitarian planning, preparedness and response to relate these themes and challenges to the experiences of practitioners and their organisations elsewhere.

In summary, these trends are:

- A growing number of NGOs are initiating DRR programmes in urban areas – though this is largely new territory for humanitarian practitioners who are largely accustomed to working in rural areas.
- A focus on preparedness, response and recovery rather than a more holistic approach to DRR.
- A limited focus on DRR by child-centred NGOs.
- A predominance of school-based disaster safety management programmes.

A growing number of NGOs have initiated DRR programmes in urban areas (Figure 2), but this is relatively new territory for humanitarian practitioners who are largely accustomed to working in rural areas. This shift has been strongly motivated by recent natural disasters (e.g. the earthquake in eastern Nepal in 2011; Typhoon Ketsana in Metro Manila in 2009; and flooding in Jakarta in 2011 and 2013); human-induced disasters (e.g. the collapse of Rana Plaza in Savar, Dhaka in 2013); recurrent flooding during the monsoon season (including water inundation, which is a growing problem in all cities, but especially in Dhaka); the impending threat of potentially devastating earthquakes; and the converging impacts of climate change and unplanned urbanisation, as profiled above.

Figure 10. Trends in child-centred urban DRR programmes in Bangladesh, Nepal, the Philippines and Indonesia



However, key informant interviews with practitioners from child- and non-child-centred NGOs reported a number of challenges of working in urban areas (Box 1). Specifically, growing socio-spatial fragmentation between high-rise residential complexes amid low-rise slums was identified as a major barrier for social cohesion and community development, particularly in Dhaka. The inequalities and disparities that are coming to define life in cities are a clear source of concern for NGOs as they struggle to find entry points to engage with the poorest and most vulnerable groups in urban society, which are often the most invisible and hard to reach.

“A lot of agencies are confronted with a lack of understanding or experience to deal with unforeseen risks and challenges in urban areas” Beckyjay Harrington, IFRC Nepal

Underlying this concern is a growing recognition that urban contexts are different from rural contexts, particularly regarding the spatial concentration of people in relation to the multiple hazards they face (e.g. the range of infectious and parasitic diseases that can spread rapidly in dense settlements, and the proximity of water sources to noxious land uses, which can contribute to the spread of water-borne illnesses) (Satterthwaite, et al. 2007). There are also complex links between hazard exposure and the multiple deprivations of urban poverty, particularly regarding the absence of basic infrastructure and services (*ibid*).

These deficits can greatly intensify the vulnerability of children to environmental hazards (Satterthwaite, et al. 1996), including many of the direct and indirect impacts of climate change (Bartlett 2008). Although NGOs, donors and government agencies increasingly recognise the need to engage with these development issues, a lack of information and confusion over how to effectively target beneficiaries and identify appropriate entry points in urban areas continues to hamper their ability to respond.

Box 1 Common challenges of working in urban areas for humanitarian actors

A growing body of literature is emerging to document the challenges of working in urban areas for humanitarian actors. Some of these challenges include:

- Engaging with the wide range of urban actors and daunting governance structures that must be understood and then supported (Zetter and Deikun 2010). “The scale of urban disasters makes the need for effective partnerships vital,” (Sanderson, et al. 2012).
- Understanding and responding to vulnerable urban populations: “Marginalised and vulnerable people may be excluded from targeting or the receipt of goods and services by a desire to remain invisible to the authorities and/or by lack of identification document,” (Sanderson, et al. 2012, p.9).
- Housing, land and property rights bring a number of challenges, such as considering renters and squatters in urban areas (restoring lease agreements, supporting repair and reconstruction of rental housing, strengthening tenure rights of informal land holders, etc.).
- Having people with the right expertise for urban areas, for example urban planners with expertise in negotiation and diplomacy (Sanderson, et al. 2012) and with the experience of engaging marginalised groups in development processes.
- Supporting local existing markets for goods and services, and especially not undermining the local markets by providing humanitarian aid outside of the market system.
- Responding to urban-based complex emergencies. “In particular, the links between conflict – or violence-induced displacement – and acute vulnerability have been poorly addressed” (Pantuliano, et al. 2012, p.52).
- Confusion over the legal context of humanitarian interventions and implications for urban areas (IFRC Disasters Law Programme).

Abridged from Dodman, et al. (2013, p.43)

Although a growing number of NGOs are initiating urban DRR programmes, these remain largely confined to preparedness, response and recovery. Much less emphasis is placed on linking DRR with long-term actions that address the root causes of risk. This is reflected in the persistent division between humanitarian action, and development policy and programming. According to Hardoy and Ruete (2013), this is because actions that engage with urban development issues tend to be highly complex and politically charged, with long-term timeframes that often extend beyond those of conventional programmes. In contrast, DRR measures that involve early warning, preparedness and response tend to be more easily separated from these messy complexities and typically yield more immediate results within shorter timeframes (*ibid*).

Yet, it is becoming increasingly recognised that a chronic lack of investment in development is a principal driver of urban vulnerability (Mitlin and Satterthwaite 2013). In many cities, these drivers are closely related to the widespread lack of provision for basic infrastructure and services, and the local capacity required to address these (often referred to as the ‘adaptation deficit’ in the climate change literature) (Satterthwaite, et al. 2007; UN-Habitat 2011). This literature identifies three main drivers that require much more attention: “the drivers of urbanization and other aspects of urban change; the weaknesses and incapacities of governments; and the development and expansion of cities in high-risk areas,” (Satterthwaite, et al. 2007, p.15). Similar concerns have been expressed in the literature on the vulnerability of urban children, which has emphasised the need for a greater focus on the development of protective infrastructure as an important aspect of disaster prevention, alongside better disaster preparedness plans and capacity building for disaster response and long-term rebuilding (Bartlett 2008).

Few child-centred NGOs have urban DRR components (Figure 2). Those that do tend to have limited coverage, indicating a significant programming gap. As the number of these programmes continues to grow, so too will the potential for fragmentation, overlap and duplication without adequate coordination at the city-wide scale. Although a number of platforms have emerged to coordinate the activities of NGOs in specific sectors, some child-centred practitioners in Dhaka suggest that there are already too many consortia that address urban DRR, which is contributing to a culture of competition rather than cooperation in some cases.

What is clear is that governments must take a stronger role in coordinating the activities of NGOs, which has long been recognised by disaster-management authorities in rural areas (Behera 2002). But the institutional basis required for effective coordination in urban areas varies substantially. For example, Kathmandu and Dhaka exhibit significant institutional capacity deficits at the municipal level; Manila has some of the strongest local governments in Southeast Asia; and Jakarta has a centralised city government with provincial powers and considerable autonomy. Despite their differences, each city suffers from a chronic lack of resources to address the growing problem of slums, and the vulnerability of their inhabitants to disasters and climate impacts. (World Bank 2011). Clearly, capacity building and urban governance at the local government level remain significant challenges for coordination and scaling-up.

School-based disaster safety management programmes dominate child-centred urban DRR initiatives, but these tend to favour non-structural (i.e. ‘software’) activities because of the high costs of building retrofits. Such programmes widely favour software activities on preparedness that involve school awareness, training and education. This is in contrast to many risk reduction projects – that donor agencies and development banks frequently prioritise – that use ‘hard’ infrastructure to reduce exposure to particular hazards.

However, child-centred NGOs across the four target cities cited structural solutions as prohibitively expensive. Where these solutions are feasible, they usually draw on external finances. This is due in large part to the inability of child-centred NGOs – Plan International included – to use child-sponsorship proceeds for structural projects. The on-going challenge is to find the most effective way of meeting the socio-behavioural and technical-infrastructure demands of reducing risk in children’s school environments, but also in their communities and workplaces.

5.2 Risks faced by children in Dhaka, Kathmandu, Manila and Jakarta

Children from the focus groups across the four cities reported exposure to a wide range of environmental hazards (e.g. food and water-borne illnesses, epidemic disease, traffic accidents, burns, fire, building collapse) and natural hazards (e.g. earthquake, cyclone, tsunami, flood, heat waves). Most children’s daily experience appears to strongly shape their perceptions of risk, which tend to revolve around the everyday small hazards (i.e. ‘extensive’ risks) mentioned above.

Although these hazards may pose more immediate threats to children, they do not diminish the relative importance of disaster hazards (i.e. ‘intensive’ risks). Studies indicate that disaster-related mortality rates in developing countries are higher among children than adults (Bartlett 2008), with young girls and women facing disproportionate risk to extreme weather (Swarup, et al. 2011). The fact that most children did not identify disasters is likely due to their relatively short memories in recalling past events, which often occur relatively infrequently. In addition, since many of the children who participated in the focus groups had not received any disaster-awareness education or preparedness training, external information may not have influenced their perceptions of risk. However, this does not mean it is not important to focus on risk arising from these kinds of events. Rather, the challenge is to integrate appropriate ‘technical’ knowledge; to share this in a non-threatening way with girls and boys; and to use this as a basis for devising risk-reduction solutions that meet their everyday needs, and that anticipate what they may need in the event of a particular disaster.

Children who recalled particular disaster experiences were those living in squatter settlements and slums, particularly in floodplains and in low-elevation coastal zones, which is common across the four target cities, as the city profiles demonstrate. This observation underscores the relevance of the questions put forth by Hardoy and Pandiella (2009) (presented in Section 2.1) that emphasise the links between geography, the built environment, poverty and the

characteristics that create and reinforce vulnerability among people. It also indicates that some children are more exposed to disaster and climate-related hazards than others, depending on where they can afford to live, which reflects the role of poverty and exclusion as key determinants of risk.

This section presents the findings of the focus groups with street children, working children, and squatter and slum children. Although these categories are not mutually exclusive, they are used here as a means of identifying the locations where children face particular risks rather than as a means of categorising them into discrete groups. The findings reveal that the risks children face are much higher in the context of urban poverty, and how access to basic infrastructure and services is a key determinant of child health and disaster and climate resilience in urban settings.

5.2.1 Street children at risk

Street children in Asian cities have become a sight so common they now go largely unnoticed. They are the beggars, peddlers, waste pickers, scavengers and musical performers that animate street corners, traffic jams, medians, public buses and marketplaces. Estimates suggest that tens of millions of street children live in cities, and that their numbers are continuing to grow with urbanisation (UNICEF 2012). Yet, paradoxically, street children remain among the most ‘out of focus’ and ‘invisible’ groups in urban society. They are frequently excluded from census enumerations, including those of the four target cities, so their numbers and social composition are largely unknown (Box 2). Street children also commonly lack legal identity, which further pushes them to the margins of society and beneath the radar of political representatives and policymakers (Bartlett, et al. 1999). Consequently, government responses to the risks that they face are often limited, leaving NGOs to fill the gap (West 2003).

This section presents the findings that emerged from the focus groups with street children, and provides initial insight into the vulnerability and susceptibility of this particularly at risk group. Key findings include the significance of everyday hazards as a predominant concern; the presence of a parent or adult carer as an important determinant of a child’s coping capacity; the influence of malnutrition in increasing susceptibility to risk; and the role of marginalisation in excluding street children from accessing government programmes and services that can enhance their protection and reduce their exposure to risk.

Box 2 Who are street children?

The problem of definition: A commonly accepted definition of ‘street children’ remains elusive and the subject of debate. Yet, the question of how street children are defined has important implications for determining their population accurately, eligibility for service provision and legal status (West 2003). The general public and their perceptions of street children (e.g. as victims or criminals) also commonly shape definitions, which can significantly influence how governments respond (e.g. rehabilitation versus incarceration) (*ibid*).

Their many categories: Further complicating the problem of definition are the many categories of street children. For example, UNICEF has suggested three general categories (Hardoy, et al. 2001, p.165). The first are ‘children *on* the street’, which is the largest category and includes children who work on the streets, but have strong family connections, may attend school and, in most cases, return home at the end of the day.

The second are ‘children *of* the street’ who view the street as their home and as the place where they seek shelter, food and a sense of community. Ties to their families may exist, at least remotely, and they may occasionally visit them. The third are ‘abandoned children’ who are difficult to distinguish from other street children because their activities are similar, but they have no family ties. A fourth category could be added to include ‘children who have run away from home’ to escape domestic abuse and violence, among other push factors.

A diverse group: What is clear is that street children are a diverse group. They include children who have ended up on the streets because of domestic violence, parental landlessness, family homelessness, rural-urban migration, disasters, civil unrest, drug abuse (increasingly common in industrialising countries), child trafficking and family disintegration, which has become increasingly prevalent because of HIV/AIDS (ADB 2003; West 2003).

During the field work, the role of NGOs was particularly evident in Dhaka and Jakarta, where the majority of focus groups with street children were held at drop-in centres and shelters. The focus groups revealed the wide range of risks that street children face, and in some cases the remarkable responsibilities that parentless children have in caring for their siblings in particularly difficult circumstances. However, few street children in either city had experiences with ‘large’ natural or human-induced disasters. Instead, street children identified ‘everyday’ hazards, such as police brutality, violence, rape and traffic accidents as posing the most immediate and significant threats to their health, protection and survival. For example, when street children in Jakarta were asked to define DRR, their answers described ways of avoiding the everyday hazards mentioned above; “I try not to get caught by police while I perform my music and I try to act politely to people so they don’t do anything to me,” one 16-year-old boy remarked. Subsequent clarification of the question yielded similar answers.

The majority of children in the focus groups were ‘children of the street’ who either lived on the street or had recently been taken in by a drop-in centre or shelter on a semi-permanent basis. When living on the street, many had no adult to turn to when they were sick or injured or during heavy rainfall events, as illustrated below by the experience of Chandi (Box 3). The inability of orphaned children to access health care was a serious concern among this group.

Those living on the street with either one or both parents also reported difficulties in accessing health care, but this depended largely on whether money was available for treatment. This difference in care suggests that the extent of relationships between street children and their parent(s) or other adult carer(s) plays an important role in influencing their capacity to cope with everyday health hazards, including weather-related illnesses (Satterthwaite, et al. 1996). Yet, little research has focused on the role of the family in enhancing children’s resilience through proactive measures, which include preventing them from having to live and work on the streets as one of the most important and effective responses (Bartlett, et al. 1999).

Box 3 Risks parentless street children face in Dhaka

The experience of Chandi, 12-year-old-girl

Among the 20 street children who participated in a focus group in Dhaka South, three lived on the street without either parent, including Chandi who lived with her 8-year-old brother. Both were abandoned when their father entered into a new marriage, as is common in polygamous societies.

As Chandi and her brother soon found out, however, polygamy among the poorest households can result in the abandonment of children from previous marriages when the cost of supporting two families becomes unaffordable. Consequently, Chandi had no other choice but to take refuge on the streets, where she lived for 10 years.

Chandi faced extraordinary difficulties in raising and caring for her brother: “When I was living on the streets, I could not provide for my brother properly. It was such a difficult experience.” Going without food, clean clothing and shelter was a daily reality, made worse during the monsoon season; when attempting to stay dry under awnings, police would chase them into the streets. With nowhere to go, they would be forced to take refuge under a small umbrella in a nearby park where they were exposed to other hazards, including physical and sexual abuse. The experience of Chandi and her brother illustrate how ‘children of the street’ often have no adult to turn to when they get sick or injured, or during shocks and stresses, which can significantly limit their coping capacity without access to healthcare and emergency response services.

(In-depth interview, 7 September 2013)

The focus groups also revealed the extent to which susceptibility to illness linked to malnutrition can intensify risk among street children, particularly among disabled girls (Box 4). For example, street children in Jakarta cited malnutrition linked to inadequate income as a contributing factor to illness all year round, but particularly during temperature extremes and the monsoon season when they catch cold and their clothes get wet. The children reported spending on average 10,000–

20,000 rupiah (approximately \$1–\$2) per day for three meals, but estimated the cost of eating three nutritious meals to be 33,000 rupiah (approximately \$3.30) per day. This estimate is well above the conventional dollar-a-day poverty line, suggesting a significant gap between the food they need and what they can afford. This reflects broader assessments that income-based poverty lines are inadequate for understanding poverty and deprivation in urban areas (Mitlin and Satterthwaite 2013).

The existing literature suggests that malnutrition may have particularly adverse effects for street children, considering that children who are raised in dirty environments may allocate more calories towards supporting their compromised immune systems (Solomon, et al. 1993). This is likely to be the case for street children in Dhaka who identified their “dirty living environments” as the primary cause of diarrhoea – one of the leading causes of premature death among infants and children in low-and-middle income countries, but also among the most preventable (Mitlin and Satterthwaite 2013; UNICEF and WHO 2013).

Scabies (a contagious skin infection) was also identified by children in Dhaka as a recurrent illness caused by exposure to inundated flood water, which can reach up to one foot in some parts of the city when it rains heavily for just two or three hours. Susceptibility to other opportunistic infections is much higher in malnourished children, which can perpetuate a vicious cycle with long-term effects for health and development (Bartlett 2008). Food insecurity during and after disasters intensifies all of the health risks associated with malnutrition among children, and leaves them more susceptible to its effects (*ibid*).

Box 4 The triple jeopardy brought by age, gender and disability among street children

The experience of Indah, now a 20-year-old woman, East Jakarta

Disability is strongly correlated with poverty, and the majority of disabled people live in low- and middle-income countries (Peek and Stough 2010). The proportion of children with disabilities in these countries is likely to be much higher, and it is estimated that more than 200 million children worldwide are disabled in some way (UNICEF 2007).

Conservative estimates also suggest that more than 7 million disaster-affected children are disabled (*ibid*) and that millions more may acquire disabilities as a result of the increasing frequency and intensity of disasters (WHO 2005). Although research on social vulnerability and disasters often lists children and individuals with disabilities as among the most vulnerable, this has resulted in two parallel bodies of research (Peek and Stough 2010). Consequently, few studies have examined the disaster risks faced by disabled children, and even fewer have a gender-based perspective.

The experience of Indah provides insight into the triple jeopardy brought by age, gender and disability among street children with visual impairments. Before a school for disabled children in East Jakarta took in Indah, who is blind, her father forced her to beg for money and food on the street. Despite this role, her father would often feed her rice with salt, while her siblings would eat more nutritious foods, including meat when it was available. Indah would often go hungry, forcing her to scavenge for food in a nearby garbage dump.

This experience shows how nutrition among disabled girls living in extreme poverty can suffer when food is biased towards able-bodied siblings. This is not uncommon for girls who typically eat last or less (particularly during food shortages) because of their lower status in the family (Neumayer and Plümper 2007).

Moreover, the impacts of climate change are already showing signs of intensifying existing inequalities related to age, sex and gender by increasing resource scarcity among climate affected families (Swarup et al. 2011). If Indah is any indication, girls – and especially those with disabilities – will continue to be disproportionately affected by malnutrition as a significant factor limiting their resilience.

(In-depth interview, 26 September 2013)

Marginalisation is an important factor in shaping the impact of hazards on street children, because it excludes them from government programmes and services that can contribute to their protection and risk reduction. In Jakarta, participants of a focus group from a shelter for street children in trouble with the law identified police brutality among the three most significant threats to their health and safety, along with physical abuse by other adults and vehicular accidents. Of the 11 participants, 5 were singing beggars, 2 carried sacks of rice in the market, 1 sold cakes and 1 worked as a parking attendant.

“We need to earn money for education and our lives. We don’t know why we are harassed, since we are well meaning, and we are not criminals.” Boy, aged 17, East Jakarta

These children – whose occupations are far from criminal – perceive their treatment by police as a form of injustice, as the quote above illustrates. Interviews with staff from the DIC run by Concern International in Dhaka South suggested that police harassment and violence stem from the commonly held stereotype that all street children are criminals. Research in Indonesian cities supports this view (Beazley 2003), and notes how street children are often “presented (by the state and media) in a derogatory and negative light as work-shy, drug-crazed, anti-social delinquents pressed by adults into crime,” (p.182). This stereotype is important to consider because it orients the state towards punitive policy responses rather than child protection and (disaster) risk reduction. Consequently, the underlying drivers of vulnerability linked to social marginalisation and state oppression remain intact. Moreover, the potential to link child-centred DRR with social protection through, for example, social service provision, social transfers, public works programmes and the promotion of child rights (see Davies, et al. 2009 for more examples) is limited.

Once again, NGOs are left to fill the gap, despite the important role that governments must also play in coordinating efforts, particularly at the local level (Bartlett, et al. 1999). Reducing risk for street children therefore means taking their underlying circumstances into account to enhance their ability to deal with a range of shocks and stresses, as well as identifying and preparing for particular hazards.

5.2.2 Working children at risk

Children play important roles in the livelihoods of low-income households, often contributing as wage labourers and as domestic workers. In both cases, gender relations strongly shape the extent and nature of children’s work, the occupational hazards to which they are exposed and their ability to attend school (Satterthwaite, et al. 1996). While girls tend to work as domestic servants in most Asian countries (UNICEF 2012), the situation is inverted in Nepal where child domestic workers are often boys. Nonetheless, girls across Asia (as elsewhere in the developing world) are commonly burdened with additional domestic work, which leaves them with less time for play, study and school than boys. Altogether, it is estimated that 215 million boys and girls between the ages of 5 and 17 were involved in child labour in 2008, with 115 million of them engaged in hazardous work (*ibid*).

This section presents the findings of focus groups with child factory workers in Dhaka and Kathmandu, and with scavengers and waste pickers in Manila. The physical and environmental hazards that these children are exposed to are examined, followed by the links between child labour and poverty, and the implications for the gendered division of household labour in limiting girls’ ability to attend school. Regardless of their work, all qualify as child labourers, which according to the International Labour Organization (ILO 2013), entails work that:

- is mentally, physically, socially or morally dangerous and harmful to children; and
- interferes with their schooling by:
 - depriving them of the opportunity to attend school;
 - obliging them to leave school prematurely; or
 - requiring them to attempt to combine school attendance with excessively long and heavy work.

For children working in industry, most came from garment factories in Dhaka and from brick and carpet factories in Kathmandu. These children widely identified their work environments as among the most unsafe places, primarily because

of the threat of building collapse. Most factories are constructed from temporary building materials, as described by a 12-year-old boy in Kathmandu: “The brick factory I work in is made in a very temporary way – the mortar that binds the bricks is made from mud and the roof is made from tin. I fear that the building will collapse in heavy rain or during an earthquake”. Child-centred practitioners in Dhaka were also concerned that the rapid growth of the garment industry would increase the number of hazardous employment opportunities for child labourers, particularly in light of the collapse of Rana Plaza (Box 5).

Box 5 Building collapse and the risks faced by child labourers in Dhaka

The textile and clothing industry in Bangladesh contributes 85.3% of its manufacturing exports and accounts for 75 % of its total employment (Keane and te Velde 2008). Although economic growth is often promoted as a solution to poverty reduction and child labour (Dagdemir and Acaroglu 2010), industrialisation can also intensify risks for workers in the absence of trade unions, sufficient government regulation and corporate social responsibility. The scale of these risks was starkly revealed following the collapse of Rana Plaza – an eight-storey garment factory – on 24 April 2013. Official estimates suggest that more than 1000 people were killed and another 2500 injured, making it the deadliest garment factory incident in history.

Child labourers throughout Dhaka often work in similar multi-storey buildings that do not conform to building codes and standards. Regulations are in place to prevent such disasters such as Rana Plaza from occurring, but are rarely followed by architects, engineers and contractors or enforced by government agencies. These easily preventable accidents ought to be seen as a failure of local governments and their inability to effectively implement urban planning policies and enforce development controls. These mechanisms are of fundamental importance for reducing a wide range of disaster- and climate-related risks in cities and have therefore become a fundamental aspect of fostering urban resilience. In the absence of effective local governments, however, cities can become the most dangerous places to live and work – particularly for children who live in low-income informal settlements and work in illegally constructed factories.

The potential for building collapse intensifies other risks involving earthquakes, fire and the increasing frequency and intensity of extreme weather events, including heavy rainfall, storms and strong winds. One boy in the Lalitpur District of Kathmandu described how a cyclone nearly blew the roof off his factory, forcing him and the other child labourers to flee for safety. However, none of the children in either city had received disaster preparedness training at work, even though many work 7–10 hours a day, seven days a week.

Environmental hazards were also identified as a significant cause of injury in the workplace. These included cuts and bruises from handling sharp equipment and operating machinery with moving parts. One boy working in a carpet factory missed six days of school when he was accidentally hit in the leg with a rod. Other children experienced similar accidents that caused them to miss school on several occasions. However, high temperatures and indoor air pollution in the absence of ventilation were common problems for all children. These problems are expected to worsen with climate change, as gradual increases in temperature and more frequent and intense heat waves intensify existing health risks for children engaged in strenuous work (Bartlett 2008).

The focus groups with waste pickers and scavengers in Manila also indicated the various environmental hazards that children face on the street, ranging from the constant risk of being hit by traffic, especially when hanging precariously from the back of garbage trucks to needle sticks and cuts when scavenging through garbage and dumpsters (particularly outside fast food restaurants) for recyclables and other items of potential value without protective gloves or proper footwear. Most children seek out copper wire because it can be sold to scrap shops for a relatively good price. However, even the process of salvaging the copper is hazardous, because they have to burn off a plastic cover to get to the metal inside. In protecting the wire from other scavengers, they are forced to inhale the toxic fumes (Figure 11).

Figure 11. Child scavengers burn a toxic plastic cover off a wire to salvage the copper inside, Parañaque City, Metro Manila



Photo credit: Donald Brown (2013)

Like other street children, scavengers and waste pickers face the constant threat of physical abuse and harassment by adults and the police. To avoid them, many children in Manila prefer to work in shifts between 7pm and midnight, even though adolescent girls are afraid of being raped after dark. Moreover, all 13 participants in the Manila focus group had witnessed at least one murder, often involving a child or woman victim. The psychological stress associated with the unfathomable fear of being murdered, combined with the constant threat of physical and sexual abuse weighs heavily on the minds of these children, some of whom experience palpitations and panic attacks.

Common to all child labourers is their families' lack of income. Most sacrificed all of their earnings to help their parents purchase food, clothing, books and other essentials. In Manila, the scavengers explained that although school is free in the Philippines, their families cannot afford the books, uniforms, transportation and all the other additional costs of education. This reality was also supported by a study of urban children in the Philippines, which identified several key barriers for children in accessing education, including their need to work, increasing cost of basic needs and the distance of their homes from schools (Ruiz 2006). These barriers are particularly high for parentless children, as the experience of Maricel illustrates (Box 6).

Box 6 Risks faced by orphan scavengers with dependent family members

Maricel is 17-year-old girl who lives in a squatter settlement in a cemetery that doubles as a temporary dump site for municipal waste in Parañaque City, Metro Manila. After her parents died, Maricel was forced to scavenge to support herself and her ailing grandmother. When asked about the risks she faces while working on the street, sexual abuse was a growing concern after she was almost raped. As a young woman, she also feels increasingly embarrassed to be seen as a scavenger, which has reduced the number of hours she works and therefore the amount she earns, down from around 100 pesos per day to (\$7.5) to 20 pesos (\$1.5) per day. Consequently, Maricel's dream of returning to school is becoming harder to reach, especially without the support of a parent or an economically active carer. For such children, even minor shocks and stresses can push them deeper into poverty and further from their future hopes and aspirations.

(In-depth interview, 17 September 2013)

Although girls and boys commonly work in factories and on the streets, the gendered division of household labour means that girls are often burdened with the additional responsibility of unpaid domestic work. Girls in Kathmandu and Dhaka generally have less time for reading, studying and school because they have more chores at home, which explains why their school drop-out rates are higher than boys, particularly for those living in slums (UN-Habitat 2006). Moreover, studies suggest that as the impacts of climate change worsen the income pressures of vulnerable households, girls' work at home will entail additional tasks (e.g. clearing the home of water, mud and other damage) and become more onerous, which will further decrease their ability to stay in school (Swarup, et al. 2011).

In responding to these mounting pressures in the context of climate change, Bartlett (2008) suggests that although adaptation measures should ideally enhance the capacity of families to cope with shocks and stresses, 'coping' should take on broader meaning to "include the capacity to manage hardship without compromising the well-being of their children" (p.48). This point has particular relevance in ensuring that families avoid relying on children as coping mechanisms. Reducing risk for working children therefore requires reducing family reliance on their incomes, improving working conditions in ways that reduces the likely outcomes of disaster events, and ensuring that they are physically and psychologically able to deal with the consequences of these when they do occur.

5.2.3 Squatter and slum children at risk

Children living in low-income informal settlements, including squatter settlements and slums (Box 7) are widely recognised to be most at risk to environmental hazards, disasters and the impacts of climate change (Hardoy, et al. 1990; WHO 1992; Stephens 1996; Hardoy, et al. 2001; UN-Habitat 2003, 2006, 2011; Satterthwaite 2007; Bartlett 2008; IFRC 2010; UNICEF 2012). More than 900 million people are estimated to live in these overcrowded, insecure, under-serviced and hazard-prone environments, and a large proportion of them are children (UN-Habitat 2003). However, as with street and working children, the number and composition of squatter and slum children is often difficult to assess, because census enumerations rarely target informal settlements. The resulting lack of local data and analysis effectively reinforces the invisibility of such settlements, and works to ensure that the needs and priorities of their inhabitants (including children) remain overlooked in decision-making processes and planning procedures.

Box 7 Slum deprivations and spatial types

The five slum deprivations: UN-Habitat’s commonly accepted definition of a slum household includes one that lacks at least one of the following: **access to improved water** (an adequate quantity of water that is affordable and available without excessive physical effort and time); **access to improved sanitation** (access to an excreta disposal system, either in the form of a private toilet or a public toilet shared with a reasonable number of people); **security of tenure** (evidence or documentation that can be used as proof of secure tenure status or for protection from forced evictions); **durability of housing** (permanent and adequate structure in a non-hazardous location, protecting its inhabitants from the extremes of climatic conditions such as rain, heat, cold and humidity); and **sufficient living area** (not more than three people sharing the same room).

These criteria permit considerable variation, ranging from slums characterised by the absence of one criterion, to those characterised by multiple deprivations (e.g. varying levels of tenure security, overcrowding and access to basic infrastructure and services). The term slum therefore includes a variety of low-income and informal settlements, which are usually home to ‘illegal’ dwellers or squatters.

UN-Habitat (2003) notes the importance of distinguishing between these settlements given their variation, and identifies **two broad categories of spatial types** for doing so: **declining areas** (including ‘old’ city centre slums and ‘new’ slum estates) and **progressing settlements** (including squatter settlements and semi-legal subdivisions). All four sub-categories sustain the lives of the urban poor, but also cause and contribute to their poverty and risk.

Among these sub-categories, squatter settlements form one of the most important components of the informal housing sector. Squatters occupy land or buildings without the owner’s permission, which distinguishes them from other slum dwellers. Squatter houses generally possess the most insecure tenure and are usually constructed through ‘self-help’ processes on publicly owned land where the threat of eviction is perceived to be lower.

As a result, squatters tend to build their houses in marginal land areas (e.g. flood plains, low-elevation coastal zones, steep slopes, landfills, railway reserves, etc.) that are deemed unsuitable for other purposes, but where risks from disasters and the impacts of climate change are often highest.

This section presents the findings of focus groups with children in three squatter settlements in Manila, which is where the majority of engagement with this group occurred. The first community in Parañaque City highlights the environmental trade-offs that the urban poor often make in remaining close to their livelihoods, and the important implications this has for approaching the problem of slums in cities. The second community, San Juan de Coastal in Parañaque City, shows the consequences for children who live in areas that are highly exposed to disasters, but that lack sufficient preparedness and early warning. The third community, Barangay (‘village’) Banaba in the municipality of San Mateo (just outside Metro Manila), reveals the extent to which the environment can cause disasters in the absence of proper planning and environmental management.

Although the majority of focus groups with squatter and slum children occurred in Manila, many street and working children also live in squatter settlements and slums. Thus, many can be described simultaneously as working children, street children and slum children, with the exception of ‘children of the street’ who live on the street. Common to all children who live in slums, however, is their families’ or carers’ inability to afford quality housing on land that is safe and serviced. Nearly all children described water and sanitation-related illnesses (particularly diarrhoea) and other environmental hazards that are consistent with the five slum deprivations outlined in Box 7 above, particularly poor quality housing – descriptions of the children’s homes suggested that they were made from temporary building materials, such as “leaky tin roofs” – with inadequate provision for clean piped water, toilets, drainage and solid waste management. These deprivations imply that many children live in communities characterised by slum conditions, even though many did not identify themselves as slum dwellers per se.

Those that did identify themselves as slum dwellers came from the poorest communities with the most significant infrastructure deficits and most hazardous locations. For example, scavengers and waste pickers built one squatter settlement in a cemetery in Parañaque City that is also a temporary dump site for municipal waste (this is where the children in Figure 3 can be seen salvaging copper). The location of this settlement indicates the environmental trade-offs that many low-income parents and carers make in remaining close to their livelihoods, which has important implications for considering how to approach the problem of slums in cities (Box 8).

Box 8 Relocation and resettlement versus slum upgrading

Each of the four target cities, with the exception of Kathmandu (which favours forced eviction and slum clearance) have adopted government programmes to deal with the problems of slums. These widely favour the relocation and resettlement approach for removing slums from floodplains and other particularly hazardous locations.

The rationale behind these programmes is generally based on the perception that slums clog and pollute rivers, thereby intensifying flood risk for surrounding areas, while exposing the urban poor to the worst impacts of disasters and extreme weather events. Most resettlement sites, however, tend to be in peripheral locations that are often in hazard-prone areas themselves, as observed in Manila. In such circumstances, it is common for slum dwellers to return to their original locations when the benefits of remaining in close proximity to their livelihoods outweigh the risks posed by disasters.

In contrast, local NGOs and CBOs usually favour slum upgrading as a grassroots strategy for enabling community-driven processes that address the most significant housing and infrastructure deficits (for a review of these processes see Chapter 4 in Satterthwaite and Mitlin 2014), as exemplified by work of the Philippine Action for Community-led Shelter Initiatives, Inc. in Manila (VMSDFI 2001) and the Lumanti Support Group for Shelter in Kathmandu (Lumanti 2013).

The argument for this bottom-up approach is that development is most effective when communities work in partnership with civil society and local governments to address the deficits that underpin health burdens and disaster and climate impacts (e.g. drains that remove storm-water to prevent flooding). Communities generally favour this approach because it allows them to remain close to their livelihoods, which suggests that upgrading should be undertaken wherever possible.

That said, the impacts of climate change in some locations are likely to exceed the point at which slum upgrading and other DRR measures reduce risk (e.g. it is ultimately counter-productive to upgrade an informal settlement in a low-elevation coastal zone in the face of imminent sea-level rise). Thus, in assessing which of these two approaches is most appropriate requires an understanding of the localised impacts of disasters and climate change, which must also be balanced with an understanding of the need of low-income households to remain close to their source of livelihood. Good practice suggests that any decision to relocate and resettle communities should allow those affected to decide on the location that best suits their needs, particularly regarding their ability to maintain social networks and proximity to livelihoods (Blackburn, et al. 2012).

In other cases, parents and children often settle in areas that are highly prone to disasters and the impacts of climate change. For example, children from San Juan de Coastal are exposed to sea level rise, typhoons, storm surges, tsunamis and earthquake liquefaction because their settlement is next to reclaimed land and in a low-elevation coastal zone. When asked which of these hazards pose the most significant risks to their survival, the children from the focus group all identified tsunamis, with reference to the preparedness training their parents had received from a local Rotary Club. However, their knowledge of preparedness was minimal; while they knew to retreat to higher ground, they could not identify where this could be found. They also highlighted the limitations of preparedness training for sudden-onset

disasters if there is no early warning system in place. As a 16-year-old girl explained, “Even if we knew where to run, none of us would know when to run because our early warning system was stolen by scavengers.”

The focus group with children from Barangay Banaba also showed how the urban poor live in areas that are highly prone to disasters and the impacts of climate change. Specifically, the children from this community shared their experiences in coping with intense seasonal flooding and with one particularly devastating super-typhoon called Ketsana (or ‘Ondoy’) in 2009, which killed 246 people in Metro Manila (Cities Alliance 2009). A 10 year-old boy explained how he was unable to escape during Ketsana because the flood waters rose too quickly, trapping him in the second floor of his house for more than 24 hours. Flooding also destroyed the home of a 13 year-old girl, and permanently displaced her and her family from the area.

Seasonal flooding also highlighted the significant impacts that ‘small’ disasters can have, particularly on access to education. The children estimated that they spent, on average, 1–2 weeks every monsoon season in overcrowded emergency shelters (at their schools) to escape rising water levels. However, none of the children felt particularly safe in these shelters, since many schools and other evacuation facilities were outside designated ‘safe zones’. On some occasions, the children were transferred to other locations to avoid rising water levels.

When asked about the causes of flooding, the children identified “the environment as the main cause of disaster”. They explained how poor environmental management can intensify flood risk, particular in the absence of drainage. They also explained how water and sanitation-related illness caused most of the child mortality during and after Ketsana; this included leptospirosis (a bacterial illness transmitted from animals to humans through contaminated food or water, especially through contact with broken skin, including from cuts, scrapes, etc.), which is endemic to the Philippines during flood events (see Lau, et al. 2010). Similarly, children in San Juan de Coastal identified diarrhoea as a common illness arising from “their dirty surroundings”, particularly during the monsoon season. When asked about the underlying causes of these illnesses, the children commonly identified:

- **Lack of solid waste management and drains**, allowing garbage to collect in pools of stagnant water that can also attract disease-spreading rodents.
- **High-density and overcrowded environments**, enabling the transmission of infectious illnesses.
- **Low resistance and immunity**, intensifying susceptibility to infectious diseases, particularly among malnourished children.

These factors underscore the quality of the environment as a key determinant of child health. Moreover, they are also key determinants of disaster and climate resilience. For example, the accumulation of garbage in the absence of solid waste management can block drains (where they exist); the absence of drains can increase flood risk; overcrowding in high-risk areas can increase the number of people exposed to disasters, especially where quality housing and protective infrastructure (also including piped water and sanitation) is lacking; high-density environments can prevent emergency response vehicles from entering communities; and low resistance and immunity can increase susceptibility to water and sanitation-related illnesses (such as leptospirosis and diarrhoea) during flood events. Existing literature indicates that children are more dependent than adults on this infrastructure because of their higher levels of vulnerability and susceptibility when exposed to environmental hazards, disasters and climate impacts (Satterthwaite, et al. 1996; Bartlett 2008).

While these communities lack protective infrastructure, many are also under threat of eviction, including San Juan de Coastal. Evictions serve as a disincentive for households, NGOs and other agencies to invest in risk reduction measures, including infrastructure. They also often cause homelessness and economic upheaval, which can further diminish coping capacity (Bartlett 1999). In addition, eviction can limit children’s ability to resume school in a new location and can force them into the labour market or onto the street (*ibid*). Thus, as stressed by Bartlett (1999, p.70), “The capacity of parents to negotiate legal tenure is essential not only as a component of children’s emotional security but also as the basis for long-term stability and for the willingness of poor residents to investment in their communities”. This point is particularly relevant given the chronic lack of investment in housing and basic infrastructure and services that underpin children’s ill-health and exposure to risk in urban areas.

5.3 Urban children as agents of change and resilience

The analysis above clearly shows that responding to children's risk in urban areas requires a much greater focus on linking DRR with the long-term actions that address fundamental development issues. This section draws on examples of youth groups and grassroots CBOs that have empowered children and youths to participate in community-driven processes that are making this link in practice. It also draws on the ideas of children for reducing risk across the four target cities, and examines how children can put them into action.

Despite these good practices and ideas, however, this section also identifies a number of barriers and challenges to enabling children's agency, and discusses their implications for rights-based approaches to child-centred urban DRR.

5.3.1 Putting children's ideas for urban DRR into action

Children across the four cities were asked to contribute their ideas for urban DRR. The children formulated an impressive variety of answers, which have been categorised below:

Risk communication and awareness-raising

- Raise DRR awareness in communities through street dramas, singing, dancing, storytelling.
- Use multi-media to disseminate messages to children and communities, particularly through the internet (including social media), radio and television.

School safety and education

- Better integrate DRR into formal and informal school curricula.
- Develop training programmes to make schools safe and to reduce their risk.

Environmental protection

- Clean garbage from drains to prevent floods.
- Develop better solid waste management services to ensure drains are not clogged and rivers are free to flow.
- Plant vegetation to prevent landslides and riverbank erosion.

Structural solutions

- Partner with governments to build infrastructure, such as drains and storm water management systems.
- Build and maintain good all-weather roads with drains and culverts.
- Retrofit schools and workplaces to enhance resistance to building collapse, earthquakes and extreme weather events.
- Ensure communities have fire breaks and wide roads to allow fire service vehicles access during emergencies.

Governance

- Support a 'hand-in-hand' philosophy for working in partnership with vulnerable groups, including children and youth.
- Strengthen collaboration between vulnerable communities, government and civil society to address their needs and priorities as people (rather than how international agencies define them).

These ideas should refute any claims that children and youths lack the knowledge and capacity to meaningfully contribute to decision-making on DRR. In particular, their ideas concerning environmental protection and structural solutions are consistent with many good practices in community-based disaster risk reduction (CBDRR) (e.g. remediating riparian ecosystems) that target environmental degradation as an underlying risk driver, which was a major concern in Barangay Banaba. The ideas and ingenuity of children are clear indications of the value they would bring to local-level planning and advocacy, as demonstrated by Buklod Tao and Youth Bind Together (Box 9).

Box 9 Buklod Tao and Youth Bind Together: Children as agents of change and resilience

Buklod Tao is a grassroots CBO that was established in 1995 by residents of Barangay Banaba in the municipality of San Mateo, just outside Metro Manila. The organisation emerged to address the impacts that development projects and poor environmental management were having on intensifying riverbank erosion and flood risk. Over time, these risks have continued to increase in the absence of sufficient government action, which has given rise to new pollution-related risks.

Buklod Tao is currently involved in a campaign in partnership with Greenpeace to pass an ordinance requiring all factories to disclose the chemical wastewater they discharge into rivers (see Greenpeace, 2013). As discussed in section 5.1.3 above, many low-income informal settlements in the surrounding area are concentrated in floodplains, thereby intensifying their exposure to unknown chemicals and their health risks during flood events.

Youth Bind Together, a youth group supported by Buklod Tao is taking a lead role in advocating for this ordinance through community awareness raising activities. During a focus group discussion with eight of the group's members (aged 11–19), they asserted that it is both their right and responsibility to address industrial pollution, because they will inherit the health risks. As the group continues to grow, more youths are taking notice and becoming involved to achieve change: “We can't rely on politicians or external processes. We are the doers,” remarked an 18 year-old girl.

(Focus group, 21 September 2013)

According to Bartlett (2008), the challenge for child-centred organisations is to educate and empower children in active citizenship and to provide them with opportunities to articulate their ideas within broader community development initiatives. For example, the experience of Youth Bind Together shows what is possible when children and youths are supported by strong and inclusive grassroots organisations. However, conventional approaches of child-centred organisations have tended to conduct child participation as separate projects (Varney and van Vliet 2005). As a result, such projects are often short-lived, concluding when the organisation leaves (Bartlett 2008). For example, many of the children's ideas listed above may motivate communities to address their concerns about garbage, waste removal and drainage, but these are unlikely to remain priorities if they are not considered within wider community planning efforts (*ibid*). Drawing on the lessons from the Growing Up in Cities network, Bartlett (2008) stresses the importance of involving children in shared processes that draw on their ideas and ingenuity to address local concerns, which can also change the way parents and other adults view children.

This is not to suggest that children should not have their own initiatives: UPES (Box 10) shows how young people can champion community-driven upgrading processes in partnership with local NGOs (Figure 4). In addition, the youths from the focus groups across the four cities were particularly adamant about their capability and right to engage in decision-making and planning “hand in hand” with other stakeholders, as illustrated by their governance ideas above. Ultimately, Youth Binding Together and UPES are examples of how children and youths can work collaboratively in participatory governance as “the sphere of public debate, partnership, interaction, dialogue and conflict entered into by local citizens and organisations and by local government,” (Evans, et al. 2005).

Box 10 Urban Poor Empowerment Society (UPES): Champions of social transformation

UPES is a grassroots CBO that was established in 2007 in Birgunj, a city bordering India in Southern Nepal. UPES is unique in that it was formed by youth volunteers from the poorest areas of city with the aim of improving the lives of their fellow community members. UPES works in partnership with the Lumanti Support Group for Shelter as the support NGO for a national federation of women's savings groups formed by slum/shack dwellers (see Lumanti 2013).

UPES works with these savings groups to enable them to get loans from a financing facility for the urban poor that UPES also manages, called the Urban Community Support Fund (UCSF). (For a review of these kinds of financing mechanisms, see Mitlin 2008). UPES has helped many households to get loans for livelihood activities (e.g. rickshaw pulling), land purchases, housing construction and the provision of basic infrastructure, including drainage, adequate sanitation and safe drinking water.

Most importantly, UPES has worked with these communities to negotiate with local governments for further funds to address these deficits. Since its inception, UPES has grown from 14 to 34 members, and is now active in 27 communities, including 68 savings groups and 21 children's groups.

(Focus group, 11 May 2013)

Figure 12. UPES (seated left, middle) and Lumanti (right) meeting with women and children from the Shantitole community in Birgunj, Nepal



Photo credit:
Donald Brown
(2013)

5.3.2 Barriers and challenges to urban children's participation

Despite the examples presented above, good practices in children's participation remain the minority. Children's experiences with community decision-making across the four target cities were largely consistent with tokenistic participation. For example, a 14-year-old girl described her participation as a form of "silent consultation". Other children who were invited to attend a meeting with one of the Village Development Committee (VDC) Chairmen in Kathmandu also felt like they were invited to make the crowd "appear representative".

When older children from youth groups were asked the same question, their answers reflected their frustration with being continuously excluded. For example, a member of Youth for Disaster Risk Reduction (YDRR) in Kathmandu remarked, "Youth often have great vision, but they are not getting the platform. Few foreign agencies search for youth. They too often look for those CBOs with 20 years' experience. There is no-one to trust us". Echoing the frustrations of younger age groups, they explained how decision-makers still regarded anyone under 25 as a child.

Tanner (2010) suggests that the exclusion of children and youths from participating in DRR is largely attributable to the dominant vulnerability and protection narratives that continue to reinforce the belief that children are helpless victims who are to be protected by parents and targeted for risk reduction by international agencies. While these dominant narratives may cast a shadow over the rights and agency of children, experience from practice suggests that where children have been empowered to act as agents of change is when they have received adequate support and protection to do so. Moreover, a common concern among practitioners across the four target cities was ensuring that the active involvement of children in DRR did not come at the expense of their well-being or absolve families, communities and governments from fulfilling their primary roles and responsibilities to act.

6 Priority action areas for reducing urban children's long-term risks

The analysis above clearly indicates that children who live and work in poor quality environments are most at risk to everyday environmental hazards, disasters and the impacts of climate change. For example, unsafe working conditions, dirty living environments and poor environmental management were commonly identified by children in the focus groups as posing the most significant threats to their health and survival. This common finding is important because it reaffirms the need to link DRR with long-term actions that address the chronic lack of development that underpins risk to children (and other vulnerable groups) in urban areas.

This section outlines a set of priority action areas for child-centred organisations, such as Plan International, that wish to meaningfully engage with this DRR agenda in Asian cities. Many of these action areas may challenge child-centred organisations to expand their traditional remit beyond preparedness, early warning and response. While these aspects of DRR remain important, they cannot address the protective infrastructure and services that are ultimately required to reduce vulnerability to disasters and climate impacts in rapidly expanding urban areas. With this recognition in mind, Table 2 outlines key priority action areas for reducing urban children's long-term risks, which are elaborated upon in the text that follows.

Table 2. Priority action areas for reducing urban children's long-term risks

Priority Areas	Action areas
Enhance access to quality housing and other buildings with adequate provision for basic infrastructure and services as a key determinant of child health and disaster and climate resilience.	Expand remit to claims-making on the state in advocating on behalf of children's rights to an adequate standard of living and to a safe working environment.
Build the capacity of families and communities to cope with shocks and stresses.	Collaborate with local CBOs engaged in community development and CBDRR.
Foster shared planning processes between children and adults.	Design programmes that integrate children into community development and CBDRR planning and decision-making processes.
Target beneficiaries based on better understanding of the differentials in risk between high- and low-income children.	Work with government and other agencies to develop standardised data collection methods to facilitate aggregation and comparability.

Enhance access to quality housing and other buildings (including schools and factories) with adequate provision for basic infrastructure and services as a key determinant of child health and disaster and climate resilience. Children are more dependent on protective infrastructure and services than other age groups because of their higher levels of vulnerability and susceptibility when exposed to environmental hazards, disasters and the impacts of climate change (Satterthwaite, et al. 1996; Bartlett 2008). For example, squatter and slum children from the focus groups identified poor environmental management as a principal cause of flood risk, and child factory workers identified temporary building materials as a risk factor for building failure and collapse during extreme weather events.

Moreover, most children who identified themselves as living and/or working in poor conditions attributed their low immunity to water and sanitation-related illnesses (e.g. diarrhoea and leptospirosis) to a lack of drainage, solid waste management, piped water and sanitation, and their parents' or carers' inability to afford health care services. Meanwhile, gradual changes in climate are expected to worsen existing disease burdens, particularly in overcrowded low-income informal settlements where children are already highly susceptible to heat stress, and vector-borne and respiratory diseases (Bartlett 2008). Thus, a focus on disasters must not miss the small everyday hazards or, most importantly, resilience measures that can address both simultaneously.

Expand remit to claims-making on the state in advocating on behalf of children's rights to an adequate standard of living and to a safe working environment. Addressing the backlog of infrastructure and services in low-income informal settlements ultimately depends on the capacity of households, communities and local governments to act (Satterthwaite 2013). In turn, this requires making claims on the state (at the national and local levels) for the right of children to an adequate standard of living, which fundamentally relies on a safe and secure environment (Bartlett 1999; Hardoy, et al. 2001; UNICEF 2012).

Thus, urban planning and management at the local government level must be undertaken with explicit recognition of children's rights, including greater attention to age, gender and disability. According to UNICEF (2012, p.73), "This will entail a wider frame of reference for urban development that accommodates and reduces risks to children of all ages and needs, from infants and toddlers to adolescents, children with disabilities and those who do not attend school."

Out-of-school youths who commonly work as domestic and factory labourers or on the street also require particular attention when advocating for children's rights to a safe working as well as living environment. For example, the rapid growth of the garment industry in Dhaka highlights a priority area for child-centred NGOs in light of the increasing number of hazardous employment opportunities for child labourers. Addressing the rights of these and other working children will necessitate stronger urban governance arrangements to ensure that the multiple actors and institutions involved in the construction of buildings (including housing, schools and factories), the provision of basic infrastructure and services and in the implementation of workplace safety regulations take into account the needs and rights of children and other vulnerable groups.

Build the capacity of families and communities to cope with shocks and stresses. 'Coping' should take on broader meaning in DRR to include the capacity of families to manage shocks and stresses without compromising the well-being of children. Bartlett (2008) initially raised this point in responding to climate change (see section 5.2.2), but it is equally important for child-centred DRR measures. These can include increasing access to relevant information about risk (e.g. early warning); increasing capacity to negotiate with local governments for secure tenure and basic infrastructure and services; and increasing access to financial systems that provide incentive and capacity to reduce risk, including community-managed savings schemes, revolving loan funds, micro-credit and insurance (Satterthwaite, et al. 2007).

Asset-based frameworks also enhance families' coping capacity by strengthening and protecting assets (financial, human and natural) (Moser and Satterthwaite 2008). Child-centred measures include those aimed at protecting children (particularly girls and disabled children) from cuts to school fees and household food expenditures, and from being used to augment lost family incomes (Bartlett 2008).

Collaborate with local CBOs engaged in community development and CBDRR. Building the capacity of families and communities involves collaboration with local CBOs that engage in community development and CBDRR. Families from the poorest communities who often seek to avoid engagement with authorities are generally the hardest to reach in urban

areas. Engaging with them can be facilitated through collaborating with CBOs that have built relationships and trust over time (Buklod Tao being a case in point, Box 9).

However, a focus on civil society should not be seen to detract from government action. Rather, Satterthwaite (2011, p.341) argues that:

“Getting governments to fulfil their roles and responsibilities on these fronts requires community organization and action. This kind of action does not replace local government action or absolve local government of its responsibilities – but it draws attention to the priorities of at-risk communities and it demonstrates more effective ways to act.”

One of the ways that local CBOs can draw attention to the priorities of boys and girls who are at risk is through the generation of locally rooted information on risk and vulnerability (including mapping) in low-income informal settlements, as exemplified by the work of the Philippine Action for Community-led Shelter Initiatives, Inc. (see Carcellar, et al. 2011). However, many CBOs may not adequately take the particular risks and vulnerabilities of girls and boys into account. This gap highlights an area where child-centred organisations could potentially contribute, but this requires a sensitive approach. Many community-driven processes are based on locally developed agendas, which may not be amenable to conventional top-down approaches. These agendas may mean that organisations have to adopt new roles as facilitators rather than as service providers, which may require a new set of tools that many humanitarian actors may not necessarily have.

Foster shared planning processes between children and adults. Section 5.3 illustrated the desire of children and youths to be involved ‘hand in hand’ with adults and agencies in DRR and other development issues that affect them. The involvement of children in shared processes with adults has significant potential in community-driven processes, which are fundamentally based on the principles of participation, inclusion and co-production.

Moreover, recent experience from the Growing Up in Cities project suggests that local governments do not take child- or youth-specific projects as seriously as projects that involve the entire community (Chawla, et al. 2005). Hart’s (1997) ‘Ladder of children’s participation’ also placed projects where decision-making is shared between children and adults as equal partners at the top of the ladder. The challenge for child-centred organisations is to ensure that children are included in local-level planning processes that are community-driven and sustainable.

Design programmes that integrate children into community development and CBDRR planning and decision-making processes. Children’s degree of participation in projects can vary considerably depending largely on the extent to which adults are willing to share their power with them. In 2000, Childwatch International and the United Nations Educational, Scientific and Cultural Organization (UNESCO) convened a symposium on ‘Children’s Participation in Community Settings’ that brought together architects, urban planners, and child-centred practitioners. One of the principal outputs was a set of criteria that described features of effective child participation in projects. Among these criteria, Chawla and Heft (2002, p.204) emphasise the importance of considering those related to the ‘Conditions of Confidence’, which include:

- Children have real responsibility and influence;
- Children understand and have a part in defining the goals of the activity;
- Children play a role in decision-making and accomplishing goals, with access to the information they need to make informed decisions;
- Children are helped to construct and express their views;
- There is a fair sharing of opportunities to contribute and be heard;
- The project creates occasions for the graduated development of competence;
- The project sets up processes to support children’s engagement in issues they initiate themselves; and
- The project results in tangible outcomes.

These criteria provide a useful starting point for child-centred organisations in considering the role of children's participation in the design of their programmes, particularly because they emphasise the development of a child's competence throughout the project lifecycle.

Target beneficiaries based on better understanding of the differentials in risk between high- and low-income children.

In addressing the question of which children are most at risk and why, this research clearly shows that children are much more at risk in the context of urban poverty. However, little intra-urban data exists that is sufficiently disaggregated by age, sex, income, disability, school attendance, occupation, among other important variables. Sample sizes are also often too low, and sample frames rarely target low-income informal settlements (UNICEF 2012).

Moreover, as the findings suggest, not all poor children are found in slums, because many live on the street. In addition, not all slum dwellers are necessarily poor (*ibid*). Better data is clearly needed on the composition of the population at the district level, including indicators on the extent of service provision and health outcomes and losses associated with intensive and extensive disasters that can be used to inform policy and programming (Hardoy, et al. 2001).

Work with government and other agencies to develop standardised data collection methods to facilitate aggregation and comparability. UNICEF (2012, p.69) outlines a set of relevant requirements for data collection to better capture differentials in risk between high- and low-income children in urban areas (Box 10). One stands out as especially relevant for child-centred organisations to consider: "Collaboration among agencies to collect, analyse and disseminate... data".

The use of risk hazard, vulnerability, and capacity assessments (HVCAs) has become common practice among CSOs and often involves the collection of disaggregated data. But without standardised methods for data collection, the potential for comparability and aggregation is lost. The benefits of having an open access data base that is available to the public, including governments, CSOs and academic institutions can also help to generate a more accurate and comprehensive picture of the nature and scale of urban risk at the district and neighbourhood levels. Such information can aid child-centred organisations to systematically target their beneficiaries in urban areas. This is particularly important, considering that the schools-based disaster risk management programmes that predominate are not reaching many of the poorest and most vulnerable children.

As the findings show, low-income children commonly do not attend school because they are forced to work or because they cannot afford the additional costs of education. This is particularly the case for girls because of the additional burdens of domestic labour and prioritisation of boys' education. This is not to suggest that schools-based programmes are ineffective. Rather, it suggests that the depth of inequality and exclusion inherent in urban areas makes it hard to reach children living and working on the street, and in squatter settlements and slums.

Box 11 Seven requirements for showing the full spectrum of urban realities

- Political will to establish urban data as a priority among competing interests
- Collaboration among agencies to collect, analyse and disseminate these data
- Clear definitions of 'urban slums' that reduce conceptual confusion and enable meaningful comparison
- Oversampling in slum areas to gather sufficient data for stratified analysis
- Making sure no slum has been overlooked, for example, by using Geographic Information Systems
- Going beyond national averages for rural-urban comparisons to analyse and document disparities within urban areas
- Devising new wealth indices that facilitate analysis and comparison of disparities within and between urban and rural areas

Source: UNICEF (2012, p.69)

7 Conclusion

The findings of this study clearly indicate that while street, working, squatter and slum children are most at risk to environmental hazards, disasters and the impacts of climate change, the risks they face can vary considerably depending on their particular situations. Since many children can be described simultaneously as street children, working children and squatter and slum children, distinguishing between them may not be particularly useful for child-centred NGOs that wish to tackle long-term development issues that render all children living in urban poverty among those most at risk.

This paper has therefore argued for a much greater focus on linking DRR with long-term action that can address the provision of protective infrastructure and basic services as critical determinants of children's health, and disaster and climate resilience in large cities in Asia. It is these longer-term activities that will ultimately contribute to the development of more resilient families and communities as increasingly important aspects of child-centred urban DRR. The priority action areas outlined above provide a set of entry points for supporting this agenda among child-centred organizations in Asian cities, but also in other urban centres around the world.

References

- ADB. 2003. *Working with Street Children: Exploring Ways for ADB Assistance*. Asian Development Bank. Regional and Sustainable Development Department.
- Alam, M. and Rabbani, M. 2007. Vulnerabilities and Responses to Climate Change for Dhaka. *Environment and Urbanization* 19(1), pp. 81–97.
- Alber, G. 2009. Gender and Climate Change Policy. In: Guzmán, J. M., Martine, G., et al. eds. *Population Dynamics and Climate Change*. UNFPA and IIED.
- Alirol, E., Getaz, L., Stoll, B., Chappuis, F. and Loutan, L. 2010. Urbanisation and infectious diseases in a globalised world. *Lancet Infectious Disease* 2010(10), pp. 131–141.
- Australian Aid. 2011. *Building the Resilience and Awareness of Metro Manila Communities to Natural Disasters and Climate Change Impacts (BRACE Program)*. Project Design Document October 2011.
- Baker, B. 2012. *Climate Change, Disaster Risk, and the Urban Poor: Cities Building Resilience in a Changing World*. Urban Development Series. Washington: World Bank.
- Bartlett, S. 2008. *Climate change and urban children. Impacts and implications for adaptation in low- and middle-income countries*. London: IIED. Human Settlements Discussion Paper Series. Theme: Climate Change and Cities – 2.
- Bartlett, D. 1999. Children’s experience of the physical environment in poor urban settlements and the implications for policy, planning and practice. *Environment and Urbanization* 11(2), pp. 63–74.
- Bartlett, S., Hart, R., Satterthwaite, S. de la Barra, X. and Missair, A. 1999. *Cities for Children: Children’s Rights, Poverty and Urban Management*. London: Earthscan.
- Behera, A. 2002. *Government – NGO Collaboration for Disaster Reduction and Response: The India (Orissa) Experience*. Presented at Regional Workshop on Networking and Collaboration among NGOs in Asian Countries in disaster Reduction and Response.
- Beazley, H. 2003. Voices from the Margins Street Children’s Subcultures in Indonesia. *Children’s Geographies* 1(2), pp. 181–200.
- Bild, E. and Ibrahim, M. 2013. *Towards the resilience future children want: a review of progress in achieving the Children’s Charter for Disaster Risk Reduction*. World Vision.
- Blackburn, S., Johnson, Dodman, D., Satterthwaite, D., Davis, T.H. and Valdés, H.M. 2012. *Making Cities Resilient Report 2012: My city is getting ready! A global snapshot of how local governments reduce disaster risk*. Geneva: UNISDR.
- Bull-Kamanga, L., Diagne, K., Lavell, A., Leon, E., Lerise, F., MacGregor, H., Maskrey, A., Meshack, M., Pelling, M., Reid, H. 2003. From everyday hazard to disasters: the accumulation of risk in urban areas. *Environment and Urbanization* 51(1), pp. 193–204.
-

- Carcellar, N., Rayos Co, J.C., and O Hipolito, Z. (2011) Addressing disaster risk reduction through community-rooted interventions in the Philippines: experience of the Homeless People's Federation of the Philippines. *Environment and Urbanization* 23(2), pp. 365–381.
- Chawla, L., Cosco, N., Driskell, D., Kruger, J., Malone, K., Moore R. and Percy-Smith, B. 2005. Don't just listen – do something! Lessons learned about governance from the Growing Up in Cities project. *Children, Youth and Environments* 15(2) pp. 53–88.
- Chawla, L. and Heft, H. 2002. Children's Competence and the Ecology of Communities: A Functional Approach to the Evaluation of Participation. *Journal of Environmental Psychology* 2002(22), pp. 201–216.
- Cities Alliance. 2009. *Impacts of Typhoon Ketsana*. Fact sheet. Available at: http://www.citiesalliance.org/sites/citiesalliance.org/files/CA_Images/SDI-Philippines-Kestana1.pdf [Accessed 10 November 2013]
- Dagdemi, O. and Acaroglu, H. The effects of globalization on child labor in developing countries. *Business and Economic Horizons* 2(2), pp. 37–47.
- Davies, M., Oswald, K. and Mitchell, T. 2009. Climate Change Adaptation, Disaster Risk Reduction and Social Protection. IDS Briefing Note.
- Dodman, D., Brown, D., Francis, K., Hardoy, J., Johnson, C., and Satterthwaite, D. 2013. *Understanding the nature and scale of urban risk in low- and middle-income countries and its implications for humanitarian preparedness, planning and response*. London: IIED. Human Settlements Discussion Paper Series Climate Change and Cities – 4.
- Dye, C. 2008. Health and urban living, *Science*. 319(766), pp. 766–769.
- Evans, B., Joas, S., Sundback, S. and Theobald, K. 2005. *Governing sustainable cities*. London: Earthscan.
- Greenpeace. 2013. *Greenpeace calls for full public disclosure on chemical discharges*. [Online]. Available at: <http://www.greenpeace.org/seasia/ph/press/releases/Greenpeace-calls-for-full-public-disclosure-on-chemical-discharges-from-factories-/> [Accessed 12 November 2013]
- Hardoy, J., and Ruete, R. 2013. Incorporating climate change adaptation into planning for a liveable city in Rosario, Argentina. *Environment and Urbanization* 25(1), pp. 339–360.
- Hardoy, J. and Pandiella. 2009. Urban Poverty and Vulnerability to Climate Change in Latin America. *Environment and Urbanization* 21(1), pp. 203–224.
- Hardoy, Jorge E., Mitlin, D., and Satterthwaite, D. 2001 *Environmental Problems in an Urbanizing World: Finding Solutions for Cities in Africa, Asia and Latin America*. London: Earthscan Publications.
- Hardoy, J., Mitlin, D. and Satterthwaite, D. 1990. *The Poor Die Young: Housing and Health in Third World Cities*. London: Earthscan.
- Hart, R. 1997. *Children's Participation: The Theory and Practice of Involving Young Citizens in Community Development and Environmental Care*. London: Earthscan and UNICEF.
- Hopwood, N. 2009. A Practical Iterative Framework for Qualitative Data Analysis. *International Journal of Qualitative Methods* 8(1), pp. 76–84.
- HUDCC and LGUs. 2008. Metro Manila Road Map for Urban Renewal and Basic Services for the Poor. November 2008. Housing and Urban Development and Coordinating Council and Local Government Units.
- IDS. 2009. *Children Communicating Climate and Disaster Risks*. IDS in Focus Policy Briefing. Issue 13. Children in a Changing Climate: Lessons from Research and Practice. November 2009.
- IDS. 2012. *Children, Climate Change and Disasters*. IDS in Focus Policy Briefing. Issue 23. April 2012.
- IFRC. 2010. *World Disasters Report 2010: Focus on Urban Risk*. Geneva: International Federation of Red Cross and Red Crescent Societies.

- IPCC. 2012. Summary for Policymakers. In: Field, C.B., et al eds. *Managing the Risks of Extreme Events and Disasters to Advance Climate Change Adaptation*. A Special Report of Working Groups I and II of the Intergovernmental Panel on Climate Change. Cambridge and New York: Cambridge University Press.
- Keane, J. and te Velde, D.K. 2008. *The role of textile and clothing industries in growth and development strategies*. ODI, 7 May 2008.
- Lagmay, A.M.F., Rodolfo, R.S. and M.G., Balto. 2010. The Perfect Storm: Floods Devastate Manila. *The Earth* 55(4), pp. 51–55. Available at: http://www.academia.edu/506442/The_Perfect_Storm_Floods_Devastate_Manila [Accessed 1 November 2013]
- Lumanti. 2013. *About Lumanti*. [Online]. Available at: <http://lumanti.org.np/cms/?q=node/28> [Accessed 1 November 2013].
- Lumanti. 2005. *New Beginnings: Housing the Urban Poor. A Case Study of Kirtipur Housing Project*. December 2005.
- Mazurana, D., Benelli, Walker, P. 2013. How sex- and age-disaggregated data and gender and generational analysis can improve humanitarian response. *Disasters* 37(s1), pp. s68–s82.
- Mazurana, D., Benelli, P., Gupta, H. and Walker, P. 2011. *Sex and Age Matter: Improving Humanitarian Response in Emergencies*. Feinstein International Center, Tufts University.
- McGranahan, G., Balk, D. and Anderson, B. 2007. Risk of Climate Change for Urban Settlements in Low Elevation Coastal Areas. In: Martine, G., McGranahan, G., Montgomery, M., and Fernandez-Castilla, R. eds. *The New Global Frontier. Urbanization, Poverty and Environment in the 21st Century*. London: Earthscan, pp. 51–76.
- Moser, C. and Satterthwaite, D. 2008. *Towards pro-poor adaptation to climate change in the urban centres of low- and middle-income countries*. IIED. Climate Change and Cities Discussion Paper 3. Prepared for the World Bank's Social Development Department Workshop on the "Social Dimensions of Climate Change". 5–6 March 2008.
- ILO. 2013. *What is child labour*. [Online]. Available at: <http://www.ilo.org/ipec/facts/lang--en/index.htm> [Accessed 4 November 2013].
- Lau, C.L., Smythe, L.D., Craig, S.B. and Weinstein, P. 2010. Climate change, flooding, urbanisation and leptospirosis: fuelling the fire? *Transactions of the Royal Society of Tropical Medicine and Hygiene* 104(2010), pp. 631–638.
- Mitchell, T., Haynes, K., Hall, N., Choong, W. and Oven, K. 2008. The Role of Children and Youth in Communicating Disaster Risk. *Children Youth and Environments* 18(1), pp. 254–279
- Mitlin, D. and Satterthwaite, D. 2013. *Urban Poverty in the Global South: Scale and nature*. New York: Routledge.
- Mitlin, D. 2008. *Urban poor funds: development for the people by the people*. IIED Poverty Reduction in Urban Areas Series. Working Paper – 18.
- MoHA. 2011. *Nepal Disaster Report 2011: Policies, Practices and Lessons*. Government of Nepal, Ministry of Home Affairs, DPNET, UNDP, ActionAid, NSET.
- Muzzini, E. and Aparicio, G. 2013a. *Bangladesh: the Path to Middle-Income Status from an Urban Perspective*. Washington D.C.: World Bank.
- Muzzini, E. and Aparicio, G. 2013b. *Urban Growth and Spatial Transition in Nepal: An Initial Assessment*. Washington D.C.: World Bank.
- Neumayer, E., and Plümer, T. 2007. The gendered nature of natural disasters: the impact of catastrophic events on the gender gap in life expectancy, 1981–2002, *Annals of the Association of American Geographers*, 97(3). pp. 551–566
- Ngo, E. (2001). "When Disasters and Age Collide: Reviewing Vulnerability of the Elderly." *Natural Hazards Review* 2, pp. 80–89.
- Pantuliano, S., Metcalfe, V., Haysom, S. and Davey, E. 2012. Urban vulnerability and displacement: a review of current issues. *Disasters* 36(s1), pp. S1–S22.

- Peek, L. and Stough, L.M. 2010. Children with Disabilities in the Context of Disaster: A Social Vulnerability Perspective. *Child Development* 81(4), pp. 1260–1270.
- Rodofolo, K.S. 2013. Why reclamation of nearshore Manila Bay is a very bad idea. *The Philippine Star* 3 October 2013. Available at: <http://www.philstar.com/science-and-technology/2013/10/03/1240670/why-reclamation-nearshore-manila-bay-very-bad-idea> [Accessed Oct 5 2013]
- Ruiz, H.R. 2006. *A Study of Policies and Programmes in the Philippines Addressing the Right of Street Children to Education*. ChildHope Asia Philippines.
- Sanderson, D., Knox-Clarke, P. and Campbell, L. 2012. *Responding to Urban disasters-Learning from previous relief and recovery operations*. Alnap.
- Satterthwaite, D. 2004. *The under-estimation of urban poverty in low- and middle-income nations*. IIED. Poverty Reduction in Urban Areas Series. Working paper 14.
- Satterthwaite, D. 2007. In pursuit of a healthy urban environment in low- and middle-income nations. In: Marcotullio, P.J. and McGranahan, G. eds. *Scaling Urban Environmental Challenges: From Local to Global and Back*. London: Earthscan, pp. 69-105.
- Satterthwaite, D. 2011. Editorial: Why is community action needed for disaster risk reduction and climate change adaptation? *Environment and Urbanization* 23(2) pp. 339-349.
- Satterthwaite, D. 2013. The political underpinnings of cities' accumulated resilience to climate change. *Environment and Urbanization* 25(2), pp. 381-391.
- Satterthwaite, D., Hart, R., Levy, C., Mitlin, D., Ross, D., Smit, J. and Stephens, C. 1996. *The Environment for Children: Understanding and acting on the environmental hazards that threaten children and their parents*. London: Earthscan.
- Satterthwaite, D., Huq, S., Reid, H., Pelling, M. and Romero Lankao, R. 2007. Adapting to Climate Change in Urban Areas: The Possibilities and Constraints in Low- and Middle-income Nations. In: Dodman, D. and Satterthwaite, D. *Adapting Cities to Climate Change: Understanding and Addressing the Development Challenges*. London and Washington D.C., pp. 3-47.
- Satterthwaite, D. and Mitlin, D. 2014. *Reducing Urban Poverty in the Global South*. Abingdon and New York: Routledge.
- Schensul, D. and Dodman, D. 2013. Populating adaptation: Incorporating Population Dynamics in Climate Change Adaptation Policy and Practice. In: Martine, G. and Schensul, D. eds. *The Demography of Adaptation to Climate Change*. New York, London and Mexico City. UNFPA, IIED and El Colegio de México, pp. 1-23.
- Seballos, F. and Tanner, T. 2011. Enabling Child-Centred Agency in Disaster Risk Reduction. Geneva: Global Assessment Report on Disaster Risk Reduction. UNISDR.
- Solomon, N.W., Mazariegos, M., Brown, K.H. and Klasing, K. 1993. The underprivileged developing country child: environmental contamination and growth failure revisited. *Nutrition Reviews* 51(11), pp. 327–332.
- Surbakti, I.M., Idroes, I.C., Simarmata, H.A. and Firman, T. 2010. *Jakarta City Report: Information related to Climate Change in Jakarta City*.
- Stephens, C. 1996. Research on urban environmental health. In: Atkinson, S., Songsore J. and Werna E. eds. *Urban Health Research in Developing Countries: Implications for Policy*. Wallingford, UK: CAB International.
- Sverdlik, A. 2011. Ill-health and poverty: a literature review on health in informal settlements. *Environment and Urbanization* 23(1), pp. 123-155.
- Swarup, A., Dankelman, I., Ahluwalia, K. and Hawrylyshyn, K. 2011. *Weathering the storm: Adolescent girls and climate change*. Plan International and UK Aid.
- Tanner, T. 2010. Shifting the Narrative: Child-led Responses to Climate Change and Disasters in El Salvador and the Philippines. *Children & Society* 24(2010), pp. 339-351.

- Tanner, T., Garcia, M., Lazcano, J., Molina, F., Molina, G., Rodriguez, G. and Tribunalo, F.S. 2009. Children's participation in community-based disaster risk reduction and adaptation to climate change. *IIED. Participatory Learning and Action* 60.
- UNDESA. 2013. *The World Population Prospects: The 2012 Revision*. Available at: <http://esa.un.org/unpd/wpp/index.htm>
- UNFPA. 2007. *Growing Up Urban. State of world population 2007. Youth Supplement*. UNFPA.
- UN-Habitat. 2011. *Cities and Climate Change. Global Report on Human Settlements*. Nairobi: UN-Habitat.
- UN-Habitat. 2006. *30 Years of Shaping the Habitat Agenda. State of the World's Cities 2006/7*. Nairobi: UN-Habitat.
- UN-Habitat. 2003. *The Challenge of Slums. Global Report on Human Settlements 2003*. Nairobi: UN-Habitat.
- UNICEF and WHO. 2013. *Ending Preventable Child Deaths from Pneumonia and Diarrhoea by 2025: The Integrated Global Action Plan for Pneumonia and Diarrhoea (GAPPD)*.
- UNICEF. 2012. *Children in an Urban World: The State of the World's Children 2012*. New York: UNICEF.
- UNICEF. 2010. *State of the World's Children Report 2010 (Statistical Annex)*. New York: UNICEF.
- UNICEF. 2007. *Enhancing urban safety and security: Global report on human settlements*. London: Earthscan.
- UNISDR. 2009. *Global Assessment Report on Disaster Risk Reduction: Risk and Poverty in a Changing Climate*. Geneva: UNISDR, United Nations.
- UNISDR. 2011. *Revealing Risk, Redefining Development: The 2011 Global Assessment Report on Disaster Risk Reduction*. Geneva: ISDR, United Nations.
- Van de Poel, O'Donnell, O. and Doorslaer, V. 2007. Are urban children really healthier? Evidence from 47 developing countries. *Social Science & Medicine* 65(2007), pp. 1986-2003.
- Varney, D. and van Vliet, W. 2005. Local environmental initiatives oriented to children and youth: a review of UN-Habitat best practices. *Children, Youth and Environment* 15(2), pp. 41-52.
- VMSDFI. 2001. Meet the Philippines Homeless People's Federation. *Environment and Urbanization* 13(2), pp. 73-84.
- WHO. 1992. *Our Planet, Our Health*. World Commission on Health and Environment. Geneva: WHO.
- Wisner, 2006. *Let our children teach us: A Review of the Role of Education and Knowledge in Disaster Risk Reduction*. Bangalore: Books for Change.
- Wisner, B., Blakie, P., Cannon, T. and Davis, I. 2004. *At Risk: natural hazards, people's vulnerability and disasters*. Second edition. London and New York: Routledge.
- World Bank. 2013. Indicators. Available at: World Bank. 2013. Indicators. Available at: <http://data.worldbank.org/indicator>
- World Bank. 2011. *Jakarta: Urban Challenges in a Changing Climate*. Mayor's Task Force on Climate Change, Disaster Risk & and the Urban Poor. Washington D.C.: World Bank.
- World Bank. 2010. *Cities and Climate Change: An Urgent Agenda*. Urban Development Series Knowledge Papers. December 2010, Vol. 20. Washington: World Bank.
- West, A. 2003. *At the Margins: Street Children in the Asia and the Pacific*. Poverty and Social Development Papers. No. 8 October 2003. Asian Development Bank.
- WHO. 2005. *Disability, including prevention, management, and rehabilitation*. Geneva: WHO.
- WWF. 2009. *Mega-Stress for Mega-Cities: A Climate Vulnerability Ranking of Major Coastal Cities in Asia*.
- Zetter, R. and Deikun, G. 2010. Meeting humanitarian challenges in urban areas. *Forced Migration Review* 34. Refugee Studies Centre, Oxford.
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Appendix

Focal areas of NGOs engaged in child rights and/or DRR in Bangladesh, Nepal, the Philippines and Indonesia

Organisation name	Has DRR-related project	Rural DRR	Urban DRR	Child-centred DRR and/or includes children in DRR		Child-centred DRR in urban area
				Rural	Urban	
Bangladesh						
Save the Children	Yes	Yes	Yes	Yes	Yes	Yes
Concern Universal	Yes	Yes	Yes	No	Yes	No
Concern World Wide	Yes	Yes	No	Yes	Yes	No
ActionAid	Yes	Yes	Yes	No	Yes	No
Islamic Relief	Yes	Yes	Yes	Yes	Yes	No
World Vision	Yes	Yes	Yes	No	Yes	No
Oxfam	Yes	Yes	Yes	Yes	Yes	No
Muslim Aid	Yes	Yes	Yes	Yes	Yes	No
Christian Aid	Yes	Yes	No	Yes	No	No
CDMP	Yes	Yes	Yes	No	No	No
DAM	Yes	Yes	Yes	Yes	Yes	Yes
BGMEA	Yes	No	Yes	No	No	No
Caritas	Yes	Yes	No	Yes	No	No
CARE	Yes	Yes	No	Yes	No	No
IFRC	Yes	Yes	Yes	No	Yes	Yes
CDP	Yes	No	Yes	No	Yes	Yes
SEEP	Yes	No	Yes	No	Yes	Yes
ACF	Yes	Yes	No	Yes	No	No
Dutch Aid	Yes	Yes	No	Yes	No	No

Organisation name	Has DRR-related project	Rural DRR	Urban DRR	Child-centred DRR and/or includes children in DRR		Child-centred DRR in urban area
				Rural	Urban	
Jakarta						
Save the Children	Yes	Yes	Yes	Yes	Yes	Yes
World Vision	Yes	Yes	Yes	Yes	Yes	Yes
Oxfam	Yes	Yes	No	No	No	No
Child Fund	Yes	Yes	Yes	Yes	Yes	Yes
Mercy Corps	Yes	Yes	Yes	No	No	No
YTBI	Yes	Yes	Yes	Yes	Yes	No
TAGANA	Yes	Yes	Yes	No	No	No
MPBI	Yes	Yes	Yes	No	No	No
HFI	Yes	Yes	Yes	No	No	No
Kerlip	Yes	Yes	Yes	Yes	Yes	No
Nepal						
Child Nepal	No	No	No	No	No	No
CIWIN Nepal	No	No	No	No	No	No
Concern Nepal	No	No	No	No	No	No
CNFN	NO	No	No	No	No	No
DPNet Nepal	Yes	Yes	Yes	Yes	Yes	No
ECO Nepal	Yes	Yes	Yes	Yes	Yes	Yes
FSC Nepal	Yes	Yes	Yes	Yes	Yes	Yes
KVS	Yes	No	Yes	No	Yes	No
Lumanti	Yes	Yes	Yes	Yes	Yes	No
NDRC	Yes	Yes	Yes	Yes	Yes	No
NSET	Yes	Yes	Yes	Yes	Yes	No
VoC	No	No	No	No	No	Yes
17 Ward DMC	Yes	No	Yes	No	Yes	No

Organisation name	Has DRR-related project	Rural DRR	Urban DRR	Child-centred DRR and/or includes children in DRR		Child-centred DRR in urban area
				Rural	Urban	
Philippines						
Citizens' Disaster Response Center (CDRC)	Yes	Yes	Yes	Yes	Yes	Yes
Child Fund International	Yes	Yes	Yes	Yes	Yes	Yes
Children International Philippines	Yes	Yes	Yes	Yes	Yes	Yes
Community and Family Services International (CFSI)	Yes	Yes	Yes	Yes	No	No
Save the Children	Yes	Yes	Yes	Yes	No	No
World Vision Development Foundation	Yes	Yes	Yes	Yes	Yes	
BP Operation Compassion International, Inc.	Yes	Yes	No	No	No	No
Food for the Hungry Philippines, Inc.	Yes	Yes	Yes	Yes	Yes	Yes
Assisi Development Foundation, Inc.	Yes	Yes	Yes	No	No	No
Partnership of Philippine Support Services Agencies, Inc.	Yes	Yes	No	No	No	No

