

Pro-Poor Urban Adaptation to Climate Change in Bangladesh: A Study of
Urban Extreme Poverty, Vulnerability and Asset Adaptation

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Abstract

This dissertation investigates pro-poor urban adaptation to climate change in Bangladesh. Dhaka city, a capital of Bangladesh, is widely recognised to be one of the most climate vulnerable mega cities in the world. Climate change impacts are likely to affect the poorest urban residents disproportionately as having the least capacity to adapt to a changing climate. However, the assertion that the poorest are the most vulnerable to climate change is commonly made as a generalisation, with limited examination of the dynamic and differentiated nature of poverty. This research therefore aims to examine pro-poor urban adaptation in the context of climate variability and change. In analysing climate change vulnerability and asset adaptation from urban extreme poverty, this research identifies a differentiated view of poverty and vulnerability and also provides an analysis of how extreme poor households get access to assets and build asset adaptation strategies. This research found that extreme poor households do their best to adapt to perceived climate changes, but in absence of savings, access to credit and insurance, they are forced to adopt adverse coping strategies. Social policy and social protection could therefore become more of a priority sector for adaptation than it has been so far. This can create opportunities for the poorest to accumulate assets which help them to build asset adaptation or resilience strategies.

By reviewing key theories and practices, this research first addresses the question of whether there is any interrelation between poverty dynamics and vulnerability. The research then explores drivers of climate change vulnerability for the urban extreme poor. This research critically analyses autonomous adaptation and planned asset based adaptation in order to build a conceptual framework of pro-poor asset adaptation for the urban extreme poor households and groups. Following this framework, this research aims to identify the individual adaptation practices and role of institutions and policies in supporting or constraining these adaptation practices. This research also examines the role of social policy and social protection for pro-poor adaptation. The research then applies the concepts drawn from a critical literature review to analyse the context of Bangladesh. Thus, the research has conducted household life-history interviews to explore the vulnerabilities and asset adaptation strategies of the extreme poor households. To understand household asset endowments (and their returns) descriptive statistics are derived from secondary sources. In addition to household interviews, key informant surveys, focus group discussions, grey materials and analysis of secondary

academic materials were analysed to acquire qualitative information on the role of formal and informal institutions and policies for adaptation practices.

The household life-history findings support the idea that poverty traps are likely to be linked to vulnerability. The empirical evidence also shows that there is a clear relationship between vulnerability to the market (exclusion from market opportunities), low asset holdings (and their returns) and ill-health. The slums and squatter settlements in Dhaka city are marked by high levels of physical vulnerabilities in the context of climate change, mainly as a consequence of their high politico-legal and socioeconomic vulnerabilities. The individual adaptation practices are impact-minimising, short lived, ad hoc and even harmful measures because the urban poorest are excluded from formal policies and institutions and in the absence of formal rights and entitlements, the process of facilitating and maintaining patron–client relationships is a central coping strategy for the poorest. The social policy and social protection are found to be effective in facilitating asset adaptation for the urban extreme poor and contribute to greater resilience to climate change. Analysing the empirical evidence through the lens of the pro-poor asset adaptation framework, this research reveals that the asset transfer approach was an effective programmatic intervention for building household adaptation strategies. Social funds and supports to community driven development can enhance the capacity of community organisations to develop small infrastructures that actually stops or greatly reduces flooding. However, challenging the adverse structural context is not a matter of building at a household and collective level assets but also capacity to participate in and influence the institutions from which they have previously been excluded. Attention must be paid to building a strong collective organisation in order to break the existing social order and inequalities. The city and municipal government can create an enabling environment for this grassroots mobilisation by providing services and information, and ensuring their access to the decision making process. A combination of micro (household), meso (community) and macro (city and municipal) level asset-based actions can ensure the long term resilience of extreme poor households and groups.

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Research Thesis Submission Form

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List of Acronyms and Abbreviations

ARCAB	: Action Research for Community-Based Adaptation in Bangladesh
AISE	: Adverse Incorporation/Social Exclusion
AusAID	: Australian Aid
BCAS	: Bangladesh Centre for Advanced Studies
BCCSAP	: Bangladesh Climate Change Strategy and Action Plan
BCCTF	: Bangladesh Climate Change Trust Fund (BCCTF)
BCCRF	: Bangladesh Climate Change Resilience Fund (BCCRF)
BDT	: Bangladeshi Taka
BELA	: Bangladesh Environmental Lawyers Association
BIP	: Bangladesh Institute of Planners
BLAST	: Bangladesh Legal Aid and Services Trust
BAPA	: Bangladesh Poribesh Andolon
BRTC	: Bangladesh Road Transport Corporation
BRAC	: Bangladesh Rural Advancement Committee
BTTB	: Bangladesh Telephone and Telegraph Board
BWPI	: Brooks World Poverty Institute
CARE	: Cooperative for American Relief Everywhere
CAPs	: Community Action Plans
CBA	: Community Based Adaptation
CBOs	: Community Based Organisations
CBN	: Cost of Basic Needs
CBSG	: Capacity Building Service Group (CBSG)
CDCs	: Community Development Committees
CDD	: Community Driven Development
CFPR/TUP	: Challenging Frontiers of Poverty Reduction/Targeting Ultra Poor
CHRB	: Coalition for Housing Rights Bangladesh
CLP	: Char Livelihood Project
CMS	: Change Monitoring System
CPRC	: Chronic Poverty Research Centre
CRM	: Climate Risk Management
CRHCC	: Comprehensive Reproductive Health Care Centre
CSDRM	: Climate Smart Disaster Risk Management
CUP	: Coalition for the Urban Poor
CUS	: Centre for Urban Studies
DAP	: Detailed Area Plan
DFID	: Department for International Development
DCC	: Dhaka City Corporation
DCI	: Daily Calorific Intake
DIFPP	: Dhaka Integrated Flood Protection Project
DMA	: Dhaka Metropolitan Area
DMDP	: Dhaka Metropolitan Development Plan
DPHE	: Department of Public Health and Engineering

DPZ	: Detailed Planning Zones
DRM	: Disaster Risk Management
DSK	: Dushtha Shasthya Kendra (DSK)
DWASA	: Dhaka Water Supply and Sewerage Authority
EEP	: Empowerment of the Poorest Programme
ECNEC	: Executive Committee of National Economic Council
FAO	: Food and Agriculture Organisation
HIES	: Household Income and Expenditure Survey
IDS	: Institute of Development Studies
IIED	: International Institute for Environment and Development
IPCC	: Intergovernmental Panel on Climate Change
IOM	: International Organization for Migration
IGVGD	: Income Generating for Vulnerable Group Development for the Ultra Poor
LPUPAP	: Local Partnership for Urban Poverty Alleviation Programme
MDGs	: Millennium Development Goals
MCHC	: Maternal Child Health Care
MoEF	: Ministry of Environment and Forest
MLGRDC	: Ministry of Local Government, Rural Development and Cooperatives
NAPA	: National Adaptation Programme of Action
NDBUS	: Nagar Daridra Basteebashir Unnayan Sangstha
NEC	: National Economic Council
NGO	: Non Government Organisation
NHA	: National Housing Authority
NHP	: National Housing Policy
ODI	: Overseas Development Institute
O&M	: Operation and Maintenance
PRSP	: Poverty Reduction Strategy Paper
PHC	: Preventive Health Care
PWD	: Public Works Department
RAJUK	: Rajdhani Unnayan Kartripakkha
SEF	: Socio-Economic funds
SHIREE	: Stimulating Household Improvements Resulting in Economic Empowerment
SIP	: Slum Improvement Programmes
SOD	: Standing Order on Disasters
UNDP	: United Nations Development Programme
UBSDP	: Urban Basic Services Delivery Project
UNFCC	: United Nations Framework Convention on Climate Change
UNCHS	: United Nations Centre for Human Settlements
UNICEF	: United Nations Children's Emergency Fund
UPPRP	: Urban Partnerships for Poverty Reduction Programme
WHO	: World Health Organisation

List of Publications

1. “Institutions Matter for Urban Resilience: The Institutional Challenges in Mainstreaming Climate Smart Disaster Risk Management in Bangladesh”, Paper Published as a Book Chapter, in W. Leal Filho (ed.), *Climate Change and Disaster Risk Management*, Springer-Verlag Berlin Heidelberg, 2013
2. Dealing with Disasters Conference 2013, Organised by Northumbria University, Newcastle, “Adaptation to Climate Change as Resilience for Chronically Urban Poor: Lessons Learned from Targeted Asset Transfers Programmes in Dhaka city of Bangladesh”

Chapter 1 : Introduction

1.1 Introduction

Climate change¹ comes to people's attention as extreme weather events such as floods, droughts, extreme temperatures, heavy rains and storms in the cities of the global South². Cities in the global South are particularly at risk in the context of climate change for a number of reasons: high density population; large scale of population living in slums³ or informal settlements; concentrations of solid and liquid wastes; unplanned growth of cities that disrupts natural drainage and urban expansion on particularly risky sites (Pelling, 2003 & Tanner et al., 2009). Increased climate related shocks and stresses will disproportionately increase the vulnerability of the urban poor in comparison to other groups of urban dwellers (Jabeen et al., 2010; Pelling, 2003 & Satterthwaite et al., 2007). The risks from a changing climate for the urban poor are often even greater (Baker, 2012), exacerbated by the multiple deprivations that they face living in the urban environment and these deprivations range from insecurity of land titling or shelter and relatively high rent, poor urban commuting facilities, to minimal credit or capital support and limited access to service delivery (such as water, sanitation,

¹ The term 'climate change' refers to, in general, the variation in behavioural pattern of the earth's climate attributes over time (Adger, 1999). There are two terms 'climate change' and 'climate variability' used interchangeably in most cases. The United Nations Framework Convention on Climate Change (cited in Scott, 2008) defined climate change as a change in climate which is attributed directly or indirectly to human activity that alters the composition of the global atmosphere and which is in addition to natural climate variability observed over comparable time periods, whereas climate variability refers to naturally occurring variability in the climate. The distinction between climate variability and climate change would not be significant but for the fact that the United Nations Framework Convention on Climate Change (UNFCCC) funds the latter but not the former (Huq and Reid, 2004 & Scott, 2008). In reality, signals of variability and change are impossible to distinguish from one another (Schipper and Pelling, 2006 & Scott, 2008).

² The term 'South' refers to the less developed countries of Asia, Africa and Latin America, by definition they are poor compared to most of the rest of the world (Hossain, 2006). The other terms such as 'poor countries', 'less developed nations', 'developing countries' and 'third world' are also equally appropriate descriptions.

³ UN-HABITAT (2006) defines a slum or informal settlement as a group of households living in an urban area which lack one or more of the following:

- durable housing of a permanent nature that protects against extreme climate conditions.
- sufficient living space which means not more than three people sharing the same room.
- easy access to safe water in sufficient amounts at an affordable price.
- access to adequate sanitation in the form of a private or public toilet shared by a reasonable number of people.
- security of tenure that prevents forced evictions.

waste disposal, public safety, health care and education). But, the position of the urban extreme poor or poorest is even more precarious than the urban poor in general, as they persist on the border of urban society and therefore, they have the least capacity to adapt to a changing climate, lacking the assets, social networks, mobility, and political power, commonly cited as being critical for adaptation⁴ (Tanner and Mitchell, 2008). Climate change is an increasingly important influence exacerbating an already vulnerable livelihood context of the urban extreme poor (Banks, 2012 & Roy et al., 2012a). It adds an additional layer of shocks that the urban extreme poor face in a context of limited services and infrastructure, densely populated and environmentally vulnerable habitats, and their limited adaptive capacity for coping with climate change impacts (Banks et al., 2011a; Banks, 2012; Jabeen et al., 2010; Roy et al., 2011 & Roy et al., 2012a). Mounting evidence and the prevailing discourse suggests that without dramatic policy interventions, the effects of climate change will frustrate pathways out of extreme poverty (Sperling, 2003; DFID, 2006; IPCC, 2007 & Tanner and Mitchell, 2008).

Despite these challenges present climate change adaptation strategies have largely ignored the urban poorest or the urban extreme poor and their livelihood dynamics (see Mitlin, 2005a; Tanner and Mitchell, 2008 & Mitchell and Tanner, 2006). This has meant that these adaptation strategies, perhaps, have contributed to an assumption that the poor share similar characteristics and face the same difficulties. However, the urban poor constitute a heterogeneous group and it is important to understand that vulnerabilities and adaptation options may change according to different poverty categories (Grant and Hulme, 2008 & Tanner and Mitchell, 2008). Therefore, this research builds on the proposition that climate change adaptation strategies cannot effectively address the root causes of poverty without taking a differentiated view of poverty and vulnerability. A focus on extreme poverty recognises differences of vulnerability and adaptation among the urban poor households and groups, and helps identify those who are most in need of effective climate change adaptation or resilience strategies. In order to address this current gap in adaptation research, this research highlights the vulnerability of the extreme poor households to climate-related risks. More particularly, this research seeks to identify pro-poor adaptation strategies as the

⁴ Adaptation is described as the adjustment in natural and human systems in response to the actual or observed impacts of climate change and climate variability, and aims to exploit any beneficial opportunities (Smit and Pilifosova, 2001).

urban extreme poor households exploit opportunities to resist, or recover from, the negative effects of climate change, considering the context of the urban extreme poor in Bangladesh.

1.2 Background of the Study

There has been a clear upward global trend in the frequency of large disasters arising from natural events between 1950 and 2005 and especially from 1980; and the evidence that demonstrates the vulnerability of urban populations to climate change shows a dramatic upward trend in the number of people killed or seriously impacted by extreme weather events⁵ (Hoeppe and Gurenko, 2007; Moser and Satterthwaite, 2008; Satterthwaite et al., 2009 & UN-HABITAT, 2007). The scientific communities of the Intergovernmental Panel on Climate Change (IPCC) argue that the main impacts of climate change and climate variability on urban areas in the next few decades are likely to be increased (IPCC, 2007). Bangladesh is one of the most natural disaster-prone countries in the world and this presents a major and ongoing impediment to development (Alam et al., 2011; DFID, 2010; Harmeling, 2011; Huq and Ayers, 2007 & Parry et al., 2007). Over the past 20 years Bangladesh has been hit by six major disasters—four floods and two cyclones—affecting millions (DFID, 2010).

As Bicknell et al. (2009) note, the drivers of urbanisation, the weaknesses and incapacities of governments; and the development and expansion of cities in high-risk sites are the key factors behind the increased vulnerability of poor urban communities to climate variability and change. In developing countries like Bangladesh, urbanisation is overwhelmingly the result of people moving in response to better economic opportunities in the urban areas, to the lack of prospects in their home farms or villages, or both (Lewis, 2011 & Roy et al., 2011). The rapid urbanisation⁶ of this country has led to an increasing proportion of the population living in urban areas (Banks et al., 2011a). Dhaka, the capital of Bangladesh and one of the world's largest megacities, held just over 58 percent of Bangladesh's total urban population in 2001 (ibid.). It began with a

⁵ The case studies of specific cities highlight the risks arising from extreme weather events and, for many, sea-level rise (see for instance El-Raey (1997) for Alexandria; Alam and Rabbani (2007) for Dhaka; de Sherbinin et al. (2007) for Mumbai, Shanghai and Rio de Janeiro; Dossou and Glehouenou-Dossou (2007) for Cotonou & Awuor et al. (2007) for Mombasa).

⁶ The urban population growth rate of Bangladesh was over six percent per annum from the 1960s to the 1990s as it is much higher than the national population growth rate of 2.5 percent per annum over this period (Islam et al., 1997). Its urban population continues to grow at over 3.5 percent annually (CUS et al., 2006).

manageable population of 2.2 million in 1975 which reached 15 million in 2010 (UN-HABITAT, 2010). The distinctive aspect of urban poverty in Dhaka city is its close connection with recent migration (Hossain, 2006). It is estimated that 300,000 to 400,000 new migrants are coming to Dhaka from different corners of the country each year (World Bank, 2007). A large portion of the new migrants are 'poor' and have 'extreme poor' among them. They are mainly staying in the 4,966 slums of Dhaka city and their current number is more than 5 million; and they are almost 40% of Dhaka city population (CUS et al., 2006). These slums or the informal settlements of Dhaka city have resulted from squatting on vacant or undeveloped lands, un-serviced private lands and many of them have been developed on unsafe flood prone sites (UN-HABITAT, 2003; Baker, 2012 & World Bank, 2007). The urban government structure in Dhaka city is usually unable or unwilling to address issues in the existing poor urban communities, which exacerbate the risk that poor urban communities in this city face (Banks et al., 2011a). As explained above the urban poor people constitute a heterogeneous group, they show differences in household socio-economic characteristics such as assets and dependency ratios, which can be considered as an influencing factor for a household's vulnerability to climate shocks and the forms of coping open to it (Bird and Prowse, 2009). Therefore, variations in household characteristics can lead to differing outcomes or consequences when exposed to a risky event. The urban extreme poor people, therefore, have few assets to deploy to cushion themselves from the negative impacts along with social exclusion that blocks their access to formal as well as informal risk-reduction mechanisms to cope with these impacts (Christoplos et al., 2009). This has meant that the vulnerability of the extreme poor households is related not only to the lack of assets but also social and political exclusion that limits their capacity to accumulate a portfolio of assets and also their choice of alternative coping strategies. Understanding this, the research explores the main drivers of vulnerability for the urban extreme poor in Dhaka city of Bangladesh.

'Adaptation' has become synonymous with the climate change community, with actions taken before or after climate change to enable people to best cope with the impacts (Adger et al., 2003; Burton et al., 2002; Sperling, 2003 & Osbahr, 2007). Building on asset based approaches (Moser, 1998, 2006, 2008 & Siegel, 2005), the pro-poor asset

adaptation operational framework⁷ identifies the role of assets in increasing the adaptive capacity⁸ of low-income households and communities to climate variability and change (Moser, 2010 & Moser et al., 2010). Assets, as used here, are resources through which households can deploy multiple strategies for reducing risks along with, maintaining their household stability and building a platform for improvement (Ford Foundation, 2004 & Moser, 2007). For example, in El Salvador, people living in 15 disaster-prone areas understood the risks associated with floods and landslides and invested in risk reduction by diversifying their livelihoods, investing in easily sold assets, and obtaining access to remittances (*autonomous* adaptation) (Wamsler, 2007a). There is a widespread recognition of the resources that grassroots organisations can bring to adaptation (Satterthwaite et al., 2007 & Huq and Reid, 2007). Living in environmentally vulnerable settings and substandard housing, poor urban communities are also attempting to find strategies of adaptation (e.g. improvement of housing, constructing additional walls around their houses to prevent floodwater from entering the building, savings groups, etc.) in order to reduce their vulnerability to extreme weather events. However, poor urban communities' adaptive practices are little known in Bangladesh context. To address this gap, this research explores coping and adaptive practices of people living in the urban slums of Dhaka city in Bangladesh.

The poor urban households' coping and adaptive responses are often ad hoc and short-lived, which can only minimise immediate impacts of climate variability and change. In practice, the development of infrastructure, basic services and climate resistance houses which prevents climate change impacts is often beyond the capabilities of even the best organised and most representative community organisations (UN-HABITAT, 2011). Wamsler (2007a & 2007b) argues that without adequate support from municipal authorities and aid organizations, people may not be able to fully use their adaptive capacity. Scholars argue that the formal institutional structures in the global South for delivering services and supports to the poor are weak and fail to meet many of their responsibilities (Baker, 2012 & Dodman and Satterthwaite, 2008). The informal context within which actors operate can provide a constraining environment for protecting or

⁷ The framework builds on earlier research on asset vulnerability, asset adaptation, and urban poverty reduction (see Moser 1998, 2007 & Moser and Felton, 2007), as well as preliminary climate change-related work (see Moser and Satterthwaite 2008).

⁸ Adaptive capacity is the potential capability or ability of a system to adapt to climate change stimuli or their impacts (Osborne, 2007).

adapting assets. Poor people can be excluded by many different sorts of groups, often at the same time: landlords exclude people from access to land or housing; elite political groups exclude others from legal rights; priests may exclude scheduled castes from access to temples; minorities may be excluded from labour markets; and so on (de Haan, 1998). All these block or constrain poor people's capacity to use their adaptive capacity. Considering these theoretical propositions, this research explores the role of urban institutions and policies in supporting or constraining asset adaptation of the urban extreme poor in Dhaka city of Bangladesh.

Poverty-focused measures, especially social sector approaches, need to be deployed, such as social safety nets, social protection, livelihood diversification to extreme poor households and social funds for community-based/driven adaptation to manage the risks of climate change (Vernon, 2008). Heltberg et al. (2009, p. 89) consider social sector approaches as “no-regrets” adaptation interventions, meaning actions that generate net social benefits under all future scenarios of climate change and impacts. There is growing interest in using safety nets to help avoiding post-disaster famine and in assisting affected households and communities to protect and rebuild their assets (ibid.). While community-based approaches to poverty reduction have been widely implemented in the past decades as a consequence of the work of community-based organisations (CBOs), NGOs and participatory approaches to development (Chambers, 1992), recently this approach has also turned its focus to climate change adaptation⁹ (Moser, 2010 & Moser and Stein, 2011). A community development approach can play an important role in building the enduring resources—assets—that individuals, organisations, or communities can acquire, develop, improve, or transfer across generations (Ford Foundation, 2004). Most recently, an asset-based analysis has identified the extent to which social protection programmes in Bangladesh, South Africa and Mexico have moved beyond consumption needs to address asset accumulation (Moser, 2008). The asset-based approach, initially used in a rural context where the climate change impact on resource-dependent households' livelihoods is already evident, as in the Bangladesh Chars Livelihood Programme (Conroy et al., 2010 & Hodson, 2009), has been recently extended to the urban extreme poor. Despite this,

⁹ The CBA approach has its conceptual roots in resilience theory (e.g. Holling, 2001), implying that it recognises that vulnerability and resilience to climate hazards are embedded in societies (Sabates-Wheeler et al., 2008). Thus, the focus of CBA should empower the poor communities to take action themselves based on their own decision making process.

the coverage of programmes and instruments helping the poor and vulnerable manage climate risks remains very low; pro-poor adaptation should aim to change this (Heltberg et al., 2009). Thus, this research intends to evaluate the effectiveness of the social sector approaches in building asset-based planned adaptation for urban extreme poor.

1.3 Aims and Objectives of the Study

The existing pro-poor asset adaptation operational framework exemplified by Moser (2010) explores a range of ‘bottom-up’ climate change strategies at the individual, household, and community levels. Complementing this, it also highlights some of the ‘top-down’ interventions of external actors such as municipalities, civil society organisations, and the private sector. However, it has given limited attention to the adaptation needs of the extreme poor and marginalised people such as women, children, the disabled and elderly. The extreme poor and marginalised (e.g. women, children, disabled, or indigenous people) face economic, cultural and institutional barriers that can prevent them from accessing the adaptation resources (Vernon, 2008). For example, restricted land rights due to institutional constraints make it difficult for women in many developing countries to access formal financial services that can mediate asset adaptation strategies such as livelihood diversification, and housing improvement (Dermetriades and Esplen, 2008 & Vernon, 2008). However, the existing asset adaptation framework has paid less attention to how the extreme poor and marginalised get access to assets and develop their own asset-based adaptation strategies in the context of climate change. In addressing the aforementioned gaps, this research contributes to the existing knowledge regarding pro-poor urban adaptation to climate change by analysing the vulnerability to climate change and asset adaptation associated with urban extreme poverty using a case study of a major city in Bangladesh. Therefore, the **aim of this research** is to examine pro-poor urban adaptation in the context of climate variability and change through a case study of a major city in Bangladesh.

Considering the aim, this research critically reviews the international literatures related to extreme poverty in order to understand poverty dynamics and its link with vulnerability. It then conceptualises the main drivers of vulnerability for the urban extreme poor and how these are shaped by both external (biophysical) and internal (social and economic) characteristics. The research goes on to build a conceptual framework of pro-poor asset adaptation from an urban extreme poverty perspective that

explores the appropriate asset adaptation strategies for the extreme poor households and also the process of supporting these households and groups to accumulate assets. The case study is grounded in the international theories and debates over urban extreme poverty, climate change vulnerability and asset adaptation and benefits from the existing research and literature in other developing countries.

The analysis of the case study in Bangladesh supports the idea that vulnerability is likely to be linked to poverty dynamics. Then, this research explains how external (geographic/locational and other physical) and internal (social, economic, political and legal) factors increase exposure and vulnerability for the urban extreme poor in Dhaka city. In addition to this, this research also explores coping and adaptive strategies urban extreme poor use to respond to extreme weather events. The study identifies the institutional constraints that limit the extreme poor's ability to adapt by critically analysing the urban institutions and policies of Bangladesh. It also identifies the poverty-focused/social sector approaches that have potential to build asset-based adaptation strategies for the extreme poor households in the Bangladesh case studies by analysing two social sector programmes. The aforementioned analyses in Bangladesh help the researcher to confirm or challenge the theoretical assumptions related to urban extreme poverty, climate change vulnerability and asset adaptation. Thus the research has identified six objectives which guide the theoretical and empirical analyses of this research. The **objectives of this research** are to:

- Explore the poverty dynamics and its relation with vulnerability and also to identify the main drivers of climate change vulnerability for the urban extreme poor.
- Develop a conceptual framework of pro-poor asset adaptation for the urban extreme poor in the context of climate change.
- Examine how vulnerability is related with poverty dynamics in the context of Bangladesh; and also explore the main drivers of vulnerability for the urban extreme poor in Dhaka city of Bangladesh.
- Explore coping and adaptation strategies that the urban extreme poor in Dhaka city use to respond to livelihoods challenges and climate variability.

- Explore the urban institutional responses to the vulnerabilities of the urban poor in Bangladesh and consider whether and how these responses support or hinder the asset building process for extreme poor households.
- Evaluate to what extent the social sector approaches are effective in supporting asset adaptation for the urban extreme poor in Bangladesh.
- Develop pro-poor policy recommendations to foster the asset building process for the urban extreme poor in Bangladesh considering both international and Bangladeshi good practices.

Considering the objectives, this research answers some questions, which are related to the broader theoretical and analytical framework of the research. This research has two main foci, which are: (i) examining the relationship between urban extreme poverty and climate change vulnerability; and (ii) pro-poor asset adaptation for urban extreme poor households. Considering the two main foci and the objectives of the research, the following **research questions** have been addressed:

- How are poverty dynamics linked to vulnerability?
- What are the main drivers of climate change vulnerability for the urban extreme poor and how are these shaped by external and internal characteristics?
- What coping and adaptation practices do extreme poor people deploy to tackle the livelihood challenges and climate variability?
- What role do urban institutions and policies play in supporting or constraining the asset building process for the urban extreme poor?
- How do social sector approaches facilitate asset adaptation of the extreme poor?
- Why and how does pro-poor adaptation need to be transformed to ensure the scaling up of asset adaptation of the extreme poor households?

1.4 Theoretical and Analytical Framework

The study is exploratory in nature as it aims to understand the context of pro-poor asset adaptation to climate change for the urban extreme poor in Bangladesh. Thus theories that have been referred to explore two different aspects: urban extreme poverty and climate change vulnerability, and pro-poor asset adaptation for urban extreme poor households. The research reviews ‘asset-based approaches’ (Amis, 2002; Moser, 1998 & Rakodi, 1999); ‘social exclusion/adverse incorporation’ approach (Babajanian and

Hagen-Zanker, 2012; Hickey and du Toit, 2007 & Sabates-Wheeler and Devereux, 2008); and ‘vulnerability’ approach (Chambers, 1989, 1995; Ellis, 2000; Hulme et al., 2001 & Moser, 1998) in order to explore poverty dynamics and its relationship with vulnerability. This research critically analyses climate change vulnerability theories throwing light on external and internal dimensions of vulnerability (Cardona et al., 2012; IPCC, 2012; Pelling, 2003; Romero Lankao and Qin, 2011 & Wilbanks et al., 2007). In order to understand the pro-poor asset adaptation options and process appropriate for extreme poor, this research critically analyses theoretical debates on adaptation and assets; individual and communal coping and adaptation strategies to climate variability and change; autonomous adaptations limitations for the urban extreme poor; and social sector approaches for planned adaptation (Jabeen et al., 2010; Moser, 2008, 2010; Moser et al., 2010; Moser and Stein, 2011; Roy et al., 2013; Wamsler, 2007a & 2007b). The literature review and later the case study have been analysed under these two theoretical viewpoints: (i) urban extreme poverty and climate change vulnerability; and (ii) pro-poor asset adaptation for the urban extreme poor. The following section provides the basic understanding of these aforementioned theoretical viewpoints and also explains why these theories are important for our understanding of urban extreme poverty, climate change vulnerability and pro-poor asset adaptation.

1.4.1 Urban Extreme Poverty and Climate Change Vulnerability

Extreme poverty refers to how far below a poverty line¹⁰ – however measured – someone falls. However, the use of poverty lines and thresholds based on income level or calorific values for explaining extreme poverty has been widely criticised because they overlook the multi-faceted nature of human deprivation (CPRC, 2004 & Sen, 2003). An asset-based approach may offer a useful approach in explaining the multi-dimensional aspects of extreme poverty because this is a framework which seeks to express the complexity and dynamics of urban extreme poverty in relation to the impact and/or changes to households’ overall assets (Amis, 2002; Bevan, 2004 & Howe and McKay, 2004). Assets are the resource endowments and capabilities that people have to

¹⁰ Under this approach, poverty is measured by determining if the levels of consumption that individuals and households have, at a given point in time, “fall[en] under pre-defined national poverty thresholds, which are measured in monetary terms and which take into account the differences both in consumption patterns between countries in the South, and between rural and urban areas in a given country” (Stein Heinemann, 2010, p.34).

build their livelihoods and to enhance their welfare (Moser, 2008). Nor can extreme poverty be explained only in terms of a ‘lack of assets’ (Hickey and du Toit, 2007). Rather, it is important to understand the links between low asset-holdings (and returns to those assets) in terms of the relations of social exclusion/adverse incorporation (ibid.). The social exclusion/adverse incorporation framework identifies ‘processes’ that cause multiple deprivations (Babajanian and Hagen-Zanker, 2012). The idea of adverse incorporation challenges the assumption that social inclusion is always beneficial, and encourages a more nuanced analysis which includes groups who gain from other people’s disadvantage (Davis, 2011). Together social exclusion and adverse incorporation draw attention to causes of improvement or decline in people’s lives and both support a broader, more sociological analysis of poverty dynamics (Mosse, 2007). The ‘vulnerability’ approach identifies adverse exogenous events that slide poor households into extreme or chronic poverty (*drivers* of poverty). However, not all potentially adverse events are exogenous; predictable endogenous events such as old age, widowhood, weddings can be adverse in nature and generally linked to their life-cycles (Kessy and Tarmo, 2011). This research assumes that extreme poor households are those who have low asset bases and low asset productivity. The extreme poor households are also trapped in unequal social relations that are so unjust that there is no or very limited opportunity for upward social and economic mobility, such that they experience persistently high levels of poverty (CPRC, 2008 & Shepherd, 2007). Household livelihoods, livelihood resilience, and well-being depend on the interface between shocks and stresses; assets; and structural context (Heltberg et al., 2010). Shocks and stresses affect the expected returns of households’ assets and livelihood strategies, and therefore household well-being and future asset accumulation. This cycle can prevent advancement out of poverty and can increase vulnerability to stresses and shocks.

Analysis of the urban extreme poor households’ life-histories in Bangladesh reveals the practical reality of such theoretical assumptions that poverty traps keep people in poverty over extended periods of time and that poverty traps like low asset bases and social exclusion/discrimination are likely to be linked to vulnerability. The case study analysis also explores factors that drive and maintain extreme poverty which may be the incremental or sometimes sudden events that cause loss of critical assets. Most importantly, it investigates the relationship between structural context, low pay, low

assets and shocks. Shocks or depletion of assets increase urban extreme poor's vulnerability to market, leading to their further exclusion from employment, services and opportunities. This research also explains how this cycle prevents the extreme poor households' upward mobility and increases vulnerability to shocks and stresses in Bangladesh context.

This research uses an '*integrative approach to vulnerability*' which is used in climate change research in order to understand climate change vulnerability in an urban context, which looks at the risks posed by natural hazards and defines vulnerability as a function of a system's exposure, sensitivity, and adaptive capacity (Baker, 2012; Roy et al., 2011 Romero Lankao and Qin, 2011 & Wilbanks et al., 2007). It relates to the central concern in this research – how weather events and climate variability and change impact on urban extreme poor households in Bangladesh. Following the integrative approaches, vulnerability is identified in terms of three elements: (i) poor urban households and communities to crises, stresses and shocks; (ii) households' or communities' capacity (or lack of capacity) to cope; and (iii) consequences and attendant risks of slow (or poor) households' and communities' recovery. This conceptualisation of vulnerability helps us to identify physical, social, economic, political and legal characteristics that increase the vulnerability of poor urban communities to weather events and climate variability and change. This research assumes that distinctions in physical, social, economic and political factors affect the nature and degree to which different poor groups are impacted by climate change and extreme weather events. In the Bangladesh context, this research identifies geographical/locational and physical drivers of vulnerability for the urban extreme poor. The study also explores how social, economic, political and legal characteristics increase vulnerability for the urban extreme poor in Dhaka city.

1.4.2 Pro-Poor Asset Adaptation for the Urban Extreme Poor

The asset adaptation approach comes from the asset based approach to development which is rooted in poverty and vulnerability reduction. Closely linked to the concept of 'capabilities'; assets are identified as resources which poor people use not only to generate additional flows and stock (Moser, 2007), but which also give them "the capability to be and to act" (Bebbington, 1999, p. 2022). Assets available to poor individuals, households and communities can facilitate their asset adaptation strategies.

The process by which the assets held by households and communities are protected or adapted does not take place in a vacuum (Moser, 2010). Institutions include the laws, norms, and regulatory and legal frameworks that either block or enable access, or, indeed, positively facilitate asset adaptation, in various ways (ibid.). Thus, institutions at multiple levels provide incentives to people to adapt to climate risks (Young et al., 2005). The formal and informal context within which poor households and communities operate can provide an enabling environment for protecting or adapting assets (Moser, 2010). Moser et al. (2010) highlight the importance of shifting from an asset accumulation to an asset adaptation framework in order to better understand the opportunities the urban poor have to build long term resilience to the impact of climate change.

Considering these theoretical assumptions, this research assumes the extreme poor households have coped with or adapted to the extreme events combined with climate variability. Reviewing the international literatures, it is found that poor urban communities deploy a wide range of hazard related physical measures to mitigate or avoid the impacts of the hazards (Jabeen et al., 2010; Moser et al., 2010; Moser and Stein, 2011; Roy et al., 2013; Wamsler, 2007a & 2007b). Coupled with this, their non-hazard social, economic and political measures also reduce adverse effects of the extreme events and climate variability. While vulnerability and adaptation options may change according to poverty categories, the urban extreme poor's coping and adapting practices are impact minimising, short-lived and even adverse (such as selling assets), leading to asset-based poverty traps. Taking further the linkage between vulnerability and poverty dynamics, this research argues that the extreme poor and marginalised face formal and institutional barriers that can prevent them from accessing assets for adaptation. For example, widows, divorced/abandoned women are often excluded from community credit groups; elderly women may lack access to and knowledge of private sector health services; and a lack of voice and influence in decision making results in informal institutional process or government policies and institutions being less likely to address their specific needs (Vernon, 2008). This research analyses these theoretical propositions by using the case study of Dhaka city within the Bangladesh context. Within the Bangladesh context, this research identifies the urban extreme poor's adaptive practices that offer critical insights into their effectiveness in mitigating the impacts of extreme events. Additionally, it also explores the weaknesses of urban

policies and institutions in Bangladesh in helping the urban poor to adapt. Most importantly, it explores the role of informal institutions in supporting or constraining the pro-poor asset adaptation in the urban slums of Dhaka city.

Strategies that have been effective over centuries to mitigate the impacts of the extreme events may become insufficient or even ineffective (Vernon, 2008). For example, many traditional risk sharing mechanisms based on social capital such as asset pooling and extended family networks will be less effective when climate change simultaneously affects families, communities and entire region (ibid.). Coupled with this, autonomous adaptations of poor urban communities are often constrained, by a lack of secure tenure and household capacity, with most having neither the physical, nor the financial capacity to undertake large infrastructural projects (Banks, 2012). In this context, social sector approaches can support pro-poor asset adaptation by scaling up asset-based planned adaptation through different programmatic interventions such as community based development initiatives, social protection, targeted asset transfers etc. Considering both autonomous and planned asset adaptation¹¹, this research develops a conceptual framework aimed at understanding the pro-poor asset adaptation process for extreme poor households and groups. The pro-poor asset adaptation for the urban extreme poor households assumes that assets (and asset transfers to) procured directly by the urban extreme poor households and groups are central to increasing the adaptive capacity of these households to climate change. Thus the programmatic interventions need to incorporate strategies for accessing assets; consolidating assets (e.g. credit and savings groups for providing emergency credit support) and also should create a supportive and responsive institutional environment that enables the extreme poor to further accumulate other assets. In the Bangladesh context, this research identifies the

¹¹ *'Autonomous adaptation'* that does not constitute a conscious response to climatic stimuli, but is triggered by ecological changes in natural systems and by market or welfare changes in human systems (IPCC, 2001). It is also referred to as *'spontaneous adaptation'*. *'Planned adaptation'* that is the result of a deliberative policy decision, based on an awareness that conditions have changed or are about to change and that action is required to return to, to maintain, or to achieve a desired state (ibid.). The linkage between autonomous/reactive adaptation and planned/anticipatory adaptation is as either being substitutes or complements (IPCC, 2001 & Schipper, 2007). If autonomous adaptation increases the marginal benefit of planned adaptation and vice versa, they are considered complements (ibid.). One example involves farmers responding to increasing temperature by planting new varieties (autonomous adaptation) and government research institutes developing new heat resistant seeds (planned adaptation): farmers' willingness and ability to adopt the new seeds increase the marginal benefit of the research institutes, and the availability of more varieties increases the marginal benefit for farmers changing to new seeds (Schipper, 2007).

impacts of the social sector approaches on building the asset adaptation of the extreme poor.

1.5 Policy Relevance of the Research

Climate change is now a consensually established social phenomenon (Banks et al., 2011a) and its relation with urban poverty has been firmly established in recent studies or researches (IIED, 2009; Bicknell et al., 2009). Recent research, both in Bangladesh and internationally, recognises that the effects of climate change will have a disproportionate impact on the urban poor communities living in the informal settlements than on other residents in the city. Currently it seems that both international and Bangladeshi literatures disregard the differentiated nature of vulnerability within the urban poor groups. The neglect of extreme poverty in urban research is also compounded by a lack of research and policy on the impacts that climate change will have on the livelihoods of the urban extreme poor. As a result, existing pro-poor asset adaptation operational strategies to climate change have limited recognition of the actual adaptation needs of the urban extreme poor households to climate variability and change. A review of existing policies and actions in the context of Bangladesh reflect that there is a lack of awareness amongst policymakers of the growing levels of urban extreme poverty in the country (Banks et al., 2011a, 2011b & Roy et al., 2011).

Considering these gaps in the existing literatures, this research contributes to existing knowledge regarding urban extreme poverty, vulnerability and asset adaptation, through a case study of Dhaka city in Bangladesh. The research has explored the links between asset holdings in terms of the relationship between adverse incorporation/social exclusion, which provides a useful framework to analyse the multidimensionality of poverty, and factors that contribute to the vulnerability of the extreme poor households and groups. These findings can contribute to the existing knowledge by providing a differentiated view of poverty and vulnerability which can enhance climate change adaptation approaches with respect to different categories of the poor and vulnerable. In addition, it is the first attempt, as far as the author is aware, to explore pro-poor asset adaptation strategies and processes for the extreme poor households through analysing theoretically and empirically autonomous as well as planned asset adaptation. An analysis of adaptation practices reflect poor people's individual and collective characteristics, resources and strategies (Roy et al., 2011). They offer a platform for

external actors to understand what works for poor urban people and in poor urban communities. The impact evaluation of social sector approaches for pro-poor planned adaptation can be helpful to demonstrate the effectiveness of programmes in building asset adaptation to policy makers. An analysis of urban policies and institutions can offer critical insights into institutional barriers that limit or block the extreme poor's access to critical assets for adaptation. Thus, the current study suggests new strategies for addressing the asset adaptation needs of the extreme poor households and groups.

1.6 Structure of the Thesis

The structure and methods of this research reflect the sequence of objectives of the research. The current chapter has set out the context of the research and introduced its main aim and objectives. Table 1.1 below provides an overview of the theoretical and analytical frameworks, and shows the remaining structure of this thesis and the order in which the research objectives will be addressed.

Table 1.1: Objective-wise Structure of the Research

Aim of the research	Objectives	Methods	Chapters
The aim of this research is to examine pro-poor urban adaptation in the context of climate variability and change through a case study of a major city in Bangladesh.	Explore the poverty dynamics and its relation with vulnerability and also to identify the main drivers of climate change vulnerability for the urban extreme poor.	Literature Review	Chapter 2
	Develop a conceptual framework of pro-poor asset adaptation for the urban extreme poor in the context of climate change.	Literature Review	Chapter 3
	Examine how vulnerability is related to poverty dynamics in the context of Bangladesh; and also explore the main drivers of vulnerability for the urban extreme poor in Dhaka city of Bangladesh.	Qualitative and Quantitative Analysis	Chapter 5
	Explore coping and adaptation strategies that the urban extreme poor in Dhaka city use to respond to livelihoods challenges and climate variability.	Qualitative Analysis	Chapter 6
	Explore the urban institutional responses to the vulnerabilities of the urban poor in Bangladesh and consider whether and how these responses support or hinder the asset building process for extreme poor households.	Qualitative and Grey Materials Analysis	Chapter 6
	Evaluate to what extent the social sector approaches are effective in supporting asset adaptation of the urban extreme poor in Bangladesh.	Qualitative Analysis	Chapter 7
	Develop pro-poor policy recommendations to build the asset building process for the urban extreme poor in Bangladesh considering good practice in the international and Bangladesh context.	Comparative Analysis	Chapter 8

* In addition to these chapters, there is an Introduction (Chapter 01) and Research Strategy (Chapter 04)

Chapter two addresses urban extreme poverty and vulnerability to climate variability and change from a theoretical perspective. Chapter two is divided into two sections: it first explains the multidimensionality of extreme poverty and its relation with vulnerability; and then, the second part of this chapter conceptualises the main drivers of climate change vulnerability for the urban extreme poor by exploring external and internal dimensions of vulnerability. At the beginning, the chapter defines extreme poverty by considering the three dimensions of poverty: poverty breadth, depth and duration. In order to explain the multidimensionality of extreme poverty, this chapter

critically reviews urban extreme poverty from the perspective of asset based approaches to explain asset deprivations and their relation with vulnerability; the adverse incorporation/social exclusion (AISE) approach in order to explore the process of deprivation and social exclusion and how the exclusion from accessing assets and opportunities exacerbates vulnerability; and also from vulnerability approach to explore the adverse events that lead to an asset erosion. The second part of this chapter starts by exploring how livelihood challenges are compounded by climate variability and change. Then, this section of this chapter describes the conceptual framework of climate change vulnerability and also justifies the effectiveness of this conceptual framework in identifying the drivers of vulnerability to climate change among the urban extreme poor. Finally, the chapter analyses two dimensions of vulnerability, external (shocks and stresses) and internal (coping capacity) from the lens of those in urban extreme poverty. The findings from this analysis in Chapter two provide the framework for understanding the vulnerabilities to extreme events and climate variability of the respondents interviewed in the Dhaka case study in Chapter five.

The theoretical and conceptual frameworks underpinning the pro-poor asset adaptation approach are outlined in Chapter three. The existing pro-poor asset adaptation framework does not focus on the asset adaptation process experienced by urban extreme poor households. In order to address this gap, Chapter three develops a revised conceptual framework on pro-poor asset adaptation focusing on the extreme poor households. In doing so, this chapter first explores the theoretical debates on adaptation and assets. It briefly reviews current approaches to climate change adaptation and also explains why the asset adaptation approach is essential for effectively targeting help to the extreme poor households and groups. This chapter explores adaptive practices that the poor urban communities use in order to cope with or adapt to extreme weather events. This is used later in Chapter six to identify the asset adaptation strategies in the Bangladeshi context. In addition, this chapter identifies the factors/barriers that constrain the building of asset adaptation by analysing institutions from the lens of extreme poverty. Later, it critically analyses poverty focused measures/social sector approaches such as social funds for community based/driven adaptation, social protection and ‘asset transfer’ in order to identify how these address the process of asset adaptation for the extreme poor households and groups. The findings of this chapter provide a conceptual framework that identifies micro, meso and macro level asset

adaptation strategies and processes to support the extreme poor households to accumulate assets and invest in their asset portfolios for adapting to climate change.

Chapter four brings together the previous two theoretical chapters under an integrated analytical framework to analyse climate change vulnerability and asset adaptation for urban extreme poor. The latter part of this chapter outlines the methodology used for this research. This research is based on empirical data drawn from the experiences of poor people in Dhaka City's slums, collected through qualitative research. A detailed discussion of methods such as life-history interviews, key informant surveys, focus group discussions, analysis of grey materials and observations used in the research is presented in the chapter. Further, the chapter explains the data collection and analysis processes and also explores the limitations of the research methodology.

Chapter five explores the links between vulnerability and the multidimensional aspects of poverty and seeks to understand the drivers of vulnerability for the urban extreme poor in the Bangladeshi context. The chapter focuses on asset characteristics and also the factors that contribute to adverse incorporation/social exclusion in Bangladesh. In Dhaka city urban extreme poverty is shaped by participation in the informal sector of the economy and the low level of economic returns, lack of access to urban land, poor housing and services, and low levels of social capital. The chapter explains the structural factors related to the urban labour market, life-cycle factors and household composition. In addition to this, the chapter explains the relationship between vulnerability to market, low asset productivity and health shocks in the context of Dhaka city. This chapter next discusses climate variability and change in the context of Dhaka city. Later this chapter explains the main drivers of vulnerability for the urban extreme poor in Dhaka city and also discusses how are these shaped by external (geographical/locational and physical) and internal (social, economic, political and legal) characteristics.

Chapter six explores autonomous adaptations as well as the constraints to pro-poor asset adaptation in Bangladesh. The chapter, first, explores a range of impact-minimising and preparedness responses that the urban extreme poor have already used to mitigate or avoid adverse impacts of the extreme events in the context of Dhaka city. Then, it critically analyses the urban policies in Bangladesh in order to find out the weaknesses

of these policies for supporting poor urban communities to develop their asset adaptation. This chapter maps out urban formal institutions and processes in disaster risk reduction and climate change adaptation and also identifies their role in supporting or constraining pro-poor asset adaptation. Lastly, this chapter critically evaluates the role of informal institutions for adaptation practices and considers whether and how the institutional process support or constrain the urban extreme poor's asset adaptation.

Chapter seven explores to what extent social sector programmatic approaches are effective in building the asset adaptation of the urban extreme poor in Bangladesh. The chapter begins by explaining the asset accumulation strategies of the Urban Partnership for Poverty Reduction Programme (which follows a community-based approach with social protection) and the DSK-Shiree project (an 'asset transfer' programme) for the extreme poor households in Dhaka city. The chapter explores how asset accumulation strategies of these projects facilitate pro-poor asset adaptation; later, it examines the effectiveness of these programmes in building the resilience of the urban extreme poor to future climate variability and change.

The concluding Chapter eight, provides a summary of the research project, focusing in particular, on the research questions. Then, this chapter summarises the gaps of the pro-poor asset adaptation strategies and process in the Bangladeshi context from the focus of the pro-poor asset adaptation framework developed in Chapter three. Further, recommendations are made for strategic options that could help improve the micro, meso and macro level adaptation strategies in Bangladesh. It also discusses the implications of the research findings at both theoretical and practical levels and outlines directions for future research on urban extreme poverty and climate change adaptation.

Chapter 2 : Urban Extreme Poverty and Vulnerability to Climate Change

2.1 Introduction

This chapter addresses the first and second research questions focusing on how vulnerability in a theoretical context is seen as related to poverty dynamics and the drivers of vulnerability to climate change for the urban extreme poor. The chapter is structured into two sections. The first section intends to conceptualise poverty dynamics and its relationship to vulnerability by analysing the urban extreme poverty from asset-based approaches (Bebbington, 1999; Moser, 1998, 2008 & Narayan, 1997) from the social exclusion/adverse incorporation approach (Babajanian and Hagen-Zanker, 2012; Davis, 2011; Hickey and du Toit, 2007 & Wood, 2000) and also from the vulnerability approach (Chambers, 1989, 1995; Ellis, 2000; Hulme et al., 2001; Kessy and Tarmo, 2011 & Moser, 1998). Before reviewing the urban extreme poverty from these three approaches, it defines urban extreme poverty by using three poverty dimensions: poverty depth, breadth and duration which helps the researcher to understand different dimensions of extreme poverty. The review of the literatures on asset-based poverty analysis reveals that extremely poor people are those without assets or limited assets and that, even when basic assets such as labour (as human capital assets) are available their existence does not generate sufficient returns to meet basic needs. This chapter also reviews the literatures regarding social exclusion to further broaden the conceptualisation of causes of disadvantage, and to draw attention to exploitative and exclusionary processes which exclude the extreme poor. By analysing the urban extreme poverty from the vulnerability approach, this chapter reveals that the extreme poor are more likely to be exposed to the more damaging forms of crisis because they have limited quantity and quality of assets; their assets have low expected returns. The exclusion from access to resources, opportunities, information, and connections limits the extreme poor's ability to access alternative coping strategies. Thus, this chapter develops the conceptual framework to assist in the understanding of the relationship between poverty dynamics and vulnerability.

The second section reviews the existing climate change adaptation (Cardona et al., 2012; Baker, 2012; IPCC, 2001; Jabeen et al., 2012; Moser, 2010 & Roy et al., 2013) and risk-hazard literature (Allen, 2003; Brooks, 2003; Cutter et al., 2008 & Romero Lankao and Tribbia, 2009) to conceptualise the main drivers of climate change vulnerability for the urban extreme poor households. By analysing both climate change adaptation and risk-hazard literature, the section uses the conceptual framework of vulnerability to climate change developed by the Intergovernmental Panel on Climate Change (IPCC) in order to identify both external (exposure to particular hazards) and internal factors (the sensitivity and adaptive capacity of households and communities). The section takes the interrelationship between poverty dynamics and vulnerability further to explain how physical factors increase their exposure and sensitivity to the risks associated with climate change and natural hazards and also how social, economic, political and legal factors affect coping and adapting capacity of the urban extreme poor households. This has been used as the theoretical framework to understand urban extreme poverty and vulnerability to climate change in the case study of Dhaka City (See Chapter Five).

2.2 Understanding and Conceptualising Urban Extreme Poverty

Urban poverty in low and middle income countries has been identified by spatial area (e.g. settlement, neighbourhood, inner city), but sometimes, it has been referred to by social group (e.g. low-income women, the homeless) (Mitlin, 2005a; Wratten, 1995; Moser et al., 1993; World Bank, 1990). Most definitions associated with poverty focus on the ‘lack’ or ‘deficiency’ of the basic necessities for human survival and welfare (Wratten, 1995). By definition, all urban poor people fall below a poverty line¹², whether defined by income, consumption or a broader bundle of monetary, non-monetary and subjectively determined assets. However, not all poor people are poor in the same dimensions (poverty breadth); nor do they fall the same distance below the poverty line (poverty depth); nor do they all stay below the poverty line over the same length of time (poverty duration) (CPRC, 2008). The urban extreme poor are those who

¹² Poverty line can be defined by the cost of basic needs that represents the level of per capita expenditure at which the members of a household can be expected to meet their basic needs (food consumption to meet calorie requirements and also non food consumption). The food bundle used to calculate this poverty line is based on the minimum nutritional requirements to provide 2,122 Kcal per person per day. Two lines are then used for non-food consumption: a ‘lower allowance’ and an ‘upper allowance’. The use of two allowances is to take into account that food expenditure as a proportion of total expenditure decreases as expenditure increases (Devine, 2009, p. 9).

are on the bottom rung (or rungs), in all (or some), of any of these systems of characterising the poor (Moore et al., 2008).

2.2.1 Multidimensional Deprivation

The urban extreme poor experience poverty in its multiple deprivations manifested in having little or no income or stable employment, little or no education, poor housing, ill health, malnutrition, social marginalisation, and lack of voice and power (Ali, 2012). The multidimensionality of poverty can be understood based on Amartya Sen's work and poverty can be seen as a lack of 'capabilities', both intrinsic and instrumental (e.g. income, education, health, human rights, civil rights etc.) that permit people to achieve 'functionings' (the things they want to do) and 'beings' (the states of existence they want to experience) (cited in Hulme et al., 2001, p.9). Such an approach is commonly used in relative terms¹³ (such as through the Human Development and Human Poverty Indices¹⁴ in the UNDP's Human Development Reports), but also can be used in absolute terms¹⁵ (Doyal and Gough, 1991). Within such multi-dimensionality, absolute poverty measures should be diverse and might appropriately include both money-metric measures (e.g. lack of income, expenditure and/or consumption) and basic needs measures, including shelter, water, food and different household assets (such as physical, natural, human and social assets) (Mitlin, 2005a). Hulme and Shepherd (2003) have pointed out this multidimensionality is a central aspect of extreme poverty. When an individual or a household has experience of deprivation in many dimensions, fewer exit routes will be available for escaping poverty (Hulme and Shepherd, 2003). So, a major portion of the extremely poor are poor in several ways such as food insecurity, illiteracy, deprived of basic health services, natural resources and formal services.

¹³ The relatively poor are those whose income or consumption level is below a particular fraction of the national average (Hulme et al., 2001). Relative poverty encourages an analytical focus on income inequality trends.

¹⁴ The human development index denotes a summary of human development in a country that measures the average achievements of people along three dimensions: living a long and healthy life, as measured by life expectancy at birth; being knowledgeable, as measured by a combination of the adult literacy rate and the combined enrolment ratio in primary, secondary, and tertiary education; and having access to a decent standard of living, as measured by an index of income per capita (Gross Domestic Product (GDP) measured in Purchasing Power Parity (PPP) US\$ to achieve international comparability) (UNDP, 2009).

¹⁵ The urban poverty literatures perceive absolute poverty as subsistence below the minimum requirements for physical well-being and the most common approach is to measure well-being in terms of a money-metric – expenditure, consumption, income (e.g. Wratten, 1995; Moser et al., 1993; Pryer, 2003). The justification of using indicators (such as income or consumption) is that lack of income is correlated with deprivations of other basic needs such as education, health, shelter and etc. (Wratten, 1995).

2.2.2 Poverty Depth or Severity

This is the approach to identifying the poorest with which policymakers will be most familiar. These poor groups subsist at the bottom of the social pyramid and have been defined and characterised using a range of terminologies including ‘severely poor’, ‘very poor’, ‘ultra-poor’, ‘hardcore poor’, ‘poorest of the poor’, ‘extremely poor’, ‘destitute’ (Ali, 2012); each refers to poverty depth, or the shortfall below an absolute poverty line, usually based on the expenditure required to ensure food consumption adequate for survival (food poverty line) (Moore et al., 2008). Those below the poverty line tend to spend a large proportion of their earnings on food, often without meeting minimum energy and nutrient requirements. It is usually traced back to the work of Michael Lipton’s (1986) ‘Seasonality and Ultrapoverty’. He has put the idea of ultra-poverty (i.e., the severity of poverty) into poverty lexicon. He defined the ultra-poor as a group of people, who live in the ultra-poor households and eat below 80 percent of their energy requirements despite spending at least 80 percent of income on food. He also argued that they are most vulnerable to seasonal fluctuations in food supply and wage employment in comparison to the poor; and they are also living with seasonally induced nutrition and health risks. The term ‘extreme poverty’ is commonly used in relation to achieving the Millennium Development Goals (MDGs); and the majority of multilateral and bilateral donors use US\$1 or US\$1.25 per person per day as a basis of classifying the extreme poor (a headcount measure¹⁶). In addition to the ‘headcount index’, they utilise ‘the poverty gap index’¹⁷ (P1), which measures the extent of poverty (i.e. it measures the extent to which individuals and/or households fall below the poverty line). As discussed above, poverty is multidimensional and, as such, the depth of poverty also can be measured in terms of a range of (non-money-metric) indicators. Severe malnutrition among children is often used as a measure for severe poverty, and Islam (2001) suggests that a similar approach can be used to assess severity on other capability indicators (e.g. education, health, housing, productive assets).

¹⁶ The ‘headcount index’ (P0) measures the proportion of the population that is poor (World Bank Institute, 2005).

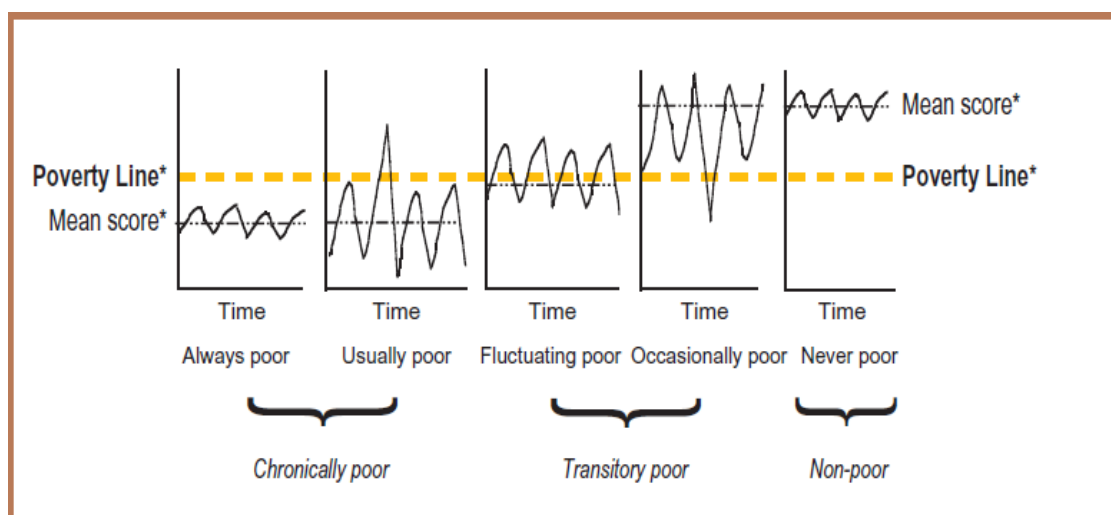
¹⁷ The ‘poverty gap index’ (P1) measures the extent to which individuals fall below the poverty line (the poverty gap) as a proportion of the poverty line (World Bank Institute, 2005).

2.2.3 Poverty Persistence or Duration

The Chronic Poverty Research Centre (CPRC) argues that the duration of periods spent in poverty is as important as poverty depth and multidimensionality for identifying the poorest (Shepherd, 2007). It introduces the term ‘chronic poverty’ in order to understand the poorest or very poor. So, ‘chronic poverty’ is a concept that takes into account the length of time that an individual or household experiences poverty, as well as the depth of poverty (Mitlin, 2005a). It is generally understood as poverty that persists over a long period of time, which in different instances may be several years, a generation or several generations (CPRC, 2004; CPRC, 2008 & Shepherd, 2007). When defining what is distinctive about chronic poverty, the researchers associated with the Chronic Poverty Research Centre, e.g. Hulme, Moore and Shepherd (2001), Hulme and Shepherd (2003), McKay and Lawson (2003) and CPRC (2008), focus on long duration, i.e., many years or an entire life, or even across generations as the defining feature. Therefore, the chronic urban poor are unable to escape from poverty in any reasonable time horizon. Chronic poverty contrasts with transitory poverty where individuals and households move into and out of poverty over time, depending on assets or capitals (Howe and McKay, 2004). In order to differentiate chronic poverty from transitory poverty, the discussion and analysis of chronic poverty have tended to rely on quantitative methods, using longitudinal or panel household survey methods¹⁸ and income poverty. Jalan and Ravallion (2000) explored a four-tiered categorisation of poverty from the analysis of a six-year panel of rural households in China. They are: always poor, usually poor, fluctuating poor, occasionally poor and never poor (Figure 2.1).

¹⁸ Panel data involves conducting questionnaire surveys or semi-structured interviews with the same individual or household at different points in time (Addison et al., 2007).

Figure 2.1: Poverty Dynamics-Different Categories of Poor



Source: CPRC (2004, p. 5)

Absolute, money-metric poverty lines have generally been used for the measurement and analysis of extreme poverty. The use of a poverty line approach to define poverty has been criticised for its one dimensional focus, which, Saith (2005) argues in his thorough review, overlooks the multi-faceted nature of human deprivation. It has been argued that using multidimensional indicators of deprivation may more accurately represent the persistence of poverty (Moore et al, 2008). Moore et al. (2008) also argue that some types of high capability deprivation – education for example – (a) are almost certainly a lifelong phenomenon; and (b) lower the possibility of escaping from other types of poverty. Howe and Mckay (2004) argue that there are a number of qualitative studies in which extreme poverty and its dynamics can potentially be explored, including life history studies or longitudinal village studies. Respondents in number of participatory poverty assessments (PPAs)¹⁹ across the world identify different categories among the poor; and stress the dynamic nature of poverty whereby some people move in and out while others are trapped in poverty (Howe and McKay, 2004). Moreover, qualitative methods help provide understanding of the causal and contextual factors underlying these different types of poverty, as well as the characteristics of these different categories of the poor (ibid.). Such findings are important in building effective policies for the poorest.

¹⁹ The idea of PPAs originated out of work by NGOs on participatory rural appraisal (Chambers, 1994) which were developed into participatory poverty assessments (Robb, 1999) that sought to understand the multidimensionality from people's perceptions.

2.2.4 Asset-based Approaches to Urban Extreme Poverty

The asset-based approach focuses attention on assets such as human, financial, physical, social and political assets of households, with the understanding that the quantity, quality and productivity of their portfolio of assets determines the potential for long-term growth and poverty reduction (Siegel, 2005 & Siegel and Alwang, 1999). These assets consist of produced durable things that can enhance a person's ability to perform useful work for his/her livelihood (Moser, 1998). Table 2.1 defines the different types of assets such as human capital, financial capital, physical, social and political capital assets of households. Bebbington (1999) considered these assets as capitals in his framework. To him, assets are not simply resources that people use to build livelihood but these assets give the capability to be and to act. Assets not only allow them to survive, adopt and alleviate poverty but are also the basis of agents' power to act and reproduce transformation of resources. On the other hand, Rakodi (1999) termed this as 'Capital asset framework' and argues that household may be able to alleviate poverty in a specified period but if assets degrade they might not be able to cope well in a subsequent period.

Table 2.1: Definition of Urban Livelihood Assets

Assets	Definitions
Social and political capital	'Social capital' refers to networks, norms and culture that enable people to act collectively (Woolcock and Narayan, 2000). This indicates the features of social capital such as trust and reciprocity which can become a resource bank for the vulnerable and the marginalised communities to act collectively for their well-being. In the urban context, social capital has been defined by Moser (1998, p. 4) as "reciprocity within communities and between households based on trust related to social ties" and by Rakodi (2002, p. 11) as "social resources (networks, membership of groups, relations of trust and reciprocity, access to wider institutions of society)". Rakodi also mentions an important distinction of social capital; focusing on whether social capital is built on informal networks or social capital that is derived from participating in formal market arrangements, whilst the wider political system and civil society organisations can be treated as political capital. The former can be considered as social capital and latter is political capital. The political capital can be seen as a 'gatekeeper asset' for the poor that permit or prevent accumulation of other assets (Booth et al., 1998, p. 79).
Human capital	Human capital is defined by Moser (1998, p. 4) as the "health situation, which determines people's capacity to work, and skills and education determining the returns to their work" and by Rakodi (2002, p. 11) as "both quality and quantity of labour resources available to households are subsumed under human capital (capabilities)".
Physical capital	In the urban context, Rakodi also defines physical capital as "the basic infrastructure (transport, shelter, water, energy, communications) and the production equipment which people need to pursue their livelihoods" (2002, p.11). Moser (1998) calls this 'productive assets', although she includes housing as a possible form of productive asset. Rakodi (2002) also mentions that infrastructures as a collective capital, developed by mainly public authorities, are important both for household maintenance and for livelihoods. Decline in access to or quality of physical infrastructure increases vulnerability that could affect other capital (e.g. health stresses resulting from poor drainage and poor solid waste management within the area).
Financial capital	Moser (1998) defines financial capital as 'productive capital', and she indicates that housing is often poor people's most productive asset. Rakodi defines it as "financial resources (savings, credit, remittances and pensions)", which reflects a wider range of ways in which households build up financial reserves (or experience vulnerability) (2002, p.11). In the context, access to financial assets is important for survival and managing risks at the household level because urban economies have highly commoditised.

Source: Booth et al. (1998); Rakodi (2002); Moser (1998) & Woolcock and Narayan (2000)

An Asset-based approach states that household well-being is multi-dimensional and directly linked to command over assets and livelihood strategies (Moser, 2006; Heltberg et al., 2009). Household decisions to accumulate and allocate assets are often called their livelihoods strategy, and access and returns to their asset portfolio are profoundly influenced by the external policy and institutional context, and by risks (Heltberg et al., 2009). Hulme and Shepherd (2003), Howe and McKay (2004), Sen (2003), Mwachunga (2011) and many others reveal that livelihoods' analysis has particular relevance for

understanding extreme poverty as it permits the tracking over time of a household's assets in relation to its vulnerability context and the institutions, organisations and policies that mediate his/her access to assets. According to the asset-based approach, the poor are 'asset-poor'; they have limited assets, hold assets with low returns, and/or are unable to exploit their assets effectively (Siegel, 2005, p. 7) (see Box 1).

Box 1: Assets and the Poor

Very poor people in Latin America are poor because the market value of their assets is low and because opportunities to augment these assets continue to be low as well. In addition, the poor are often at a disadvantage with respect to the rate and variability of return on these assets, which helps explain their low market rate.

Source: Siegel (2005, p. 7)

Extremely poor households are characterised not only by a lack of assets and inability to accumulate a portfolio of them, but also by the lack of choice with respect to alternative coping strategies (Rakodi, 2002). These households are forced to adopt strategies, which enable them to survive but not to improve their welfare. So, they are caught up in the 'poverty trap', are vulnerable, and their responses to shocks can lead to lower quantities and qualities of assets (Siegel and Alwang, 1999). A lack of assets is a predictor of urban extreme poverty because it causes vulnerability to shocks. Carter and May (1999) argue that the poorest or very poor are characterised by a structurally low asset base, and can only escape poverty temporarily due to some 'positive shock' or luck before relapsing. It can be argued that a lack of assets, or a lack of opportunity to use assets effectively, can be key factors underlying extreme poverty. A revealing example of the interplay between erosion of assets due to repeated shocks and lack of opportunity to accumulate assets after sliding into extreme poverty in causing and perpetuating chronic poverty was discussed was Hulme's (2003) case study in rural Bangladesh. This study shows how a widowed woman, whose family was made extremely poor through paying for ineffectual medicines for her husband, loses her land assets to her father-in-law under the village court ruling, thus losing her only tangible assets, making her livelihood increasingly vulnerable. Her uncle also worsened her situation by limiting access to state help that she was eligible for; since the state provided safety nets.

Du Toit (2005) emphasises the relationship behind structural dimensions and extreme poverty and how the former renders people vulnerable to extreme poverty for a long period of time. He argues that extreme poor households are positioned in society (i.e. directly related to social positions, in a general sense, identity) and their access to assets and power relations within which they exist is important in the conceptualising of extreme poverty. He observes that the extremely poor are characterised by significant asset poverty; households have low access to productive assets (such as land). Lack of access to assets he argues is as a consequence of high level monetisation and integration of the poor into broader economy, which makes poor peoples' livelihood strategies depend on the cash economy (ibid.). Therefore, the asset poverty and cash dependency turn out to be severe when accompanied by low levels of human assets and the failure of the formal economy to absorb sustained unskilled labour and livelihood opportunities (ibid). Table 2.2 elucidates how each dimension of poverty relates to extreme poverty. The table is an attempt to address how different dimensions of poverty are likely to have impact upon the incidence of extreme and chronic poverty (CPRC, 2008; Grant, 2005; Hulme et al., 2001; Rakodi, 2002; Moser, 1998 & Mitlin, 2005b, 2005c). This seeks to express the complexity and dynamics of urban poverty in relation to the impact and/or changes to households' overall assets (Amis, 2002).

Table 2.2: Assets and the Urban Extreme Poverty

Dimension of poverty/well-being	Characteristics of the urban extreme poor	Significance for the urban extreme poor in terms of downward mobility
Labour	<ul style="list-style-type: none"> • Unattainable livelihoods and lack of livelihood diversity; participation in labour market is only confined to particular occupational groups (such as informal traders in Kinshasa) • Low wages and/or low returns from informal vending or other forms of self-employment • Unable to participate in labour markets due to health, age or physical/mental impairment 	<ul style="list-style-type: none"> • The incomes are too low to purchase what is needed for long-term survival and advancement • The extremely poor have to meet their livelihood needs from a variety of sources including casual work, gleaning, borrowing, begging and receiving charity and they are also unable to acquire or accumulate any significant financial or physical capital
Financial assets and substitutes	<ul style="list-style-type: none"> • High or low variability around a low mean, depending on wider socio-economic context • Poor work opportunities and unsustainable livelihoods do not permit savings or significant asset accumulation, and often increase health shocks 	<ul style="list-style-type: none"> • Microfinance has been extended to some poor people but the urban extreme poor rarely access microfinance institutions
Human capital	<ul style="list-style-type: none"> • Vulnerability associated with disease, impairment, age • Low nutritional status • Inability to afford to adequately treat illnesses • Poor (or no) education • Few opportunities to develop new skills 	<ul style="list-style-type: none"> • Ill health often has catastrophic impacts on other assets • Health shocks are more often repeated for poor individuals and they take longer to recover which leads to downward mobility and undermines household coping strategies • Difficulty of maintaining school enrolment for the children
Social and political capital	<ul style="list-style-type: none"> • Exclude from political decision making process • Social discrimination persists, associated with age, disability, gender, caste, ethnicity, religion • High levels of dependence and adverse incorporation into patron-client relations; eroded or lacking positive socio-political networks • Destruction of trust and cooperation 	<ul style="list-style-type: none"> • The extremely poor are bound into negative social relationships that limit their scope to build their strategies against destitution • The extreme poor generally have little or no voice in policy or governance
Physical capital	<ul style="list-style-type: none"> • Prevalence of illegal connections to infrastructure • Physical assets few, of poor quality, vulnerable to theft • Lack of legal tenure rights 	<ul style="list-style-type: none"> • Vulnerable to withdrawal of key services and risk of losing all types of assets due to lack of tenure rights • Few opportunities to accumulate assets

Source: CPRC (2008), Grant (2005), Hulme et al. (2001), Rakodi (2002), Moser (1998) & Mitlin (2005b; 2005c).

However, asset-based approaches can sometimes provide a very static picture of the assets pertaining to a household, masking the disaggregated analysis of poverty, risks and vulnerabilities and coping strategies (Grist et al., 2006). Beall and Kanji (cited in Mitlin, 2003, p.4) suggest that the urban livelihood framework may be lacking as it "... fails to recognise poverty processes, including its reproduction within households and communities and the impact of relational issues in all this". Mitlin (2003) further argues that the key weaknesses of the current livelihood discourse is a neglect of inequality, class relations and social exclusion.

2.2.5 Social Exclusion/Adverse Incorporation of Extreme Poor Households

The concept of social exclusion²⁰ has been expanded from its original base of exclusion from government social welfare systems to the exclusion of people from a broad range of social, political and economic institutions (Hulme et al., 2001). Social exclusion focuses on the social relations of power, social institutions and networks and their contents and practices that result in exclusion and exacerbate poverty (DFID, 2005a). It focuses on the multi-dimensionality of deprivation, on the fact that people are often deprived of different things at the same time. It refers to exclusion (deprivation) in the economic, social and political spheres (de Haan, 1998). Analysing the concept of social exclusion from the livelihoods approach, social exclusion can be said to be the 'dark side', of social capital (Cleaver, 2005). Social exclusion in fact takes a more critical approach to social relationships than that of social capital (Grist et al., 2006). Cleaver (2005, p. 895) finds that the poorest are "severely frustrated in their ability to exercise agency", instead being forced to "channel their social and institutional engagement along paths that reproduce their inequality and dependency". Using research evidence from rural Tanzania, she finds that the poorest cannot construct social capital for their benefit due to lack of 'able-bodiedness', limiting relationships with kin and wider social circles, and their inability to articulate and be influential within public spheres (ibid.).

Some scholars are critical about the social exclusion discourse and argue that "differential (or adverse) incorporation into the state, market or civil society is perhaps

²⁰ The concept of social exclusion was developed in industrialised countries (most notably France in the 1970s) to describe the processes of marginalisation and deprivation (Hickey and du Toit, 2007). It has been defined as "the process through which individuals or groups are wholly or partially excluded from the society in which they live" (ibid. p.2). With reference to other poverty debates, the concept of social exclusion has been linked to notions of "relative poverty", Amartya Sen's work on "entitlements" and the "vulnerability" approach put forward by Robert Chambers (de Haan, 1998, pp.14-15).

more appropriate than the now conventionally predominant idea of social exclusion” when investigating extreme and chronic poverty (Hickey and du Toit, 2007, p. 4). The concept of ‘adverse incorporation’ seeks to identify the ways in which asset-based strategies are constrained by economic, social and political relations over both time and space (ibid.). These relations are driven by inequalities of power. It actually refers to relations of exploitation, where relationships permit one party to profit and accumulate assets while the other party earns a wage which may or may not be improving over time, for example, through low quality ghetto social housing (Wood, cited in Grist et al., 2006). Box 2 illustrates that a significant portion of migrant workers in Northwest India are trapped in poverty, with relations of adverse incorporation underlying their low wages and continued vulnerability.

Box 2: Adversely Incorporated Migrant Workers in India

Migrant workers in northwest India face tough labour market conditions in which the basic problem they have to manage is the scarcity of work. ...Migrants doggedly pursue security, not in alliance with progressive parts of the state, unions or NGOs, but through their patrons and exploiters, the contractor-employers. ...Among their most intimate exploiters are their mukkadams – gang leaders, foremen or labour brokers. Migrants are reluctant to take up any case against them, and to complain or organise.

Source: Shepherd (2007, p. 22)

Conventional economic development theory has assumed that poverty alleviation will occur with economic growth. However, the extreme poor have often not been found to benefit from economic growth, drawing into question views that poverty alleviation will occur as a corollary to growth: instead greater income inequality has been found to result (Grist et al., 2006). For example, in China, despite rapid economic growth over many years, there has also been rapid growth in a new urban “underclass”, comprised of underpaid and underprivileged migrant workers from the countryside, and others who have fallen into penury (Mitlin, 2005c, p.3). Both rural poverty and urban poverty have been associated with exclusion from market opportunities (Mitlin, 2005a). Grant (2006) notes that the quality and type of entry into the labour market are key to urban poverty dynamics (formal wage work is associated with being non-poor; chronic poverty is

associated with: casual labour, female business activities – insecure and low return activities) and a changing labour market is a major source of urban vulnerability. Banks (2012) argues that the poorest households face multiple challenges to their entry into the labour market, with obstacles to better employment not only agency-related – given low skills levels, qualifications and experience, limited capital and poor health – but also structural, characterised by oversaturated markets and intense competition, low wage rates, difficult and unhealthy working conditions, work irregularity and the mediation of the labour market by intermediaries. Unemployment rates may be relatively low, given the necessity of work for survival, but this masks the huge problems of underemployment and seasonal fluctuations among the urban poor (Banks, 2012). Mitlin (2005c) argues that the urban extreme poor receive incomes that are too low to purchase what they need for long-term survival and advancement.

Urban poverty is also influenced by commodity markets – especially the extent to which, and the amount which, urban poor have to pay for food and non-food essentials (Mitlin, 2005c). Conticini (2005) argues that the urban informal labour market can be double their income-earning capacity relative to that in rural areas, but that the higher cost of living in the city keeps them poor. For most urban poor, there are few if any opportunities to secure outside the market such essential goods and services as access to water, sanitation, housing (whether rented, purchased or self-built), transport and, often, health care and schools (Mitlin, 2005b). Mitlin (2005c) argues that there is a clear relationship between vulnerability to the market, low pay, lack of assets (for education or management of short-term crises) and ill-health in most urban contexts of developing countries.

Thorp et al. (2005) found that social exclusion occurs during the formation of economic and social support groups amongst the poor. They analysed the formation of groups in several different developing countries as a route out of extreme poverty in these countries, finding that, frequently, when poor people form groups with the potential to empower and raise their incomes, the extreme poor are excluded. This may be a significant factor in the chronic poor's inability to escape their poverty. Grant (2010) argues that the physical or spatial dimensions of urban poverty cannot be separated from the social, as social dimensions also influence how and why certain areas are excluded or overlooked by policy and investment in an urban context. He also notes that urban

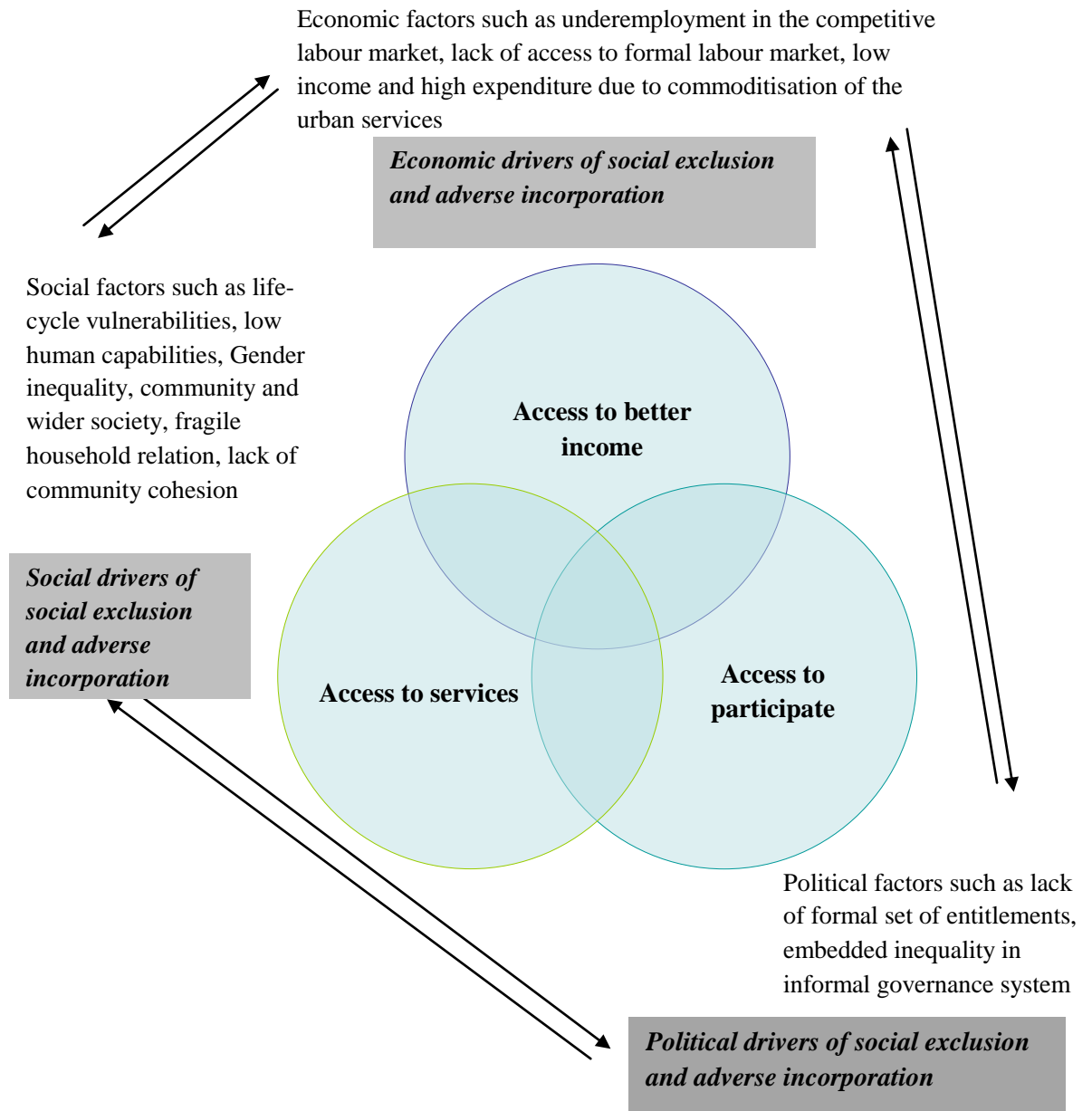
slum dwellers are among the most disadvantaged and they are poorly integrated into broader urban society and opportunity. Social exclusion and disempowerment makes it very difficult for urban slum dwellers to do more than survive (ibid). Mitlin (2006) argues that lack of appropriate legal and political safeguards and rights makes the urban extreme poor vulnerable to abuse and exploitation. Illegality is commonplace for the urban poor and may be associated with employment, trading, residence and access to services (ibid.). Such illegality makes it even more difficult for individuals and/or households to secure their livelihoods. Banks (2012) argues that the complex urban political economy is amongst the biggest obstacles facing the urban poor and extreme poor. It fuels their social exclusion, leaving vast segments marginalised from local politics and formal decision-making processes (ibid.).

Although a patron-client relationship is exploitative²¹, the process of facilitating and maintaining patron–client relationships is a high priority, through which the urban poor try to manage uncertainty and improve access to productive assets and social support (Banks 2012 & Jahan et al., 2011). Patron-client relationships exist at multiple levels (e.g. access to income sources, services, political support and etc.) that provide varying degrees of support, depending on the connections a poor household has. These patron-client relationships often provide some short-term security for the urban extreme poor households, but at the cost of precluding long-term escape from poverty (Davis, 2011; Hickey and Du Toit, 2007 & Mosse, 2007). Wood (cited in Banks, 2012) reveals the existence of a complex relationship between patron and client, where the quest for household security locks the poor client into social structures of patron-client ties that reduce vulnerability, but also constrain opportunities for increased incomes or asset accumulation. Whilst some extreme poor are adversely incorporated in the patron-client relationships, the destitute poor such as the elderly, chronically ill, orphans and severely disabled people are largely excluded from the clientelist based forms of welfare support (World Bank, 2001). This is almost a tautology, since this exclusion has become a definition of destitution, reflecting the breakdown of family or community based social protection and mutual support mechanisms (ibid.). The destitute are of little or no value to patrons, and thus fail even to be adversely incorporated. So, different economic,

²¹ Patron–client relationships are defined as reciprocity of exchange based on economic structures of exploitation, political structures of domination and ideological structures of consensus and control (Banks, 2012; Lewis 2011).

social and political processes cause deprivations in three dimensions in the lives of the urban extreme poor: inability of access to better income, services and political participation (Figure 2.2).

Figure 2.2: Drivers and Dimensions of Social Exclusion and Adverse Incorporation for Urban Extreme Poor



Source: adapted and modified from Babajanian and Hagen-Zanker (2012)

2.2.6 Vulnerabilities of the Urban Extreme Poor

Vulnerability is an important concept in discussions of urban extreme poverty. It is a broad concept, encompassing not only income vulnerability but also such risks as those related to health, those resulting from violence, and those resulting from social exclusion—all of which can have dramatic effects on households (Coudouel and Hentschel, 2000). Vulnerability received academic and policy emphasis in the early 1990s with the work of Robert Chambers (1995) on ‘Voices of the Poor’. It highlighted that the poor were concerned not only with the income and consumption that they face today but also in the future; the uncertainty that could blight their earning capabilities and potential in the future. In addition, the poor were also concerned with social inferiority, isolation, physical weakness, powerlessness and deprivation. It has two sides: “an external side of risks, shocks, and stresses to which an individual is subject to; and an internal side which is defenceless, meaning a lack of means to cope without damaging loss” (Chambers, 1989, p.1). This two-step model has been widely utilised (e.g. Ellis, 2000; Henninger, 1998 & Hulme et al., 2001). But within the broad vulnerability literature, there have been other approaches, which are also important to help conceptualise what is meant by vulnerability.

An important example is the way Moser (1998) conceptualises vulnerability. She uses sensitivity and resilience to significantly change the focus and emphasis of Chamber’s internal/external distinction. She places a great deal of emphasis on assets as the primary factors in determining vulnerability: “analysing vulnerability involves identifying not only the threat but also the resilience or responsiveness in exploiting opportunities, and in resisting or recovering from the negative effects of a changing environment. The means of resistance are the assets and entitlements that individuals, households, or communities can mobilise and manage in the face of hardship” (Moser, 1998, p.3). This approach suggests that vulnerability is inextricably linked to resilience and that assets play a critical role in determining the relative resilience of individuals and households in the face of risks. Defined through a poverty lens, vulnerability is the increased probability of the lower income strata of the community to falling below poverty line and for those already under the poverty line to remain in or fall further into poverty (Kessy and Tarmo, 2011). Vulnerability varies among poor households, according to their capacity to prevent, mitigate or cope with such events. Although conceptually distinct, risk and vulnerability are closely linked, for instance, a household

negatively affected by an adverse event is likely to be more vulnerable in the future (Farrington et al., 2004).

Chronic exposure to risk is crucially important source of vulnerability. Risk is defined as the events with known and unknown probability which result in welfare losses, (for example, seasonality in rain-fed agriculture) (Devereux, 2001). Like risks, a shock can refer to an event that has the potential to cause harm to systems, human life or property (Rahn, 1996). Unlike risks however, once shocks occur, they have an actual impact in inflicting harm (Blanchard, 2005). Holzmann and Jorgensen (1999) have provided a useful framework to comprehend the relationship between shocks and risks. They argue that it is important to gain a sense of the circumstances under which risks can become harmful i.e. convert themselves into shocks or hazards. They highlight three distinctions of shocks. The first distinguishes catastrophic and non-catastrophic shocks. Catastrophic shocks have a high negative impact but a low frequency. Non-catastrophic shocks are therefore those that occur with a high frequency but are not necessarily severe in their impact. The second distinction compares idiosyncratic and covariate shocks. While the former affect only certain members of society, the latter affects the whole society, at the same time. The third distinction distinguishes single and repeated shocks. Single shocks are one-off shocks that can give rise to further risks whereas repeated shocks can be cyclical.

Sinha and Lipton (1999) utilise the term damaging fluctuation (DF) instead of shock to explain the risks affecting the well-being of households. It is the manifestation of a risk into a damaging fluctuation (downward shock) that increases uncertainty and reduces well-being. They suggest 'Damaging Fluctuation' (DF) as a description for a known risk, whilst an unknown risk is termed as a Risky Damaging Fluctuation. Predictable risks can be considered as stresses. Seasonal deficits are a common example of predictable risk, or a stress in a developing country context. Kabeer (2002) shows that the price of food, the availability of food stocks or slack in the labour market are always related to this seasonal stress in South Asian contexts (this phenomenon leads to a combination of phenomena, like food insecurity, indebtedness and etc.). Sometimes, it also leads to one or more unpredictable risks.

Unpredictable or unexpected events can be considered as shocks. They can be considered as short acting risks, sometimes the effects may be long-lived (Start and Johnson, 2004). For example, repeated shocks may bring one or more stresses in the life-cycles of the poor. Dercon (1999) argues that coping is more difficult for poor people if the shocks come together or bad shocks occur repeatedly over time. Sinha and Lipton (1999) have explored a list of six types of damaging fluctuations that perpetuate poverty, including risks resulting from violence, natural disasters, harvest and seasonality, health, labour markets and price fluctuations. However, researchers at the Overseas Development Institute (ODI) employ a different way of differentiating livelihood shocks and stresses. They mainly focus on where the events come from. An adverse event, such as an earthquake or credit crunch, from an external source, is treated as a shock. The risks - (e.g., disability and sudden illness) - coming from within a household are better termed as stresses (Holmes et al., 2008). In addition, some predictable events like old age and such events as weddings of children in the household life-cycle are termed as stresses (*ibid.*).

Based on the aforementioned classifications, this research considers more likely predictable events that are more likely internal or endogenous to households as stresses (such as widowhood, old, divorced/separated) (Table 2.3). As explained above in this section, the occurrence of old age, and such events as weddings, can be adverse in nature but internal, or endogenous, and generally linked to family life-cycles²². Older people in particular those who are too weak physically to work and have some illnesses which are associated with old age (e.g. impaired vision) are also vulnerable. The life-histories of older people reveals that they are also vulnerable because of dysfunctional institutions that do not enable them to access retirement benefits (and social services such as health) and support from the family that has long been the reliable institution that offered support during old age (Bird and Prowse, 2009 & Kessy and Tarmo, 2011). The younger people who would support them have gone to towns or are busy with their own lives hence leave the elderly unattended or struggle on their own (*ibid.*). Such predictable internal risky events can be part of a longer-term cycle or trend (stresses). Both internal and external events can be marked by sudden onset events ('shocks').

²² The life cycle approach is useful to understand the changing and dynamic ways in which "needs and risks are present along a person's life and it basically replaces the more linear and predictive presentation of life events (birth-education- work-marriage-family-retirement-death)" (Bonilla and Gruat cited in Joyar, 2007, p.12).

Households slide into extreme or chronic poverty after a shock, or series of shocks. What drives people into extreme poverty is not very different to what drives people into poverty in general. The types of shocks are the same – ill-health and injury, environmental shocks, violence, the breakdown of law and order, market and economic collapse (CPRC, 2004). The factors that combine to determine this ability to bounce back from a shock (resilience) can be divided into three main categories (ibid., p. 41): (i) the level of private and collective assets to which people have access; (ii) the nature of the shock(s), in terms of depth, breadth and sequencing; and (iii) the nature of the broader institutional context, including systems of social protection, basic services, and conflict prevention and resolution, as well as public information. But while some households recover relatively quickly, others are pushed into a downward spiral of asset depletion and increased vulnerability, culminating in extreme and chronic poverty.

Table 2.3: Matrix of Predictable Internal Risks

Axis		INTERNAL		
		Less Internal		More Internal
PREDICTABILITY	Less Predictable		Sudden Illness Natural disasters	
		Market based risk	Disability	Domestic violence Widowhood/ divorced/ abandoned
	More Predictable		Seasonality	Dowry (including wedding cost) Old age

Source: author (2011) has developed using literature review and his perception

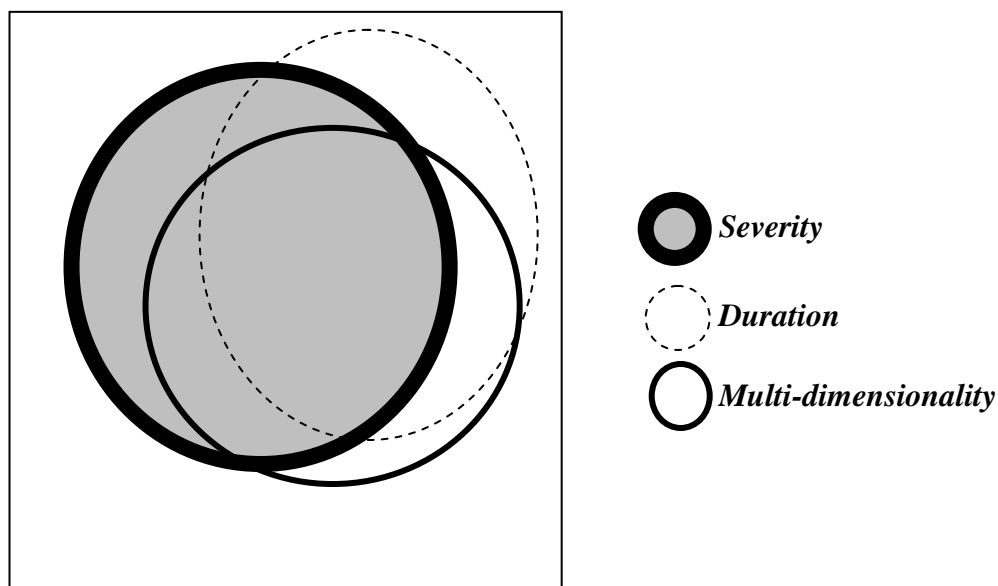
*Events are classified on the basis of more likely to be predictable as well as more likely internal to the households;

2.2.7 Conceptual Framework of the Multi-dimensional Aspects of Extreme Poverty

This section summarises the key concepts and arguments linked with the multi-dimensional aspects of urban extreme poverty and its relation with vulnerability which addresses the first objective of the research (i.e. to conceptualise the multi-dimensional aspects of urban extreme poverty). The previous section has shown that the extreme poor face severe poverty when their average incomes or consumptions are well below the poverty line (*poverty depth*). These poor often experience poverty in its multiple

deprivations manifested in poor working opportunities with little income, poor housing, ill health, malnutrition, discrimination, social and political marginalisation (*poverty breadth*). In addition to this severity on several dimensions, they often experience extreme poverty for an extended period of time (*poverty duration*). Therefore, extreme poverty may intersect in all the dimensions of poverty: depth, breadth and duration (Figure 2.3).

Figure 2.3: Intersecting Characteristics of Urban Extreme Poverty

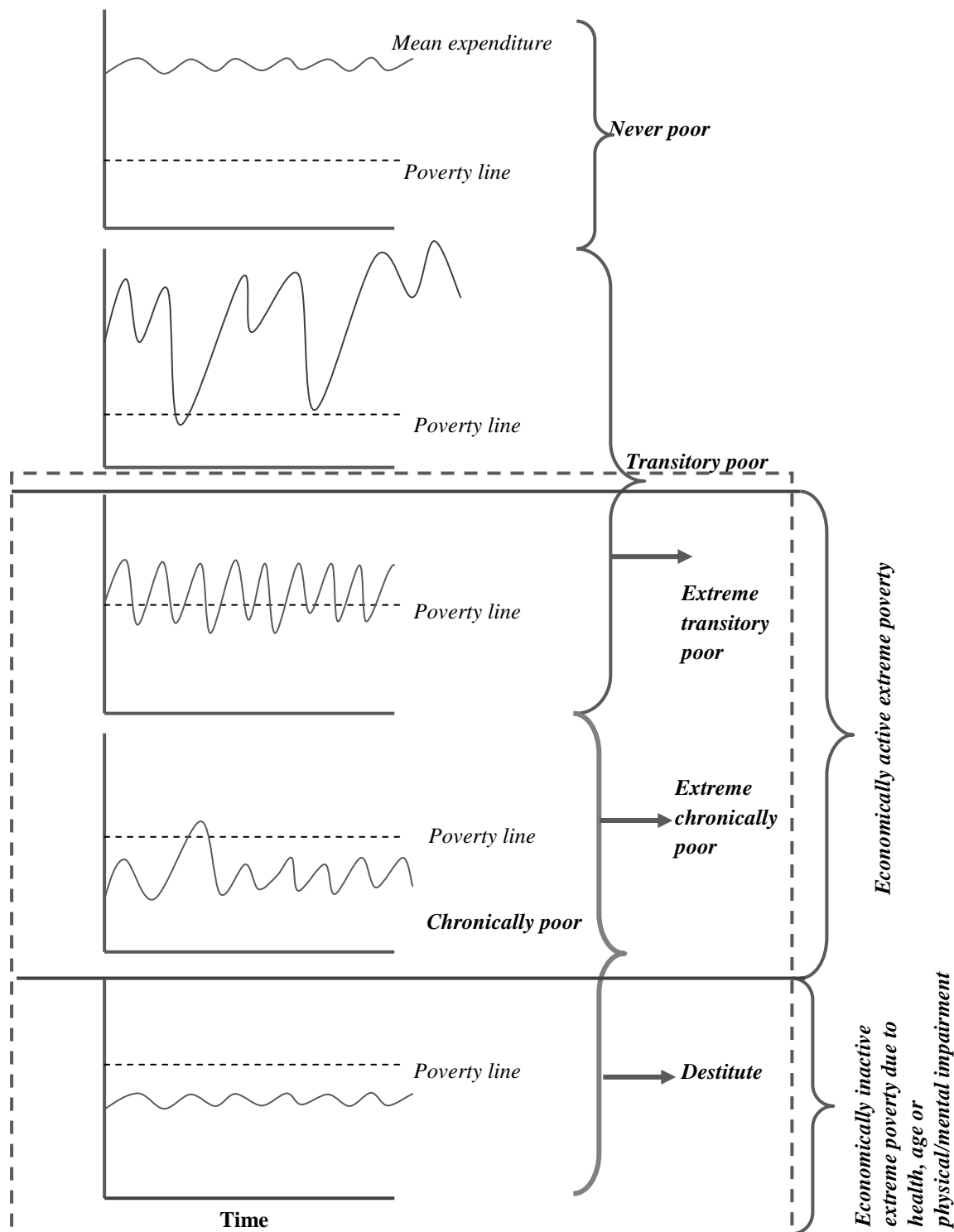


Source: adapted and modified from Hulme et al. (2001)

Using the three dimensions of poverty (such as poverty breadth, depth and duration), this research introduces further possibilities of classifying within the urban extreme poor groups. Figure 2.4 shows which households suffer extreme poverty. Using the CPRC's classification of the poor, the research identifies different categories of the urban extreme poor: extreme transitory poor, extreme chronically poor and destitute (see Figure 2.4). The Cyclical Poor or the fluctuating poor (those who enter and exit out of poverty on a cyclical basis) in the CPRC classification can be considered as extreme transitory poor. The extreme chronically poor are not poor in every period and they have escaped poverty for a short period of time. The destitute are those whose poverty score in each period is below a defined poverty line (CPRC, 2008). However, the recent Chronic Poverty Report 2008/09 reveals that some of the extreme or very poor are not economically active, due to health, age or physical/mental impairment; most, however, are economically active, but are persistently poor due to their position within

households, communities and countries (CPRC, 2008). On this basis, this research classifies the extreme transitory and extreme chronically poor as the economically active poor, whereas the destitute are the economically inactive poor (see Figure 2.4).

Figure 2.4: Classification of Different Categories of Extreme Poor



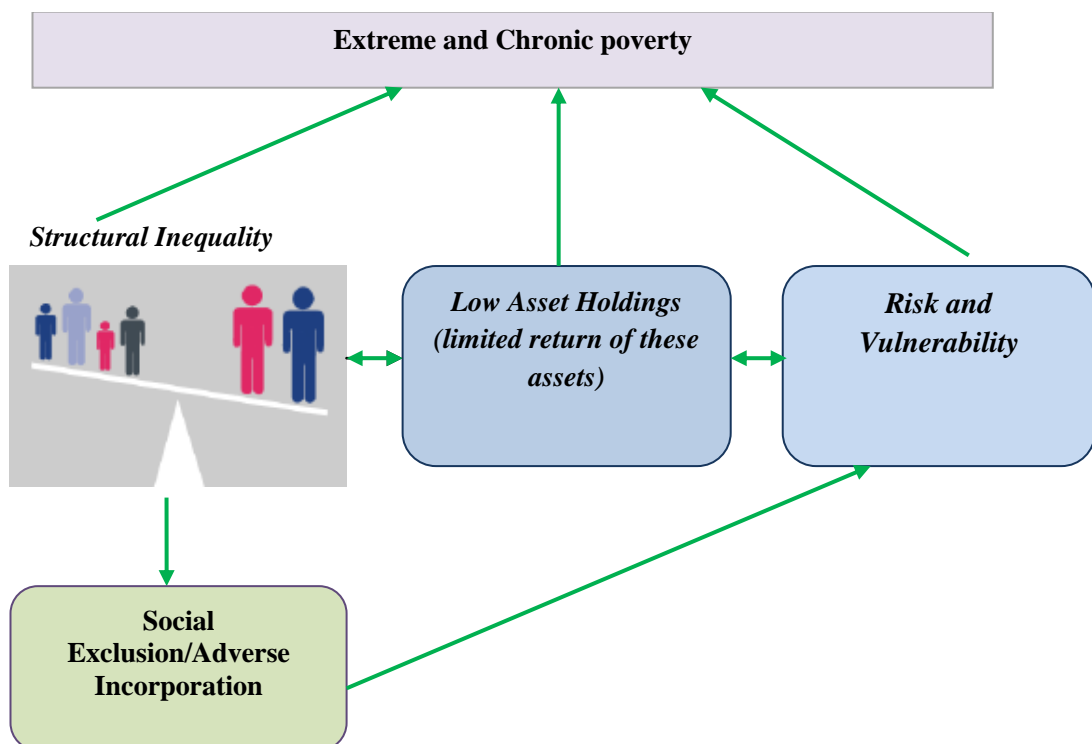
Source: adapted from CPRC (2008)

Most importantly, this chapter identifies the multidimensional aspects of extreme poverty by analysing extreme poverty from an asset based approach, a social exclusion/adverse incorporation approach and also a vulnerability approach. In doing this, the chapter reveals the linkage between vulnerability and poverty traps. Lack of assets or low level asset holdings (and their returns) is a major cause of vulnerability. The review of asset-based approaches reveals that the extreme poor households and groups are more likely to lack key assets and capabilities, and are also more likely to be exposed to shocks. Strategies for coping in crisis, in the absence of key assets and capabilities, also tend to be more destructive for those already on declining trajectories, producing negative feedback and potentially catastrophic downward spirals. In addition to the asset deprivations in different dimensions, social exclusion/adverse incorporation therefore needs to be considered as a dimension of extreme poverty which can both cause a lack of assets and poor return to assets, and which can prevent people accessing important assets and services and taking up opportunities for their own development. The structural factors (such as labour and commodity markets, ethnicity, race, caste, gender, religion, class, disability, refugee status, geographic location) that perpetuate social exclusion and adverse incorporation within economic, social and political spheres contribute greatly to the vulnerability of extreme poor households and groups. The above section of this chapter identifies social (chronic illness or disability, gender inequality, life-cycle vulnerabilities), economic (unemployment and underemployment, low income and high commodity prices) and political (formal and informal rules) processes that drive the urban extreme poor into an adverse vulnerable situation.

Conceptually, vulnerability to shocks or stresses has two sides: the first is internal defencelessness that results from idiosyncratic capacities, which are specific to the households' capacity to withstand shocks and stresses by deploying private and collective assets; and the second is external defencelessness that is the result of shocks that emerge in the environment surrounding the household. By critically reviewing urban extreme poverty from a vulnerability approach, the above section reveals that extreme poverty can be seen as the probability that a poor household will suddenly (but perhaps also gradually) reach a position with which it is unable to cope, leading to catastrophe (hunger, starvation, family breakdown, destitution or death). A person's increased vulnerability in the face of repeated shocks is what can push someone from relative wealth to poverty and from poverty to extreme poverty or destitution. Similarly,

predictable internal risks (known as stresses, as shown in table 2.3) provide the extreme poor individuals and households a limited range of survival strategies and keep them poor for a longer time. Figure 2.5 illustrates the interrelationship between poverty traps and vulnerability. Structural inequality (based on age, gender, ethnicity, and stigma), stemming from formal and informal institutions cause a lack of assets and poor return to assets, and which can exclude poor people accessing basic services. Low asset holdings as well as social exclusion and adverse incorporation (such as limited citizenship)²³ perpetuate vulnerability. Figure 2.5 shows that social exclusion/adverse incorporation, low asset holdings and vulnerability therefore contribute greatly to extreme and chronic poverty. This research has applied these theoretical assumptions in analysing the case study in order to understand the process through which poverty traps are experienced by the urban extreme poor in Bangladesh and also how the poverty traps are likely to be linked with vulnerability.

Figure 2.5: The Linkages between Poverty Traps and Vulnerability



Source: adapted and modified from Shepherd (2007)

²³ The extreme poor do not have a meaningful ‘political voice’, and lack ‘effective and legitimate political representation and power’; in this sense, they have a limited sense of citizenship, and do not have a substantive stake in society (CPRC, 2008, p. 5)

2.3 Analysing Climate Change Vulnerability of the Urban Extreme Poor

Climate change is an increasingly important influence exacerbating an already complex and vulnerable livelihood context (Banks et al., 2011a & Roy et al., 2012a). Climate events can result in irreversible losses of human and physical capital and may cause poverty traps (Heltberg et al., 2009). A longitudinal study in Zimbabwe, for example, followed children that were less than 2 years old (the age when children are most susceptible to malnutrition) when severe drought hit in the early 1980s; and those that survived the famine were found to be stunted in different wellbeing indicators: lower schooling, adult health deterioration- this has an impact on their daily earnings and household consumption (Alderman et al., 2006). Carter et al. (2007) showed that the hurricane Mitch in Honduras exacerbated asset inequalities as the poor lost a greater share of assets in the disaster and recovered at a slower rate than the non-poor. Heltberg et al. (2009) argue that on-going climate changes are changing the risk profile and shifting it toward the poor in ways that adaptation measures need to take into account.

As explained above, ‘idiosyncratic’ shocks are those that affect the individual or household (e.g., death, injury, unemployment), whereas ‘covariate’ shocks are those that affect localities or nations (e.g., epidemics, disasters). Christoplos et al. (2009) argue that climate change adds further complexity to these categories, as it affects both the levels and the mix of idiosyncratic and covariate risks in several ways. They note that people will face high frequency of ‘idiosyncratic’ shocks (e.g., increased mortality due to heat waves, increased occurrence of malaria and diarrheal disease, increased small hazard events) alongside increasing covariate risk (e.g., increasing frequency of large disasters). In addition, ‘idiosyncratic’ shocks become increasingly covariate (e.g., increasing severity of disasters, small localised hazard events becoming larger disasters). According to the International Organisation for Migration (IOM) (2010), the impacts of climate change on the urban poor can be divided into three forms: (i) ‘sudden-onset’ events, such as floods, cyclones and catastrophic river erosion; (ii) ‘slow-onset processes’, such as coastal erosion, sea-level rise, salt water intrusion, rising temperature, changing rainfall patterns and drought; and (iii) ‘cascade effect’ (a chain of events due to an act affecting a system), such as environmental degradation, increased urbanisation, reduced human security and international migration. For example, as noted above, climate change will displace an estimated 12 to 15 million people in Bangladesh by the turn of this century (Roy et al., 2011). Most of them will be poor and

extreme poor people from rural areas heading for urban areas, putting additional stress on the services available in existing urban slums or informal settlements and also on the capacity of their providers (ibid.).

2.3.1 The Drivers of Climate Change Vulnerability

In order to effectively manage climate change vulnerability, it is essential to understand how vulnerability is generated and how it is exacerbated. Definitions of vulnerability in the climate change related literature tend to fall into two categories, viewing vulnerability either (i) in terms of the amount of (potential) damage caused to a system by a particular climate-related event or hazard (Jones and Boer, 2003; Brooks, 2003 & Ribot, 2009), or (ii) as a state that exists within a system before it encounters a hazard event (Allen, 2003; Romero Lankao and Qin, 2011 & Füssel, 2009). The former view has arisen from an approach based on assessments of hazards and their impacts, in which the role of human systems in mediating the outcomes of hazard events is downplayed or neglected. Within this tradition, the conceptual framework of climate change vulnerability looks at how changes in a climate parameter or combination of parameters (e.g. temperature or both temperature and precipitation events) relates to impacts such as fluctuations in wellbeing.

Conversely, the conceptual framework of vulnerability as a state (i.e. as a variable describing the internal state of a system) has arisen from studies of the structural factors that make human societies and communities susceptible to damage from external hazards (Allen, 2003 & Brooks, 2003). In this formulation, vulnerability is something that exists within systems independently of external hazards. Within this tradition, the conceptual framework explores how and why the urban poor populations are more vulnerable- or more able to cope or adapt than others. For example, a livelihood's focus on the need to explore and reassert the building assets at the individual, family or community level (e.g. self-help housing) is seen as a fundamental mechanism which allows individuals and households to cope with hazards they constantly encounter (Pelling, 2003; Romero Lankao and Qin, 2011 & Wilbanks et al., 2007). Thus, the effects of an extreme climate event on any particular household result from a complex set of drivers and interacting conditions. So, it cannot be defined by the hazard or climate risks alone, nor can it be explained strictly by the internal properties of the system being stressed (Romero Lankao and Qin, 2011). Instead it must be looked at as

an interaction of these factors and includes several dimensions: hazards, exposure and sensitivity and adaptive capacity (IPCC, 2001; Romero Lankao and Tribbia, 2009; Romero Lankao and Qin, 2011 & Wilbanks et al., 2007). Additionally, it is also important to keep in mind that households and communities are not only or mainly victims, but also active managers of vulnerability (Adger, 1999; Moser, 1998, 2010 & Pelling, 2003). Considering this, the research draws primarily on the definition used in the IPCC Fourth Assessment Report as also reflected by, for instance, IPCC (2001), Brooks (2003), Füssel and Klein (2006), Füssel (2007) and Romero Lankao and Qin (2011):

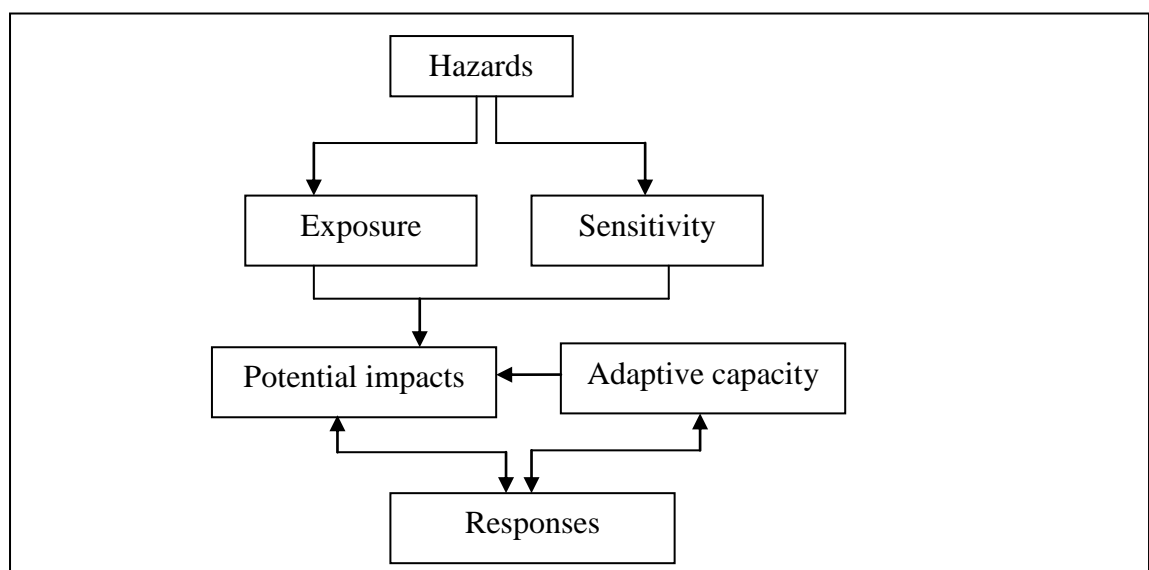
“The degree to which a system is susceptible to, and unable to cope with, adverse effects of climate change, including climate variability and extremes. Vulnerability is a function of the character, magnitude and rate of climate change and variation to which a system is exposed, its sensitivity and its adaptive capacity” (Wilbanks et al., 2007, p. 364),

This perspective suggests that most vulnerable individuals, households, and groups are those that: (a) are most exposed to shocks and stresses due to climate change including climate variability and extremes; (b) are most sensitive to climatic shocks and stresses; and (c) have the least capacity to respond (Figure 2.6). This approach provides a suitable framework for examining vulnerability in the particular context of the urban extreme poor households- one that takes into account both an external dimension that comprises the risks, shocks, and stresses to which people are subject; and an internal dimension that encompasses their capacity and associated means to withstand, or adjust, to damaging losses. In this approach, vulnerability is primarily seen as ‘biophysical’ and concerns human exposure to threats provoked by climate change. This relates to the external dimension of vulnerability and includes the potential damage caused by shocks (such as sudden climatic events like floods) or trends (such as environmental degradation over time). The social dimensions of vulnerability to climate change, in contrast, predominantly focus on the internal dimension—considering how the assets, institutions, and relationships people have are affected by such external threats, and in turn how they deal with them.

Moser (2010) argues that analysis of the risks arising from climate change to poor urban households and communities is grounded in the concept of vulnerability. According to

Moser's (2010) asset vulnerability framework, climate change vulnerability can be understood in terms of a lack of resilience to changes that threaten welfare; these can be environmental, economic, social, and political, and they can take the form of sudden shocks, long-term trends, or seasonal cycles. She also argues that although vulnerability has focused mainly on its social and economic components, in examining climate change vulnerability of low income households and communities, vulnerability to physical hazards is often more important. Moser's (2010) asset vulnerability framework notes that climate change vulnerability is closely linked to assets. The more and diverse assets people have, the less vulnerable they are; conversely, the greater the erosion of people's assets, the greater their insecurity. Poor populations are particularly vulnerable to climate change not only in terms of individual assets such as human and social capital, but also in terms of household, small business and community assets such as financial and productive assets (Moser et al., 2010). It can be argued that both external and internal dimensions of vulnerability depend on access to assets, which attempts to determine the nature and level of resilience within a society. Thus, distinctions in asset endowments affect the nature and degree to which the urban poor are impacted by natural disaster and climate change events. Considering this, the next section explains external and internal dimensions of vulnerability to climate change and their key determining factors.

Figure 2.6: A Conceptual Framework of Urban Climate Change Vulnerability



Source: Based on the IPCC Fourth Assessment Report (cited in Romero Lankao and Qin, 2011)

2.3.2 External Dimension of Vulnerability

External dimension of vulnerability (also referred to as biophysical vulnerability) is concerned with the ultimate impacts of a hazard event, and is often viewed in terms of the amount of damage experienced by a system as a result of an encounter with a hazard (Brooks, 2003). There is ‘high confidence’ that for several hazards, changes in exposure and vulnerability are the main drivers behind observed trends in disaster losses, rather than a change in hazard character, and will continue to be essential drivers of changes in risk patterns over the coming decades (IPCC, 2012). Therefore physical exposure of human beings to hazards is important in examining climate change vulnerability of the urban poor. The physical exposure of poor households and communities to hazards is partly shaped by patterns of settlement of hazard-prone landscapes for the countervailing benefits they offer (UNISDR, 2005). Furthermore, in the context of climate change, physical exposure is in many regions also increasing due to spatial extension of natural hazards, such as floods, areas affected by droughts, or delta regions affected by salinization (ibid.). This does not make households and communities of such locations vulnerable per se because they may have capacities to resist the impacts of extreme events. The physical dimension of vulnerability begins with the recognition of a link between an extreme physical or natural phenomenon and a vulnerable human group (Cardona et al., 2012). In conceiving of physical vulnerability, a number of characteristics directly relate to where and how the urban poor live and their access to basic services that increase their exposure and sensitivity to the risks associated with climate change and natural hazards (Baker, 2012).

Satterthwaite et al. (2009) have identified three drivers that increase vulnerability to climate variability and change in urban areas: the drivers of urbanisation and other aspects of urban change; the weaknesses and incapacities of governments; and the development and expansion of cities in high-risk sites. It is important to understand how the processes that drive or shape urban change create risk from a range of hazards, including those that climate change is likely to create or exacerbate. The increase in the number and extent of informal settlements or slums is important in analysing vulnerability to climate change for poor households and communities because they are often located on marginal land within cities or on the periphery because of the lack of alternative locations or the fact that areas close to river systems or areas at the coast are sometimes state land that can be more easily accessed than private land (UN-

HABITAT, 2003). Because of their location, slums are often exposed to hazards such as landslides, cyclones and floods. Vulnerability to climate change in poor urban settlements can also be elevated because of poor health, livelihood insecurity, lack of access to service provision and basic needs (such as clean water and good governance), and a reduction in the capacity of formal players to steer developments and adaptation initiatives in a comprehensive, preventive, and inclusive way (Cardona et al., 2012). While all the inhabitants of poor urban settlements may have a shared vulnerability to these events, the consequences of natural hazards, seasonality, infrastructural and social remoteness, are felt more severely by the extreme poor groups (Bankoff et al., 2004, CPRC, 2008, Few, 2003 & Hulme et al., 2001). This is because poor people often inhabit marginal areas and lack the resources to withstand shocks, which CPRC (2008) defines as a spatial poverty trap²⁴.

2.3.3 Internal Dimension of Vulnerability

Coping and/or adapting capacity²⁵ are important concepts in the most conceptual frameworks of vulnerability and analysis (Cardona et al., 2012). It refers to the positive inherent features of households' and communities' characteristics that may reduce the risk posed by a certain hazard. Numerous models for coping and adapting have been proposed within existing literatures, which have been variously framed by entitlements (Sen, 1981), human ecology (Hewitt, 1983), rural livelihood analysis (Chambers, 2003 & Ellis, 2000), and asset-based approaches (Moser, 1998, 2010). Across these theoretical realms models tend to focus on assets and capabilities with the majority operating at the household level. Households cope with adverse shocks in different ways (Chambers, 2003 & Dercon, 2000). They adopt a range of sequenced coping strategies in order to respond to shocks. These can be divided into two groups: ex-ante

²⁴According to CPRC (2008), remoteness, certain types of natural resources endowments, political disadvantage, and weak integration can all contribute to the creation of intra-country spatial poverty traps. But spatial disadvantage includes much more than 'lagging regions' within a country. It also includes Chronically Deprived Countries, and certain urban locations which, despite proximity to possible advantage, are characterised by poor or non-existent services, violence and desperate living conditions (ibid.).

²⁵ There is a difference in understanding and use of the terms coping and adapting. Although coping capacity is often used interchangeably with adaptive capacity in the climate change literature, Cutter et al. (2008) point out that adaptive capacity features more frequently in global environmental change perspectives and is less prevalent in the hazards discourse. 'Coping capacity' refers to the ability of people, organizations, and systems, using available skills and resources, to face and manage adverse conditions, emergencies, or disasters (Cardona et al., 2012). 'Adaptive capacity' refers to the ability of a system or individual to adapt to climate change, but it can also be used in the context of disaster risk (ibid.).

risk-management strategies and ex post risk-coping strategies. Ellis (2000) defines 'ex ante' risk management as consisting of "forward planning to spread risk across a diverse set of activities, in the context of subjective evaluations about the degree of risk attached to each source of risk" (Ellis 2000, p. 62). 'Ex post' coping strategies are defined as "the methods used by households to survive when confronted with unanticipated livelihood failure" in either a gradual or a sudden sense (ibid. p. 62). The former can be further divided into strategies that avoid the impact of shock (sometimes termed shock reduction) and those that ameliorate the worst effects of a shock (sometimes termed shock mitigation). While all households are exposed to shocks associated with climate change and could potentially be rendered vulnerable, the extreme poor or the poorest households are the most at risk. This is because their assets and livelihoods tend to be highly exposed and sensitive to the direct and indirect risks associated with climate change, and because they lack access to formal and informal risk management arrangements. Thus, social approaches to vulnerability stemming from the poverty literature have become influential. The social vulnerability can be determined by factors such as poverty and inequality, marginalisation, food entitlements, access to insurance and housing quality (Adger and Kelly, 1999 & Cross, 2001).

Individual coping and adaptive strategies, which operate at the level of the household, depend on the assets they own and market access (Mckay, 2009). While the urban economy provides many income and employment opportunities, the extreme poor tend to be marginalised on many fronts and often face low incomes, limited to (mostly informal) sources of livelihood, lack of social insurance, and limited access to credit markets (Baker, 2012). Therefore, they are forced to adopt forms of adverse coping which may support short-term survival while undermining wellbeing in the medium to long-term (Bird and Prowse, 2009). This may involve women or children becoming more involved in work which may have adverse longer-term consequences (for example for family relations; or a family member may migrate elsewhere (with, again, potential risks for family relations) (Mckay, 2009). Selling productive assets such as livestock or household consumer durables is a common coping strategy among the rural and urban poor during times of shock (Chambers, 1989 & Swift, 1989). Inability to access such assets traps the poor in a persistent cycle of severe poverty (CPRC, 2004 & World Bank 2001). Baker (2012) argues that extended family networks are part of the larger social

networks where family members and/or relatives provide assistance to each other in many forms- taking care of older, disabled and chronically ill people, financial help, emotional support, and shelter in time of need. However, Cleaver (2005, p.895) argue that the extreme poor experience little room for manoeuvre in their kin and wider social relationships, due to “small fragile families”, “unstable marital arrangements”, and wider “derogatory perceptions of the poor”.

Jabeen et al. (2012) note that coping and adaptive strategies also operate at the community level when members of a community work together to improve their resilience. This requires a certain level of organisation beyond the household and may involve community-based organisations, religious organisations or other organisations that operate as an organising entity within the community (Jabeen et al., 2010 & 2012). However, the urban extreme poor are often less able to claim the benefits from community level risk management strategies because they are often excluded from these activities or sometimes included on adverse terms. Cleaver (2005, p.897) also describes that the maintenance of poor people’s social position depends on being perceived by others as ‘hard-working’, ‘trustworthy’ and ‘good citizens’ at the community level; such reputation is secured and reinforced by willing participation in community events. But, ill-health and the physical inability of the poorest may have the effect of eroding such reputation, keeping them outside of informal community level risk management strategies (ibid.). Similarly, Franks and Cleaver (2007) argue that the poorest people are constrained from influencing community level resource management processes through physical weakness, labour demand, lack of participation and other factors of embodiment and voice. Local governments or NGOs may operate institutional level coping strategies (Jabeen et al., 2012), however, the urban extreme poor generally have little power over these. Formal assistance programmes (such as government safety nets) offer a channel of support in the face of shocks (Devereux, 2002). But, it has been shown that the design and implementation practices of safety net programmes often exclude the extreme people from income support (Ellis, 2008 & HelpAge International, 2011). Hulme (2003) argues that civil society (especially NGOs) often find it difficult to reach the most disadvantaged due to the focus on income generation and microfinance that foreign donors have encouraged them to take on. Without household assets to form the basis of effective coping strategies and resilience, the extreme poor have a high level of climate change vulnerability. In addition, their vulnerable context greatly is

exacerbated by social exclusion stemming from formal and informal policies and institutions.

Social exclusion from income sources – or difficulty generating adequate income to satisfy immediate needs can be seen as the manifestation of the social vulnerability of the urban extreme poor because income exclusion often represents a pathway or a transmission mechanism that facilitates other forms of exclusion: access to services and political participation (Babajanian and Hagen-Zanker, 2012). The Chronic Poverty Research Centre has shown that social exclusion is linked with “ascribed status (e.g., ethnicity, race, religion and caste), oppressive labour relations (e.g. migrant, stigmatised and bonded labourers) and being an outsider (e.g., migrant labourers, refugees and internally displaced people, those without the documents necessary to access citizenship rights)” (CPRC, 2004, p.45). Households identified as belonging to these groups may be more exposed to climate shocks and other stressors, due to their poor capabilities, their low functioning level and their failure to accumulate and retain assets (Bird and Prowse, 2009). Therefore, in an urban context, social vulnerability can be understood by dividing experience into two types of vulnerabilities: socio-economic vulnerability and politico-legal vulnerability. Politico-legal vulnerability is common for the urban poor and the extreme poor households, which come from lack of formal entitlements in the urban context. In the case of the extreme poor, it also appears due to their inability to articulate successfully in ‘public fora’ (the range of formal and informal arrangements at local level)—and even where the voices of the poor are heard, they are given little weight and exert negligible influence (Cleaver, 2005, p.896).

2.4 Conclusion

The chapter has addressed the first and second research questions from a theoretical perspective. In order to attain the first research question, this chapter has critically reviewed urban extreme poverty from the asset-based approaches, the social exclusion/adverse incorporation approach and also from the vulnerability approach. By analysing urban extreme poverty from the asset-based approaches, it is found that the extreme poor households are vulnerable because they have a lack of assets and inability to accumulate a portfolio of them and also a lack of choice with respect to alternative coping strategies. However, the vulnerability of extreme poor households cannot be explained only in terms of ‘lack of assets’ because it has less attention at dynamics of

poverty. This chapter has addressed the gap by reviewing the literatures on social exclusion/adverse incorporation. This review has helped the researcher to understand how the coping or adaptive capacity of the extreme poor households or groups is constrained by social, economic and political processes. Based on analysis of urban extreme poverty from vulnerability approach, the chapter explores an unpredictable event (a shock) or series of shocks make poor households vulnerable to extreme or chronic poverty. Many are pushed into a downward spiral of asset depletion and increased vulnerability, culminating in severe and chronic poverty as the consequences of shocks (or series of shocks). In addition, the extreme poor households are also vulnerable to predictable internal events (such as old age, widowhood, divorced) which are also adverse events as shocks that directly cause asset depletion. Combining these findings from the reviews of urban extreme poverty from the asset-based, the social exclusion/adverse incorporation and also the vulnerability approaches, this chapter has developed a conceptual framework to understand the multidimensional aspects of urban extreme poverty. This framework clearly indicates that poor households are vulnerable to shocks or stresses because they have low asset bases (and their low returns) and also they face adverse structural context. This conceptual framework is used in this research as the theoretical framework to understand and analyse poverty dynamics and its relationship with vulnerability in the Bangladeshi context.

This chapter takes the interrelationship between low asset holdings, social exclusion and vulnerability to shocks further to explain the drivers of climate change vulnerability of the urban extreme poor. In order to identify the drivers of climate change vulnerability for the urban extreme poor households, the chapter has used the conceptual framework of vulnerability developed by the IPCC. Using this framework, vulnerability to climate change is understood as a function of a system's exposure, sensitivity, and coping capacity. This conceptual framework is suitable for understanding external and internal factors that influence the main drivers of climate change vulnerability for the urban extreme poor households. The asset profile of the extreme poor households or groups shapes the likelihood of their being exposed to hazardous events (*external dimension of vulnerability*), but also their capacity to cope with, any negative impacts of climate variability (*internal dimension of vulnerability*). In addition to their asset profile, climate change vulnerability is also influenced by the social and political exclusion which can come from the persistent explicit and hidden social and political inequalities

based on gender, caste, class, ethnicity, religion and race. Coping with climate shocks, the extreme poor may require the conversion of productive assets into goods for exchange to fulfil immediate survival needs, thus undermining the household's asset base and setting back the household's chances of climbing out of poverty and vulnerability in the longer term. Thus, it can be argued that climate change vulnerability represents the household's and the community's physical, economic, social, political and legal susceptibility to damage. This understanding of vulnerability to climate change helps the researcher to identify physical, social, economic and political factors experienced by the extreme poor people in the case study of Bangladesh (Chapter five). Following this conceptual framework, this research develops an analytical framework in Chapter four that guides the analysis of the drivers of climate change vulnerability faced by the urban extreme poor in Bangladesh. Therefore, this chapter provides an insight into climate change vulnerability with an emphasis on the dynamics and the differentiated nature of poverty, which can be beneficial for planning pro-poor asset adaptation.

Chapter 3 : Pro-Poor Asset Adaptation for the Urban Extreme Poor in the Context of Climate Change: A Conceptual Framework

3.1 Introduction

The chapter introduces a pro-poor asset adaptation framework whose objective is to understand the process through which the asset adaptation strategies of the urban extreme poor people can be built. Following on from Chapter two, which explores the main drivers that increase exposure and vulnerability for the urban extreme poor, the present chapter explores the reverse relationship: how exposure and vulnerability can be mitigated through autonomous and planned asset adaptations. The chapter first draws on the theoretical debates on adaptation and assets that provide an understanding of their interrelationship. The chapter briefly reviews the current approaches to climate change adaptation by exploring how the literature has incorporated asset adaptation into climate change solutions (Moser, 2010; Mitchell et al. 2010; Polack, 2011 & Sabates-Wheeler et al., 2008). By critically reviewing the existing climate change adaptation (Chatterjee, 2010; Moser, 2010; Moser et al., 2010; Roy et al., 2012a, 2012b, 2013 & Wamsler 2007a, 2007b) and also risk-hazard literature (Adger, 1996; Blaikie et al., 1994; Pelling, 2003 & Wisner et al., 2004), this chapter identifies asset-based autonomous adaptations that poor urban communities use to address vulnerability to the extreme weather events. As explained in Chapter two, the extreme poor's access to assets is constrained by formal and informal institutions, the present chapter takes this theoretical assumption further to identify the limitations of autonomous adaptation.

There is an emerging consensus that pro-poor planned adaptation can be achieved from on-going development interventions (ActionAid, 2006; Agrawala, 2005; Huq et al., 2007a, 2007b & Mitchell and Tanner, 2006). A robust social sector policy response rooted in an understanding of the risks associated with climate change and climate vulnerability facing the poor and the extreme poor can help overcome this (Heltberg et al., 2009, 2010). Therefore social sector programmes can be the important planned adaptation interventions for building resilience of poor households and communities. To identify the processes through which the extreme poor can accumulate assets and build

resilience to the impacts of climate change, this chapter critically reviews the importance of three social sector programmes (such as social funds for community-based adaptation, social protection and targeted asset transfer programmes) in building the resilience of poor urban households and communities. The findings of this chapter provide a conceptual framework of pro-poor asset adaptation from the urban extreme poverty perspective which is a second objective of this research. It provides the analysis of how extreme poor households get access to assets and build asset adaptation strategies. In addition, it identifies how the extreme poor households' assets can be protected and also explore how long term resilience for the urban extreme poor can be built.

3.2 Adaptation and Assets: An Emerging Debate

Adaptation to climate change is growing in prominence in the international policy discourse. The Intergovernmental Panel on Climate Change (IPCC) believes that current knowledge of adaptation to climate change is still insufficient to design adaptation practices appropriate for different contexts and also to evaluate the effectiveness of those practices in the face of climate change, and especially climate variability (IPCC, 2001). Such beliefs have nurtured the academic study of adaptation to climate change into a new field that has “emerged to catch the attention of scientists, environment and development specialists, diplomats and negotiators, and increasingly many civil society organisations” (Soussan and Burton, 2002, p.1). As a result, a growing number of conceptual studies have been undertaken to define what the substance and process of adaptation to climate change could involve. Adaptation has been embraced not only by the climate change community, but also by the development assistance community (DFID, 2005b; UNDP, 2004; Schipper, 2004 & Sperling, 2003) and the disasters community to address the dynamics between risk and development (Helmer and Hilhorst, 2006 & ISDR, 2003). But little research has examined whether the empirical evidence or theory support a need for policy-implemented adaptation, or addressed the disparity between the discourses on adaptation to climate change and adaptation that is studied in other disciplines (Schipper, 2007). According to Schipper (2007), the growing theoretical adaptation literature remains focused on definitions, and yet the policy discourse on adaptation struggles to interpret these. Table 3.1 summarises some

adaptation definitions that have emerged from scholarship primarily focused on climate change impacts.

Table 3.1: Summary of Adaptation Definitions

Sources	Definition
Burton et al. (1998)	Refers to all those responses to climate change that may be used to reduce vulnerability.
Burton (1992)	The process through which people reduce the adverse effects of climate on their health and well-being, and take advantage of the opportunities that their climatic environment provides.
Brooks (2006)	Adjustments in a system's behaviour and characteristics that enhance its ability to cope with external stress
Downing et al. (1997)	Adaptation is synonymous with 'downstream coping'.
Füssel and Klein (2002)	All changes in a system, compared to a reference case, which reduces the adverse effects of climate change.
IPCC (2001)	Adjustment in natural and human systems in response to actual or observed impacts in <i>climatic stimuli</i> or their impacts which moderates harm and exploits beneficial opportunities.
Smit et al. (2000)	Adjustments in ecological-socio-economic systems in response to actual or expected climatic stimuli, their effects or impacts.
Stakhiv (1993)	Any adjustment, whether passive, reactive or anticipatory, that is proposed as a means for ameliorating the anticipated adverse consequences associated with climate change.
Pielke (1998)	Refers to adjustments in individual, group and institutional behaviour in order to reduce society's vulnerabilities to climate change.
UN-HABITAT (2011)	Adaptation to climate change is understood to include all actions to reduce the vulnerability of a system (e.g. a city), population group (e.g. a vulnerable population in a city) or an individual or household to the adverse impacts of anticipated climate change. Whereas adaptation to climate variability consists of actions to reduce vulnerability to short-term climate shocks (whether or not these are influenced by climate change) - for instance, when a municipal government confirms that the drainage system can cope with monsoon rains.

The variations in the aforementioned definitions indicate the various approaches that are possible for understanding adaptation, even within the specialised climate change adaptation discourse. The definitions echo the evolutionary-biology definition of adaptation as “a process whereby the members of a population become suited over the

generations to survive and reproduce.” (Schipper, 2007, p. 4). The main difference in biological adaptation and climate change adaptation is the level of planning and consciousness by which adjustments are carried out (ibid.). Thus, adaptation to climate change can be either deliberate or automatic; it can be imposed based on premeditated planning, or it can take place without specific policy frameworks to implement it (Adger et al., 2003; Schipper, 2004 & 2007). Tanner and Mitchell (2008) highlight some important distinctions about adaptation: first, between ‘ex-ante’ (anticipatory) or ‘ex-post’ (reactive) adaptation²⁶; and second, ‘planned’ and ‘autonomous’ adaptation²⁷. Initial attempts at adaptation appear to have been anticipatory and planned, using large scale modelling of primary and secondary impacts to inform policy choices and expenditure decisions (Prowse and Scott, 2008). Such an ‘ex-ante’, top-down approach has given rise to large scale, technological solutions to climate change such as improved infrastructures, flood protection or improved seed varieties (Tanner and Mitchell, 2008). This ex ante top-down approach has also certain drawbacks, for example, modelling work often has poor resolution and their solutions are technocratic in nature (Prowse and Scott, 2008). A more recent approach to adaptation appears more inductive in nature, based on the existing coping strategies of communities and households to increased risk levels (Huq and Reid, 2007). The most prominent example of this approach is the community based approach. However, there appears to have been limited consideration of what pro-poor adaptation means precisely.

Scholars argue that the issues of justice and fairness should be integral to climate change adaptation as the poorest countries, and the poorest people within them, have contributed least to greenhouse gas emissions, but often face the greatest future risks from climate change (Challinor, 2008; Hedger et al., 2008; Polack, 2008; Prowse, 2008 & Prowse and Scott, 2008). Thus pro-poor adaptation should be poverty focused so as to ensure that poor urban communities do not suffer from climate change, and especially climate variability more than rich people do; or that poor people experience less the effects of climate change than rich people (Prowse and Scott, 2008). In relative terms,

²⁶ ‘Anticipatory’ adaptation that takes place before the impacts of climate change; it is also referred as proactive adaptation (IPCC, 2001; Smithers and Smith, 1997 & Smit et al., 2000). ‘Reactive’ adaptation takes place after the impacts of climate change (ibid.).

²⁷ ‘Autonomous’ adaptation is triggered by ecological changes in the natural system and by market or welfare changes in the human system, rather than constituting a conscious response to climate change. It is also referred as spontaneous adaptation (IPCC, 2001 & Smit et al., 2000). However, ‘planned’ adaptation that is the result of a deliberate policy decision will alleviate the adverse impacts of change or achieve a desired state if the actions have been maintained regularly (ibid.).

poor communities should achieve more benefits than rich communities do from adaptation options in their society. Assets (such as human, physical, social and political) are a vital element of any pro-poor adaptation as they are crucial to helping poor urban dwellers adapt to climate change (Moser and Satterthwaite, 2008; Moser, 2010 & Prowse, 2008a). This builds on the argument that assets are closely linked to the concept of capabilities which are the basis of agents' power to act to reproduce, challenge or change the rules that govern the control, use and transformation of resources (Roy et al., 2011). This follows the emergency relief literature in acknowledging that people are not just 'helpless victims', but have many resources, even at times of emergency, and that these should form the basis for responses of the individuals or households (Moser, 2010 & Roy et al., 2011). It highlights the uncertainty of future risk and with this an uncertainty concerning the bundle of assets that will promote effective adaptation and greater resilience (ibid.). Most recently there has been a growing recognition of the importance of assets in the climate change adaptation literature. Rossing et al. (2010) focuses particularly on the part that social assets—namely bonding, bridging, and linking social capital²⁸— can play in vulnerable communities and how they can affect a community's ability to engage with external entities such as nongovernmental organisations (NGOs) and state institutions (local and federal) in times of distress. As Adger (1999) notes, the way in which individuals and groups within a society interact with one another will influence their vulnerability to climate change, including variability and extremes, notably through mechanisms such as risk sharing, mutual assistance, and collective action.

3.3 Current Climate Change Adaptation Approaches and their Methodologies

This section critically reviews existing approaches to climate change adaptation. Approaches range from disaster risk reduction, which has broadened to include climate change, as well as the emergence of new specific climate change adaptation approaches that appear more inductive in nature and, based on the existing coping strategies and

²⁸ Woolcock (2000) explores the concepts of bonding, bridging, and linking social capital. 'Bonding social capital' refers to ties among people who tend to be closely connected (e.g. friends, and business associates sharing similar demographic characteristics); 'bridging social capital' denotes ties among people from different ethnic, geographical, and occupational backgrounds who have similar economic status and political influence; and linking social capital is the ties between the community and people in positions of influence in formal organisations, such as schools, agricultural extension offices, the police, or local or national government entities (ibid.).

knowledge of individuals, households and communities. Although climate change adaptation approaches have a common focus on building the adaptive capacity of individuals and communities who are at climate risk through assets, the multiplicity of approaches to climate change adaptation is complex, interrelated and often overlapping, and therefore difficult to disentangle (Moser, 2010). Table 3.2, therefore seeks to summarise some of these different adaptation approaches in terms of the historical period when developed, the key objectives and current emphases, as well as their focus on adaptation.

Table 3.2 first shows the role that the ‘Disaster Risk Reduction (DDR) and/or Disaster Risk Management (DRM)’²⁹ communities have played in addressing disasters before climate change *per se* had even become identified as a global development priority (Moser, 2010). DRR, which subsequently transformed into Disaster Risk Management (DRM) with its origins in humanitarian emergency relief, has a 30 year track record in addressing disasters (Moser et al., 2010). However, as a consequence of the Hyogo Framework for Action³⁰, DRM/DRR shifted a paradigm to include the pre-disaster stages of hazards, with its overall focus expanding to encompass emergency response, prevention, mitigation and preparedness of neighbourhoods for natural disasters (FAO, 2008; Moser and Stein, 2011 & Wamsler 2007a). It was also closely linked to ‘Climate Risk Management’, which sought to respond to the risks associated with climate change³¹ (Moser and Stein, 2011). ‘Climate Risk Management’ aims to address both the hazards and vulnerabilities which configure particular risk scenarios and would range in scale from actions to manage the local manifestations of global climate risk, through to global measures to reduce hazard (for example, by reducing greenhouse gas emissions) and to reduce vulnerability (by increasing the social and economic resilience of vulnerable countries) (UNDP, 2002). It would need to include elements of “anticipatory risk management” (ensuring that future development reduces rather than increases risk), “compensatory risk management (actions to mitigate the losses associated with existing

²⁹ Disaster risk reduction encompasses the broad development and application of policies, strategies and practices to minimise vulnerabilities and disaster risks throughout society, through “prevention, mitigation and preparedness” (Mitchell and van Aalst, 2008, p.4).

³⁰ The Hyogo Framework for Action (HFA) 2005-2012 was agreed by 168 governments in Kobe, Japan in 2005, to facilitate a comprehensive system-wide, risk-reducing approach to climate change adaptation (Moser and Stein, 2011).

³¹ See for instance, ORCHID (Opportunities and Risks of Climate Change and Disasters), identified as a managerial response to mainstreaming climate risk management (Tanner and Conway, 2006; Tanner, 2008).

risk)” and “reactive risk management (ensuring that risk is not reconstructed after disaster events)” (ibid. p. 3). Moreover, it will have to take into account potential impacts on both socio-economic and environmental systems.

The ‘Climate Change Adaptation’ approach initially evolved from the link between climate change and sustainable development³². Sustainable development is a key concept in the UN multilateral agencies’ approaches to address climate change adaptation. The relationship between climate change adaptation and sustainable development is set out clearly in the United Nations Framework Convention on Climate Change (UNFCCC) (Schipper, 2004). Within the international framework of the UNFCCC, adaptation has focused on responding to the impacts of climate change, rather than sufficiently addressing the underlying drivers of vulnerability (i.e. social, economic and political processes, see in chapter two) (Ayers and Dodman, 2010 & Schipper, 2007). This has given rise to a policy context that is scientific, technical, and environmental, and a ‘technology based’ view of adaptation that has placed priority on adaptation measures such as dams, early-warning systems, seeds and irrigation schemes based on specific knowledge of future climate change conditions (Klein, 2008). These top-down technology based measures can only be partially effective if they do not also address non-climatic factors that are the underlying factors of social vulnerability (see in chapter 2) (Ayers and Dodman, 2010).

³² The World Commission on Environment and Development defines sustainable development as “development that meets the needs of the present without compromising the ability of future generations to meet their own needs” (WCED, cited in Ayers and Dodman, 2010, p. 162).

Table 3.2: Summary of Selected Approaches to Climate Change Adaptation

Name of the approach	Period of development	Key objectives and current emphasis	Focus on assets
DRR/DRM	1980s	To reduce underlying risks, intensity and/or frequency of climate and/or non-climatic disasters in the pre-disaster and post disaster context (development, relief and response). Current emphasis of disaster risk reduction (DRR) is to integrate with the country's development planning	In the context of strengthening capacities of households and communities, assets are a major focus
Climate Risk Management	1990s/2000s	Addressing vulnerability to climate risk by maximising positive and minimising negative outcomes caused by climate change with the final aim to promote sustainable development	It particularly addresses community adaptation and local institutional capacity building to address the risks faced by local people. In this process, assets are addressed
Climate change adaptation	1990s/2000s	Addressing climate change impacts developed as a reaction to the 1990s GHG debate that promoted the mitigation agenda. Emphasis is to deal with the physical impacts of climate change.	Assets addressed through the interest in local knowledge and competence.
Community-based adaptation	2007	Support to the knowledge and coping strategies of individuals and communities to reduce vulnerabilities to climate risk based on individual and community knowledge of climate variability. The programming of this approach involved frameworks related to either poverty reduction or vulnerability/risk reduction or climate change adaptation or a combination of these. It helps community-led efforts to address the impacts of climate change.	Asset formation is a central theme due to the bottom-up approach emphasising people's assets and capabilities.
Climate smart disaster risk management (CSDRM)	2008	It provides a guide to strategic planning, programme development and policy making in order to assess the effectiveness of existing DRM policies, projects and programmes in the context of a changing climate. The main focus of this approach is to tackle changing disaster risks, enhance adaptive capacity, address poverty, exposure, vulnerability and their structural causes and promote environmentally sustainable development in a changing climate.	Assets are the major theme in promoting the capabilities of the poor to mitigate their poverty and vulnerability.
Asset adaptation	2008	Analysis of asset vulnerability and asset adaptation relating to the erosion and/or protection of human, social, physical, and financial assets at individual, household, and community levels for resilience, pre-disaster damage limitation, immediate post disaster response, and rebuilding.	Assets are the main focus at different levels including role of external institutions such as municipalities, NGOs and private sector.

Source: Moser (2010); Sabates-Wheeler et al. (2008); Mitchell et al. (2010); Polack (2011)

Most recent approaches to adaptation such as ‘Community Based Adaptation’ have evolved from an ‘adaptation as development’³³ approach (Huq and Ayers, 2008, p. 52), which views adaptation as increasing the adaptive capacity of people to climate change and other stressors by taking a livelihoods-based view to assessing vulnerability, resulting in adaptation interventions that target the underlying drivers of vulnerability (Ayers and Dodman, 2010). These approaches build on the substantial literatures on indigenous technical knowledge and coping strategies (Prowse and Scott, 2008). The ‘community-based adaptation’ (CBA) to climate change approach has developed considerable currency with civil society organisations and is designed to help poor communities and the most vulnerable adapt to climate change (Huq and Reid, 2007; Sabates-Wheeler et al., 2008).

‘Climate Smart Disaster Risk Management’ (CSDRM) is also a community based approach that provides a guide to strategic planning, programme development and policy making, in order to assess the effectiveness of existing DRM policies, projects and programmes in the context of a changing climate (Polack, 2011). This approach reveals that many adaptation measures have focused on improving individual and collective assets, although they are not recognised as such (Mitchell et al., 2010). For example, these include climate proofing infrastructures, and improving building design, income generating activities, health and education programmes.

One way in which the ‘Asset Adaptation’ in the urban context has been applied to adaptation to climate change is the asset adaptation framework developed by Moser (2010). This asset based framework to climate change is developed based on previous research on asset vulnerability, asset adaptation, and urban poverty reduction (Moser, 1998, 2008; Moser and Felton, 2007) as well as preliminary climate change- related work (Moser and Satterthwaite, 2008 & Moser et al., 2010). The objective of this framework is both analytically to understand and operationally to address the impacts of urban climate change on the lives and living condition of poor urban communities. The approach emphasises that household assets are central to increasing the adaptive capacity of poor urban dwellers in developing countries. There are three reasons why

³³ Adaptation and development are often viewed as synonymous, as stated by Huq and Ayers (2008, p. 52): “good (or sustainable) development (policies and practice) can (and often does) lead to building adaptive capacity. Adaptation to climate change often also means doing good (or sustainable) development.”

household assets are crucial to helping poor urban dwellers adapt to climate change (Moser and Satterthwaite, 2008; Moser, 2010; Prowse, 2008a): *First*, city authorities may not provide poor urban dwellers with infrastructure or services; *Second*, many city authorities may be reluctant to work with the poor, especially within informal settlements; and *Third*, improving the assets of the poor increases the likelihood that they could hold communities and local governments to account.

The review of climate change adaptation approaches reveals that the two approaches of disaster risk management and climate change adaptation have a tendency to treat adaptation mostly as an engineering issue calling for technical solutions and that, thus far, attention to social assets has been rare (Pelling, 2003; Rossing et al., 2010 & Tompkins and Adger 2004). The three approaches of climate risk management, community based adaptation and climate smart disaster risk management overlap each other, focusing on community based approaches which have been widely implemented in the field of urban housing and poverty reduction in the past few decades as a consequence of the work of community-based organisations (CBOs), nongovernmental organizations (NGOs), and participatory rural developmentalists (Moser, 2010). While the importance of assets is implied in these community based approaches, it is only explicit in the asset adaptation approach, which suggests one way pro-poor adaptation might become a reality. This next section critically reviews the literature on climate change adaptation and also risk hazard to identify the autonomous and planned asset adaptation strategies and processes necessary to build the asset adaptation strategies of the urban extreme poor households and groups.

3.4 Autonomous Asset Adaptation

There is growing recognition in climate change adaptation (Chatterjee, 2010; Moser, 2010; Moser et al., 2010; Roy et al., 2012a, 2013 & Wamsler 2007a, 2007b) and also risk-hazard literature (Adger, 1996; Blaikie et al., 1994; Pelling, 2003 & Wisner et al., 2004) that poor people are already, consciously and/or unconsciously, adapting to climate change impacts. For instance, Wisner et al. (2004) identify four kinds of autonomous adaptive practices: disaster prevention and loss management (for example, avoiding dangerous places at certain times or choosing safe residential locations), diversification of production (e.g. livelihood diversification), development of social networks (e.g. informal reciprocity or state welfare) and post disaster actions to contain

loss (for example, alternative livelihoods, and social organisation). These asset-based autonomous adaptation or adaptive practices are also expressed in other terms, such as coping strategy (Wisner et al., 2004), coping mechanism (Blaikie et al., 1994), individual risk reduction practice (Wamsler 2007a & 2007b), private adaptation (IPCC, 2007, 2012) adaptive response (Dodman and Mitlin, 2011) and adaptive behaviour and practice (Pelling et al., 2008). To better understand adaptations or adaptive practices of poor households and communities these can be categorised on the basis of their objectives: (i) Hazard avoidance or mitigation autonomous asset adaptation for vulnerability reduction, which includes preventive (to avoid or mitigate current or future hazards) and impact minimising strategies (household adjustments to reduce physical impacts of climate change); (ii) Non-hazard asset-based adaptation practices for vulnerability reduction that encompasses social, economic and political responses; (iii) preparedness actions for response and recovery (pre and post disaster measures) which are ad hoc actions to address contextual vulnerability.

3.4.1 Hazard Avoidance or Mitigation Autonomous Asset Adaptation

Poor urban households and communities in the global South use a variety of preventive measures to reduce their hazard exposure (see Table 3.3). They build small embankments to reduce flood exposure or construct retaining walls to reduce landslide hazards (Wamsler 2007a & Wamsler and Brink, 2014). Materials include bricks, cement, stones, nylon bags filled with soil and cement, compacted soil, old tyres or a combination of old tyres, stones, cement and soil (ibid.). Poor urban communities also deploy hazard avoidance measures. For example, they do not expand their homes into known hazard-prone locations; they move to a safer house or location; or they build fences to prevent children from accessing at-risk zones (Wamsler, 2007a, 2007b). In San Salvador, residents, in a diametrically opposite approach, actually moved into risk areas in the hope of being included in post-disaster resettlement programmes – risk reduction through increased hazard exposure (Wamsler, 2007a & Wamsler and Brink, 2014).

Table 3.3: Hazard Specific Asset Adaptation Practices of Poor Urban Residents for Exposure and Vulnerability Reduction

Hazard	Types of Measures	Asset Adaptation Practices
Flood, sea-level rise and high precipitation	Preventive strategies	<ul style="list-style-type: none"> • Construct small levees, dams, embankments to reduce settlement exposure to floods • Preserve green spaces around the settlement to reduce flood exposure
	Impact Minimising strategies	<ul style="list-style-type: none"> • Permanently close cellar windows • Raise door sill levels • Raise electricity lines to reduce flood damage • Permanently increase height of furniture • Dig water channels or build provisional channels with corrugated iron or cement • Construct trenches around houses; build high walls to prevent floodwater from entering houses • Use wooden flooring to allow floodwater to fall faster • Replace mud walls with brick, wooden pillars with metal, and corrugated iron with more durable materials to better withstand rain or floodwater • Increase roof incline or change its direction, extend roof projections or rainwater pipes/eaves to discharge rain without damage • Paint houses regularly to mitigate water infiltration • Raise houses with plinths or poles to better withstand floods • Construct drains in front of houses; renovate buildings; build high walls to prevent floodwater from entering houses
Landslide and erosion	Preventive strategies	<ul style="list-style-type: none"> • Vegetation to reduce exposure to landslides and erosion • Construct retaining walls (e.g. pre-seeded biodegradable sandbags) to prevent landslides
	Impact Minimising strategies	<ul style="list-style-type: none"> • Strengthen pathways and fill cracks with cement • Construct deeper foundations to better withstand landslides • Change locations of latrines and washing places • Build fences around houses to hold back soil • Use plastic sheets to control water flows
Heat	Preventive strategies	<ul style="list-style-type: none"> • Measures to reduce the urban heat island effect (i.e. temperature increases due to the built fabric)
	Impact Minimising strategies	<ul style="list-style-type: none"> • Insulate ceilings to reduce indoor heat and better withstand extreme temperatures • Paint walls and/or roofs white to reduce indoor heat • Grow leafy vegetables to cover walls and roofs • Install shutters, reflective curtains, roller blinds or other shade devices on windows • Construct houses with ventilation openings

Source: Adelekan, 2010; Cheikh and Bouchair, 2008; Jabeen et al., 2010 & Wamsler 2007a, 2007b & Wamsler and Brink, 2014

Living in environmentally vulnerable settings and substandard housing, poor urban households and communities are also attempting to find strategies of adaptation in order to reduce their physical vulnerability to extreme weather events. These strategies can be

considered as the ‘physical impact minimising strategies’. The construction and maintenance of buildings always, to a greater or lesser extent, takes into consideration protection from rain, floods, landslides, cold and heat. Important factors include the depth of foundations, the length of roof projections, the height of door sills, the use of shutters and regular house-painting to prevent water infiltration (Wamsler and Brink, 2014). Climatic changes have forced poor urban households to further improve their living conditions by replacing doors with more flood-proof ones; increasing roof inclines to improve rainwater run-off; changing the orientation of roofing so that water run-off does not cause damage; improving wall and roof insulation; and even constructing additional drains, sometimes illegally connected to adjacent sewers (Adelekan, 2010 & Wamsler, 2007a & Wamsler and Brink, 2014). Poor urban households employ many other physical measures to reduce exposure and vulnerability to climate change. Examples include using wood or bricks to secure the roof during windstorms; permanently increasing the height of furniture in flood-prone areas (Jabeen et al., 2010). Measures to reduce vulnerability to increasing temperatures in cities include hanging curtains made of brightly coloured material; painting houses white (Cheikh and Bouchair, 2008); or creating ventilation holes that are covered with materials (such as empty cement bags) that also provide protection against mosquitoes (Table 3.3) (Jabeen et al., 2010).

3.4.2 Non-Hazard Specific Asset Adaptation Strategies for Vulnerability Reduction

Poor urban households deploy economic measures aimed at increasing household income and income security, to address socio-economic drivers of vulnerability to climate change (as shown in Table 3.4). They include economic diversification at individual and household level and taking low-risk jobs or jobs with different risk profiles to reduce potential hazard impacts (Wamsler 2007a & 2007b). Economic diversification means that poor households undertake many different income-generating activities such as renting out rooms, running a home-based business, having various service sector jobs, often in parallel (Jabeen et al., 2010). Thus livelihood diversification activity is a practice that not only helps people to be less affected in the case of hazards/disasters, it also enables poor households to recover more quickly from hazard impacts.

Table 3.4: Non-Hazard Asset Adaptation of Poor Urban Residents for Vulnerability Reduction

Strategy	Illustrated Examples of Adaptation Practices
Increasing household income and livelihood security	<ul style="list-style-type: none"> • Diversification of production activities at the household level • Diversification of livelihoods • Take on income generating activities with differing risk profiles • Undertake low-risk activities (e.g. government jobs or jobs at garment industry) or jobs that might profit from disasters (e.g. in construction) • Invest household resources in balanced food and health care for children
Creating reciprocal family network	<ul style="list-style-type: none"> • Encourage family members to improve their economic or educational status • Building close ties with extended family members who are living in rural areas that might offer mutual assistance at time of adversity • Create reciprocal relationships for mutual support (e.g. remittances)
Creating social cohesion, solidarity and reciprocal relationships	<ul style="list-style-type: none"> • Building close ties within neighbourhood (e.g. buy from local shops, employ community members for small jobs) • Engage in community affairs and decision making • Learn from friends and communities
Improving access to formal assistance and information	<ul style="list-style-type: none"> • Mobilise the entire community in agitation politics to tackle eviction threats. • Collaborate with local government, NGOs and legal civil society organisations for getting access to formal assistance, legal protection and other services for vulnerability reduction • Exchange votes for short-term assistance from political parties • Send children to schools outside the settlement to improve access to (undisturbed) educational services
Psychological and emotional support mechanism	<ul style="list-style-type: none"> • Rely on hierarchical systems for assistance (e.g. for vulnerability reduction) • Accept or downplay existing levels of risk • Trust religious, cultural or traditional belief for protection

Source: Jabeen et al., 2010; Roy et al., 2011; Wamsler 2007a, 2007b & Wamsler and Brink, 2014

Poor urban households also deploy ‘socially oriented measures’ which can reduce their exposure and vulnerability. These ‘socially oriented measures’ include the creation of solidarity and reciprocal relationships with neighbours and other community members, thus forming the foundation for local networks and structures such as risk reduction committees, and communal actions to reduce the risk of waste and branches blocking water channels (Roy et al., 2013 & Wamsler, 2007a, 2007b) (Table 3.4). A study on adaptation by the poor in Mombasa, Kenya, and Esteli, Nicaragua, provides examples (Moser et al., 2010). In these two cities, community organisations are actively involved in adapting to extreme weather. Adaptation at the household and business level is slightly more common, but community-scale adaptation occurs in Mombasa in approximately 80 percent of extreme weather events (Moser et al., 2010). Extended

family networks, as part of the larger social network, often go beyond the urban arena to rural households (Baker, 2012). In such networks, urban relatives are often called on for financial support in times of drought or other difficulty.

Poor households in the informal settlements organise themselves in order to give the community a more powerful voice in lobbying for services that might address political and legal drivers of vulnerability and make them less vulnerable to hazards (Roy et al., 2013 & Wamsler, 2007a; Wamsler and Brink, 2014). This was the case in Brazil, El Salvador and Bangladesh where local interests were represented by residents associations or local committees. Another social/institutional measure is the fight for legal tenure and access to formal assistance or credit offered by national or local authorities, banks or aid organisations (ibid.). In addition, poor urban households in at-risk communities also adopt ‘emotionally oriented strategies’ (Wamsler, 2007a). They simply accept or ignore the risk, seek emotional support from their social networks (family, relatives, neighbours, religious group etc.), or rely on their faith (Table 3.4).

3.4.3 Vulnerability Reduction through Preparedness Responses and Recovery

The immediate period before an extreme event, preparedness responses of poor urban households and communities can greatly reduce loss of life, serious injury, and loss of possessions, while also having the potential to moderate damage to homes (Moser, 2010). The poor urban residents take a range of measures in preparation for potential emergencies and temporarily adapt their behaviour to changed circumstances. Some preparations are made throughout the year, others only shortly before a potential hazard impact (e.g. following a warning) (Wamsler, 2007a). These measures include both physical responses and non-hazard responses of preparedness measures. ‘Physical response preparedness’ measures include temporary improvements, such as sandbags (used as floodgates), and temporary or permanent structures that provide a refuge during an emergency, whether these are emergency rooms in a building or dedicated emergency shelters (sometimes organized or constructed by the whole community (Wamsler, 2014). ‘Non-hazard response preparedness’ measures are: shifting the old and children within families to safer places, building community emergency groups, sharing resources, dissemination warning messages, storing emergency food and medical equipments, building network with government and civil society organisations for formal assistance etc (Adelekan, 2010 & Wamsler and Brink, 2014). Examples of

adaptation for responses for preparedness to flooding in Accra, Kampala, Lagos, and Maputo following heavy flooding in 2006 show that individuals resorted to using concrete blocks and furniture to raise valuables above the reach of flood waters, creating small barriers to prevent the flood waters from entering their home, or when this was unavoidable, creating openings to channel flood waters through their homes as quickly as possible (Baker, 2012 & Douglas et al., 2008). Those individuals who lacked safe places for their assets or vulnerable family members moved away from the impacted area to stay with family or in public buildings (ibid.). In low-income areas in Jakarta vulnerable to flooding along the coast, poor urban residents have raised their homes on stilts to accommodate rising sea levels and land subsidence (Baker, 2012). Poor urban residents in one close-knit neighbourhood report working together to repair the government constructed sea wall, or fixing boats used for fishing (ibid.). These preparedness measures are ad hoc adaptation measures and may save lives and assets in the short term though its unregulated nature creates the possibility for maladaptation—where a shift in vulnerability from one group to another may deliver a short-term gain, at the cost of creating long-term negative impacts on future generations (ibid.).

Preparedness for Recovery

Poor urban households deploy a number of preparedness measures to help them to recover quickly from the impact of a hazard/disaster (e.g. damage to housing, loss of income or injury) and bounce back to their former, or even better, living conditions. At individual and household level, this is called ‘recovery preparedness’ or ‘self-insurance’ (Wamsler, 2007a). Chatterjee (2010) documents how low-income households in Mumbai have made preparedness measures after the Mumbai floods in 2005, which are related to improvements in housing and infrastructures. Poor urban communities in Mumbai resort to elevating a board to secure some of the important and expensive items of the household. Widening and covering of drains were also applied in some neighbourhoods where local groups collectively cleaned, widened and covered drains in the settlement before monsoons. Poor urban households and communities may get funds for post-disaster preparedness recovery from various sources, including formal bank loans, informal credit from friends or employers, savings accounts, community-based savings schemes, donations, the sale of assets or payouts from insurance policies (Jabeen et al., 2010; Roy et al., 2013 & Wamsler, 2007a). In urban informal settlements, people also save money under the mattress, work extra hours or take an additional job,

and stockpile assets (such as construction materials) that can be sold quickly if necessary. A San Salvador resident, in order to raise money following Hurricane Mitch, sold his corrugated iron roofing sheets and then reroofed his home with the body of an old car (Wamsler, 2007a). Formal employment is another strategy that reduces vulnerability and improves recovery preparedness. It can provide a more secure income for poor urban households (even when disasters result in many lost working days); access to life, health, unemployment or disaster insurance; a retirement pension; direct post-disaster assistance or credit from employers; and other worker's benefits (ibid.).

3.4.4 Autonomous Adaptations Limitations

The formal institutional arrangements to cope with and plan for climate change, particularly adaptation to extreme disasters, are somewhat less developed, as it is a relatively new field of policy and planning (Baker, 2012). Furthermore, almost all city and municipal governments in the global South fail to meet many of their responsibilities or meet them only for particular sections of their populations (Dodman and Satterthwaite, 2008). A major constraint has been capacity as urban governments struggle with inadequate staffing, technical skills, or financial resources (Baker, 2012). This is further complicated in many places by the lack of legal tenure. This legal restriction may prevent municipal governments from being able to act, for example, by not being able to supply those populations who are living in informal settlements (Satterthwaite, 2001).

Scholars argue that there are several common constraints faced by municipal governments in fulfilling their duties for the purposes of good governance in dealing with service delivery, disasters, and climate change. These include: (1) a lack of clarity between city, state and national level bodies, (2) poor coordination between departments and agencies, and (3) severe financial constraints (Kaufmann et al., 2005; Milbert, 2006 & Tanner et al., 2009). Devas (2002) explores another critical issue in relation to decision making and accountability that elected city governments are often not responsible for many public services including urban planning, housing, water and other public services on which the poor depend but that are the responsibility of various special purpose agencies which lack any direct democratic accountability. The experience from Indian cities shows that the shift of public service delivery responsibilities from elected municipal government to special purpose agencies of the

central government and state government has eroded the limited influence which the poor might have over vital services (Benjamin and Bhuvanewhari, 1999). This move of governance away from the local level can be considered a major constraint on local governance agencies to facilitate pro-poor asset adaptation strategies. The literature on urban governance and pro-poor development indicates some other supply constraints which often limit the capacity of local government to achieve pro-poor governance (Devas, 2001; Huq et al., 2007a, 2007b & Tanner et al., 2009):

- Municipal boundaries often do not include areas where the poor reside, thus placing them outside of municipal jurisdiction;
- Lack of financial resources in order to increase service provision and build infrastructure. This is often exacerbated by international donors and development banks that reinforce the power of national governments and pay little attention to governance and needs at the local or municipal level;
- Lack of financial management capabilities and low financial incentives for staff resulting in corruption; and
- Conflicts between urban local government and national or state level governments.

Tanner et al. (2009, pp. 20-21) also reveal some demand side constraints, including the commonly “low-frequency nature of high impact events”, “low levels of awareness about the changing nature of climate-related risks due to climate change” and “low levels of empowerment and mobilisation by the groups of citizens most adversely impacted by climate shocks and stresses”. In most cities at risk from floods, wealthier groups and formal enterprises do not face serious risk and so local and national government is often reluctant to take structural or non-structural measures where the urban poor live. These are the constraints within formal processes to building asset adaptation for the urban extreme poor households and groups. In this situation, household and community based strategies (such as mobility, livelihood diversification, community actions to repair drains, flood embankment) are vital in coping with and adapting to climate variability and change. Household and community strategies to address the risks of climate variability have developed over the years or even decades to prevent loss of life and erosion of assets. Yet, they have very limited capacities to substitute for government investments in ‘hard’ infrastructure, which is essential for risk

reduction (UN-HABITAT, 2011). In addition, the informal context within which the extreme poor households and groups operate serves to block or limit their access to resources for asset adaptation strategies.

Where city or municipal governments have proved unable or unwilling to provide the housing and basic infrastructures or services, clientelistic or patronage relationships have come to personalise the nature of politics and the broader forms of participation through which the urban poor gain access to shelter and services through their dependence on socially and politically influential actors (Banks, 2008 & Mitlin, 2001). In this context, formal political systems or local authority control of access to legal land tenure and services becomes a way of influencing votes; and some politicians and/or state officials appear to work with community leaders to secure financial and political advantages for both parties (Mitlin, 2001). This informal process increases pre-existing structural inequality. The result is an imbalance in asset building as the powerful get more powerful and the majority remain unable to protect themselves and further their interests (Banks, 2012). In this process, at the bottom of the strata are the extreme poor whose claim making and right to services is very much conditional on their relationship with local leaders (Hackenbroch and Hossain, 2012).

3.5 Planned Asset Adaptation

Adaptations that are planned in anticipation of potential climate change are termed 'planned adaptation' (UN-HABITAT, 2011). Generally, national and local government agencies have the responsibility to provide information about current and future risks, and provide frameworks that support individual, household and community adaptation. However, government agencies often do not fulfil this role and examples from the countries in the global South with a focus on improving poor urban settlements are almost nonexistent (Baker, 2012 & UN-HABITAT, 2011). In addition, many interventions for climate change adaptation have addressed direct sectoral impacts of climate change, for example by focusing on climate proofing specific projects or pieces of infrastructure (e.g., roads, communication, water reservoirs, and energy) or on irrigation and improved crops (Heltberg et al., 2009). However, there has sometimes been insufficient attention to indirect risks, to household vulnerability, to disaster risk management, and to inclusion of the poor and vulnerable in adaptation. In this case, the social sector policies and programmes may offer valuable input for building planned

adaptation of poor households and communities but not yet widely appreciated opportunities for the interventions.

The social sector interventions (e.g. social funds and community driven development (CDD) supports for community based adaptation, social protection and targeted asset transfer approach) are useful for hedging climate exposure because of the uncertainty over climate scenarios (Heltberg et al., 2010). They seek to build a general resilience that does not depend overly on detailed climate projections. There is also a role for social policy or programme to empower the poor and help them develop ‘voice’ and political assets to inform policy and make development accountable to their needs (Tschakert, 2007). As discussed in the following, different types of programmes aiming to build resilience of the poor or the poorest have been tried, even in the cities of global South, and give cause for some optimism: there is scope for creating and expanding programmes covering both ex-post coping support for climatic shocks and ex-ante weather risk management. Programmes to take forward include social fund and CDD support for community-based adaptation; social protection; and asset transfer programmes in urban context (see for example Banks and Moser, 2011; Béné et al., 2012; Conroy et al., 2010; Davies et al., 2013; Tanner and Mitchell, 2008 & Yamin et al., 2005).

3.5.1 Social Funds for Community-Based Adaptation

To date, community-based adaptation has primarily been practised in rural areas. However, urban communities have an important role in determining the most effective responses to help them address the challenges of climate change. In practice, the development of infrastructure which reduces climate change impacts is often beyond the capabilities of even the best organised and most representative community organisations (UN-HABITAT, 2011). Social funds and community-driven development programmes can be designed to also assist at-risk households and communities to help people cope with hazards (Heltberg et al., 2010). These allow poor people and communities to become actively involved in their own development (ibid.). For example, social funds, community based/driven development, and slum upgrading can be designed to support adaptation and risk reduction in low-income communities by scaling up their work on actions most relevant for creating resilience, such as improving drainage, water supply, and sanitation, and setting up community-maintenance programmes (Baker, 2012). An

example of this is Indonesia's National Community Empowerment Programme (PNPM), which operates in all urban areas of the country, finances investments in flood prevention, water retention and storage, and slope stabilization to prevent landslides as well as building emergency evacuation routes (ibid.).

Where there are representative community-based organisations, the possibilities of building resilience to climate change are much greater (Baker, 2012; Mitlin et al., 2004; Mitlin, 2008; Satterthwaite et al., 2011 & UN-HABITAT, 2011). In many countries, there are now national federations of slum and shack dwellers that have community-based savings groups as their foundation (Satterthwaite et al., 2011 & UN-HABITAT, 2011). Although very few of these savings groups have climate change adaptation programmes, almost everything that they do contributes to greater resilience and reduces risks (UN-HABITAT, 2011). This often includes many measures taken in response to the extreme weather events that they have long had to cope with. It usually includes measures that make their houses safer – either through support for upgrading (e.g. in Orissa, India, *Mahila Milan* (Women Together) groups developing homes that can withstand cyclones and rainfall) or through acquiring new, safer, more secure land sites upon which to build (ibid.). Most of what these federations are doing is building the resilience of low-income households to almost all climate change risks. These savings groups have been taken much further where there are larger membership organisations or federations of urban poor groups that want to work with local government and responsive local governments (Satterthwaite et al., 2011).

Mitlin (2008) links such experiences of slum/slack federations in housing or slum improvement with frameworks of co-production³⁴ in which citizen and state relations are amended to take account of the potential for communities to self-organise some tasks which have been allocated to the state despite their lack of capacity. For example, in the Philippines, a partnership between a grass-roots organisation, the Philippines Homeless People's Federation (PHPF), and local governments has worked to secure land tenure, build or improve homes, and increasingly to design and implement strategies to reduce risk (PHPF, 2010). Following the devastation caused by Typhoon

³⁴ The concept 'co-production' refers to the joint production of public services between citizen and state, with any one or more elements of the production process being shared (Mitlin, 2008, p. 340). It has been considered as a route through which the urban poor may consolidate their local organisational base and build their organisational capacity to negotiate successfully with the state (ibid.).

Frank in 2008, the local government in the city of Iloilo worked closely with PHPF in technical working groups, mapping of high-risk areas, and identification and prioritization of communities to be given post disaster assistance. This example demonstrate the capacity to work at different scales (e.g. project implementation, monitoring and working as a partner of the state agency) to improve basic infrastructure services while changing the role of citizens in relation to the state (Mitlin, 2008).

3.5.2 Social Protection for Asset-Based Planned Adaptation

It is frequently claimed that the most innovative feature of ‘social protection’³⁵, in contrast to safety nets³⁶, is that it has the potential to reduce the vulnerability of poor people to the extent that they can manage moderate risk without external support (Barrientos and Shepherd, 2003; Devereux and Wheeler, 2004 & Kabeer, 2008). The concept of ‘social protection’ has evolved in recent years to include short-term interventions to reduce the impact of shocks, but also to consider longer-term mechanisms designed to combat extreme poverty (Barrientos and Hulme, 2008 & Davies et al., 2013). It is now increasingly accepted that social protection provides a critical entry point for addressing the growing poverty and vulnerability that characterise the current situations in the global south (Ellis et al., 2008 & Davies et al., 2013). Social protection measures include a wide range of different interventions and instruments. The social protection interventions usually involve the direct transfer of cash or food to those experiencing short-term livelihood hardship or longer-term, more chronic forms of poverty (Devereux et al., 2005). Complementary social protection interventions include microcredit services, and social development, skills training and market-enterprise programmes. Devereux and Sabates-Wheeler (2004), in an attempt to explore social protection policies and strategies in practice, proposed to categorise social protection through a Protection-Prevention-Promotion-Transformation (3P-T) framework.

³⁵ The World Development Report (WDR) 2000/01 on ‘Attacking Poverty’ concludes that sustainable poverty reduction needs a forward-looking approach towards social protection (World Bank, 2001). The ‘Social Risk Management Framework’ of the World Bank defines social protection as simply “public interventions i) to assist individuals, households, and communities better manage risk, and ii) to provide support to the critically poor” (Holzmann and Jørgensen, 2000, p.9).

³⁶ ‘Safety nets’ (sometimes termed as ‘social safety nets’) are associated with developing countries, implying a more limited range of targeted social assistance programs (World Bank, 2001). These programmes are often treated as short term and compensatory measures.

‘Protective’ measures should have the specific objectives of providing relief for addressing deprivation and the livelihood shocks of marginalised individuals or groups such as children, orphans, elderly, or disabled people through the establishment of social welfare programmes – for example, pension schemes, protection programmes for children or other at-need groups (Devereux and Sabates-Wheeler, 2004; Davies et al., 2013; Kabeer, 2008 & Sabates-Wheeler and Kabeer, 2003). In the context of disaster response, ‘protective’ measures usually refer to instruments associated with shorter-term interventions such as the distribution of food or cash, aimed at supporting people’s existing coping strategies in the immediate aftermath of a disaster (Davies et al., 2013 & Kabeer, 2008). ‘Promotive’ measures aim to improve the real income and capabilities of the poor and resilience through activities such as micro-credit programmes, livelihood diversification programmes, or cash or asset transfers whilst ‘preventive’ measures are defined as social or disaster-linked policies and other safety-net interventions that directly seek to avert deprivation and shock which come suddenly and cut off the graduation pathway of the poor, such as free health services, unemployment schemes, insurance, or food and/or cash transfers (ibid.). Finally, ‘transformative’ measures should address the social equity of socially vulnerable people, such as disabilities, or victims of domestic violence (Devereux and Sabates-Wheeler, 2004). These categories are not strictly separated and may in effect overlap, as some interventions do for instance simultaneously ‘promote’ incomes as well as ‘prevent’ deprivation (Béné et al., 2012). Public-works projects are examples as they aim both at transferring short-term food or cash (prevention) and building useful long-term infrastructure (promotion) (Davies et al., 2013).

Social protection has an important role to play in building climate change adaptation, in view of its role in the prevention, protection and promotion of livelihood security, ranging from addressing issues of access to livelihoods to those of access to basic social services to socio-economic security more generally. Furthermore, it can make a significant contribution to transforming social relations, and thus redress underlying causes of vulnerability. Table 3.5 illustrates the role of social protection in addressing asset adaptation strategies in the context of climate change. Social protection has become an important part of the World Bank’s disaster response in several recent major climate-related disasters in South Asia (Davies et al., 2013). In these circumstances, support is often provided directly as cash to affected households, although workfare

(cash-for-work) is another commonly utilised instrument which is well-suited to the short-term relief phase (Davies et al., 2013). Other social protection instruments used occasionally in disasters in south Asia are conditional cash transfers, near-cash instruments such as vouchers and fee waivers, social funds, and specific services such as child protection, orphanages, and rehabilitation for persons with disabilities (ibid.). The empirical evidence from Mexico, Brazil, and Ethiopia reveal that social protection measures compared with other adaptation delivery channels have significant potential to help improve the adaptive capacity of the poor in terms of the scale of impact and comparative advantage, impact on adaptive capacity, and the facilitation of adaptation by the poorest (Christoplos et al., 2009).

The social protection programmes (as shown in Table 3.5) function well in strengthening coping and recovery capacity, as a more immediate-term response to a climate (Davies et al., 2013); but these programmes have been criticised for offering little to enhance the longer-term resilience of the livelihood to a climate impact (Cipryk, 2009). It can further be argued that, without substantial livelihoods' support or alternative options, the avenues out of chronic poverty are little. Devereux and Sabates-Wheeler (2004) argue that most of the social protection measures (e.g. cash transfers or employment through public works programme) which are implemented in different countries remains rooted in a safety nets agenda and social protection for extremely poor needs to be conceptualised as more than just safety nets - interventions must extend beyond just protecting consumption against transitory economic shocks.

Table 3.5: Role of Social Protection in Building Asset Adaptation Actions

Social Protection (SP) Category	Social Protection (SP) Instruments	Asset Adaptation Actions
Protective (<i>coping strategies</i>)	Social service provision Emergency safety nets Humanitarian aid (food/cash) Social pension schemes	These protective measures are important to manage uncertainty and cope with shocks. The vulnerable households can smooth their consumption, and often invest something for their health care and also invest in livelihood diversification. Regular cash transfer (such as social pensions for the old and the vulnerable groups) seem to support strategies and behaviours that are expected to enhance the households' adaptive capacity; for instance the poor use these grants to invest in physical, human and productive capital.
Preventive (<i>coping strategies</i>)	Long-term transfers (cash or in-kind) Weather-indexed crop insurance Social insurance (free health service) Employment guarantee schemes	Building resilience and adaptive capacity of households (prevents damaging coping strategies)
Promotive (<i>building adaptive strategies</i>)	Social transfers Access to credit Asset transfer or protection Access to common property resources Conditional cash transfer	Promoting opportunity-seeking by households and communities over the short -and medium- term and contributing to climate change adaptation through livelihood diversification and security in order to withstand climate-related shocks. Promotes socio-economic opportunities arising from the need to reduce and mitigate potential effects of climate change
Transformative (<i>building adaptive strategies</i>)	Land ownership, Housing, Development of local institutions	Transforms the community's asset base and livelihoods over the longer-term to address deep-rooted inequities – (transforms social relations to help address underlying causes of poverty and vulnerability).

Source: adapted from Arnall et al. (2010); Davies et al. (2008) & Davies et al. (2013)

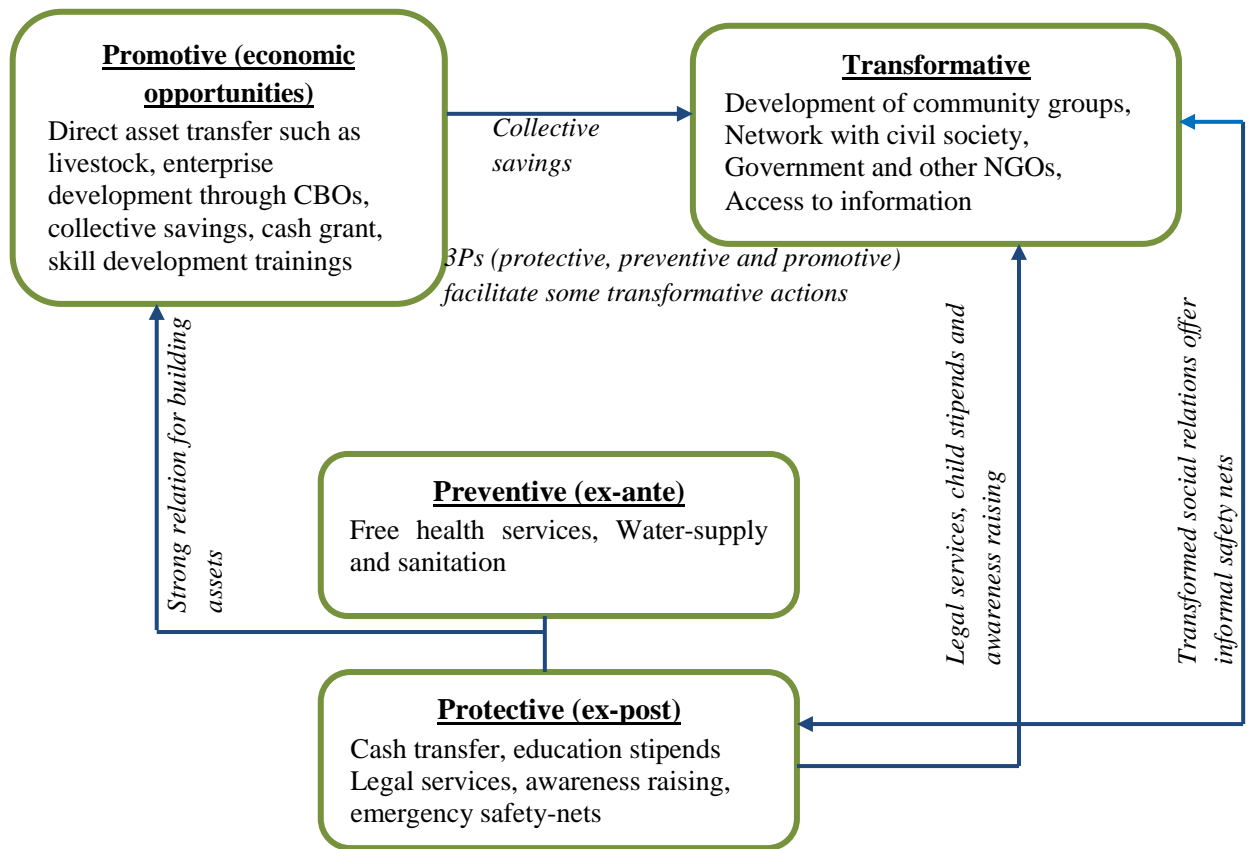
3.5.3 Targeted 'Asset Transfer' Programme

The targeted 'asset transfer' programmes have become increasingly classified as a form of social protection rather than simply programmes that only focus on poverty reduction through cash transfers or providing employment (Banks and Moser, 2011). The programme model focuses on the household as a unit for the accumulation and management of resources. Such programme models have an explicit focus on assets, with the initial transfer of a productive asset seen as a prerequisite to further asset accumulation (ibid.). In addition, complementary services such as a stipend, human capital development and a component for increasing social awareness are viewed as necessary to protect the asset and provide the foundations for integration into wider

community processes. The ‘asset transfer’ programme model mainly intends to provide a critical push, through direct asset transfer and a range of other supports, to enable the extremely poor to cross the threshold to more sustainable livelihoods (Matin and Begum, 2002). Overall, various types of programme components in one programme model are aimed at providing people with the resources necessary to improve their living standards to a point at which they are no longer dependent upon external sources of assistance, a process sometimes referred to as ‘graduation’ (Hashemi and Umaira, 2011 & Matin et al., 2008). These programmes, therefore, recognise that social protection must address both the economic risks associated with poverty, but also the social vulnerability that face extremely poor households. This symbolises a shift towards the transformative³⁷ agenda of social protection, which provides a potential entry point for integrating an asset-based approach into the social protection agenda (Banks and Moser, 2011). The asset transfer programmes go further than the conventional social protection or safety nets (such as cash transfer) in addressing all components of the transformational social protection framework under one programme. Figure 3.1 shows the interrelationship of protective, preventive, promotive and transformative social protection instruments in an asset transfer programme model.

³⁷ Proponents of this idea have coined the term ‘transformative social protection’ to refer to a wider set of policy measures addressing not only economic but also social vulnerability (Sabates-Wheeler and Devereux, 2008; Abdulla et al., 2011). Devereux and Sabates-Wheeler (2004, p.9) therefore present a conceptual definition of social protection in a transformative sense as: “all public and private initiatives that provide income or consumption transfers to the poor, protect the vulnerable against livelihood risks, and enhance the social status and rights of the marginalised; with the overall objective of reducing the economic and social vulnerability of poor, vulnerable and marginalised groups”.

Figure 3.1: The Interrelationship of Protective, Preventive, Promotive and Transformative Social Protection in an Asset Transfer Programme Model



Source: adapted from Conroy et al. (2010); Holmes et al. (2011); Hulme and Moore (2008); Hashemi and Umaira (2011) & Matin et al. (2008)

The asset transfer programmatic approach supports the extreme poor households and groups through incorporating asset accumulation policy framework³⁸ in the programmatic intervention. Reviews of the asset programme models (e.g. BRAC's *Challenging the Frontiers of Poverty Reduction* and DFID's *Char Livelihood Programme*) can provide access to multiple assets and simultaneously it can generate an enabling structural and institutional environment which protects the extreme poor from asset erosion and can also provide them with opportunities to further accumulate other

³⁸ Asset accumulation policy includes interventions that focus on strengthening individual assets and also provides an enabling environment with clear rules, norms, regulations and support structures to allow households and communities to identify and take advantage of opportunities to accumulate assets (Banks and Moser, 2011; Moser 2008 & Moser and Stein, 2011). To facilitate asset accumulation it is necessary to address structural, operational and institutional factors simultaneously. There are three different stages or generations of asset accumulation strategies. First-generation strategies intend to access assets; second-generation strategies ensure the consolidation and prevent erosion of assets; third-generation strategies maximise the linkages between necessarily sufficient to meet long-term goals (ibid.).

assets (Banks and Moser, 2011; Béné et al., 2012; Conroy et al., 2010; Holmes et al., 2010; Hulme and Moore, 2008; Hashemi and Umaira, 2011 & Matin et al., 2008). These programmes use a set of carefully sequenced interventions to transfer assets directly to the poor with the aim of income and asset generation. The protective measures provide basic necessities to households who have low levels of adaptive capacity (*access to financial assets*). This can help these vulnerable groups to build their coping capacity so they can use promotive instruments to their full potential to build their income and assets. Preventive measures such as climate proofing community based water supply and sanitation and basic infrastructure components can reduce the flood risk of the poorest households and the provision of health services can save the poorest households from further asset erosion. Access to physical assets and consideration of climate risks in building physical assets can protect them from asset erosion and *consolidate their assets*. The promotive measure aims to enable the extreme poor to develop new and better income generating activities for building livelihoods. A combination of promotional elements in the asset transfer programme such as asset transfers combined with enterprise development services such as market access, skills training, obligatory savings, and often micro-credit can enhance the capacity of households to accumulate assets and improve their well-being so that they are better protected in times of hardship (*access to productive assets*). Therefore, the combined efforts of protective, preventive and promotive social protection instruments can help build the different asset based adaptation strategies of the extreme poor households including consumption smoothing, livelihood diversification, accumulation of assets, and social capital development - all of which can help them to cope with or adapt to increased risk levels. Collective savings can be considered as one of the innovative elements of promotive measures that could have positive implications in transformative actions which enable *access to social assets*. To reduce asset erosion and thereby assist the poor to consolidate their financial capital assets, the programmes are encouraged to promote the use of micro-insurance subsidised contracts (*consolidating of the financial asset*). The programmes also strengthen community ties and trust (improving social capital) by creating a supportive and responsive political environment that enables the poor to further accumulate other assets (this can be viewed as *maximising the linkages between different inter-dependent assets*).

3.6 Conceptual Framework of Pro-Poor Asset Adaptation for the Urban Extreme Poor

This section develops a conceptual framework of pro-poor asset adaptation for the urban extreme poor, which is the second objective of this research. Adaptation is largely made up of individual choices at the local level, collective action at the community and municipal level is the most appropriate response for adaptation in an urban context (Adger, 2005; Moser, 2010 & Tanner et al., 2009). Considering this, the conceptual framework of pro-poor asset adaptation identifies the process of building micro level (household), meso level (community) and macro (municipal) level adaptation strategies that enable the urban extreme poor to protect themselves, or to recover from, the negative effects of slow invidious changes of weather associated with climate change. Poor individuals or households take different physical, social, economic and political measures to reduce risks from extreme weather events such as flooding, landslides or extreme temperatures. Assets (human, financial and social assets) available to poor households helps them to build their own individual adaptive practices. However, the autonomous adaptive responses of the urban extreme poor individuals or households are mostly impact-reducing, ad hoc, individual short-term efforts to save lives, or to protect property. Urban policies and institutions, both formal and informal, often place significant limitations on their efforts to extend their own individual strategies for long term resilience to climate change. Therefore, the urban extreme poor need more poverty focused asset-based planned adaptation to build their short term as well as long term resilience. The social sector programmes can support pro-poor asset adaptation through household as well as community level interventions. Social sector programmes to adaptation create synergies between climate action and poverty alleviation (Eriksen et al., 2005). The key is to understand the risks associated with climate change facing the extreme poor and the marginalised to design instruments that help them manage these risks and support them as active agents in creating resilience.

At the *micro level*, the household needs to be considered as the most important unit for the accumulation and management of resources. An effective approach for the extreme poor would require multiple entry points; and protective (cash grants and/or food aid), preventive (basic services and infrastructures), and promotive (productive asset transfer, enterprise development, trainings and credits) instruments can create these entry points to build their household assets (such as financial, human, physical, livelihood

productive assets and household belongings) when all of these measures work together at least for some time (as shown in Figure 3.2). Households' access to productive assets such as micro-enterprise can reduce the overdependence of poor households on one resource, their own labour. Preventive measures (such as provision of basic services, improvement of housing) can save their human capital assets as well as financial assets from sudden erosion. The combination of protective, preventive and promotive measures can enhance extreme poor household resilience by developing new livelihood activity and multiple assets available to their households. Asset available to extreme poor households helps them to buy their way out of risks – for instance, by being able to buy, build or rent homes that can withstand extreme weather in locations that are less at risk from flooding. They can also afford the measures that help them to cope with illness or injury when they are affected (the medical treatment needed, taking time off work) or when their assets are damaged (e.g. through compensation from insurance). Given the insecurity of urban livelihoods, this is not necessarily a sustainable asset accumulation process for the extreme poor households unless new assets are also structurally protected³⁹. Therefore, the *micro-level* asset adaptation strategies need to be integrated to meso and macro level strategies in order to protect households from asset erosion and maximise the linkages between different inter-dependent assets.

At the *meso level*, urban communities living in the informal settlement also deploy different physical (e.g. clear blocked drainage channels), socio-economic (e.g. community based saving groups) and political measures (e.g. development networks with political parties, NGOs for formal assistance) to withstand weather related risks arising from climate change. These are constrained, however, often by a lack of secure tenure and communities' capacity with having neither the physical nor the financial capacity to undertake large infrastructural projects. For example, developing a drainage system that actually stops or greatly reduces flooding – especially in high-density settlements on high-risk sites with little or no drainage infrastructure and space for new infrastructure – is usually beyond the means of community organisations. This is not to say that it cannot be done; community-directed slum and squatter upgrading has

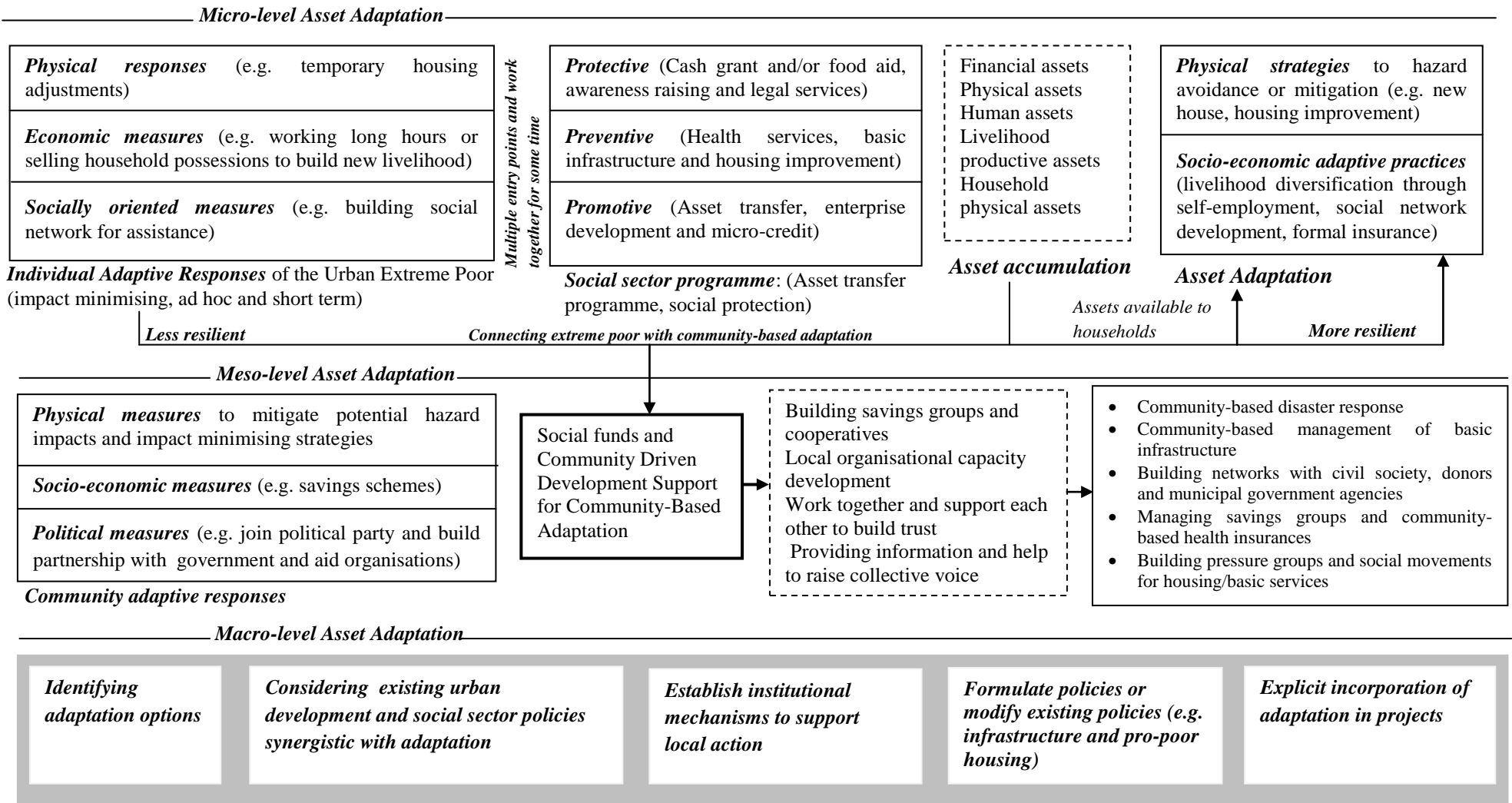
³⁹ This has been recognised in connection with asset transfer programmes. BRAC's 'Targeting the Ultra Poor programme', for example, established that simply transferring an asset was not enough to protect it, rather they engaged with local elites through the formation of Gram *Sahayak* (Assistance) Committees to provide on-site, village-based protection and support for extreme poor participants and their new assets (see Banks, 2012 & Hossain and Matin, 2004).

achieved this; but this is where they get appropriate support from social funds and also assistances for community driven development. Through social funds, the international community could channel external finance to small-scale community-based adaptation projects in a large number of communities of the informal settlements. In order to protect households assets and build greater resilience, the extreme poor households need to connect with the community based adaptation. The new livelihood activity can provide the extreme poor households with flexibility and household wellbeing can make them confident in participating in community based risk management strategies. The participation in community-based activities can facilitate their collective assets (such as saving groups, peer support groups, cooperatives) which have positive influences for coping with and adapting to a wide range of stresses or shocks, including those arising from extreme weather. Human capital development services combined with learning-by-doing project activities can build organisational capacity to a collective entity for extreme poor groups. While the extreme poor lack access to important information related to risks and risk management, their active engagement in community network can improve their access to required information for managing their risks.

Where the representative community-based organisations can build partnership with local or national government, the possibilities of building resilience to climate change are much greater. In many countries, there are now national federations of slum and shack dwellers that have in partnership with local government and aid organisation. To implement programmes to address housing, upgrade slums and make improvements to service delivery and basic infrastructures in slums. It is also necessary to make changes in urban formal institutions and policies (*macro level*) that would make poor households and communities more proactive in building asset adaptation to promote long term resilience. For example, local government in Ho Chi Minh City and Cape Town called for resettlement of communities in the most risk-prone areas, in addition to improved construction and regulation of low-income and informal housing (Baker, 2012). Of the more proactive approaches, both these city governments encouraged new methods of construction to cope with anticipated flooding, elevating buildings and creating floating communities, respectively. It is also found that delivery of social protection to the vulnerable and marginalised groups (e.g. cash transfer) can enhance their preparedness recovery after a climatic shock. At the *macro level*, the institutional actors should undertake different actions such as identifying adaptation options for the poor and

marginalised, considering existing housing and social sector policies synergistic with asset adaptation etc. that facilitate asset adaptation of vulnerable households and communities (see Figure 3.2). The national government should give power and resources to local governments, so they can help poor households and communities to obtain safe, legal land sites for housing, and improve access to justice for the urban poor. This framework will be used to understand adaptive responses of the extreme poor to the extreme weather events arising from climate change and also identify how urban institutions and policies constrain their autonomous adaptation (Chapter Six). It will also be used to explore how social sector programmes facilitate building asset adaptation of the extreme poor to short term and long term resilience (Chapter Seven). Later, this framework will be used to identify the gaps in pro-poor asset adaptation for urban extreme poor in Bangladesh (Chapter Eight).

Figure 3.2: Pro-Poor Asset Adaptation Framework for the Urban Extreme Poor



Source: author (2012) has developed using literature review and his perception

3.7 Conclusion

The chapter has developed a 'pro-poor asset adaptation framework' that identifies an asset adaptation building process for the extreme poor household and also explores asset-based adaptation at the community and municipal level which can protect their assets and also give opportunity for building asset-based adaptation strategies for long term resilience. It has drawn on theoretical debates on assets and adaptation which reveals that there is an interrelationship between assets and adaptation. The assets available to the poor households can enhance their capabilities; and by combining assets and capabilities, they can build their own asset adaptation strategies. Reviewing the current climate change adaptation approaches, it is found that the importance of assets is implied in most of the approaches; but it is explicit in the 'asset adaptation' approach, which suggests one way pro-poor adaptation might become a reality. Poor urban households and communities have already coped and adapted to the extreme weather events arising from climate change which is recognised to be critical in building the resilience of poor urban residents to climate change.

The chapter has explored a range of asset-based autonomous adaptation strategies, which focus on not only physical responses to mitigate or avoid hazard and minimise impacts of the hazards, but also non-hazard socially determined, economic and political measures for vulnerability reduction. In addition, adaptation strategies also explore a range of asset based preparedness measures that poor households and communities have deployed at the time of disasters and also after the disasters. The asset portfolios of individuals, households, and communities are a key determinant of their asset based adaptive responses to climate change. While the extreme poor households have a lack of assets and inability to accumulate a portfolio of them, their individual adaptive responses are short term, ad hoc and only impact minimising. Institutions include the laws, norms, and regulatory and legal frameworks that either block or enable access, or, indeed, positively facilitate asset adaptation. However, a set of interacting factors means that supply-side and demand-side problems including limited institutional capacity, institutional culture, resource constraints, and conflict between local and national government regarding pro-poor urban governance deny the extreme poor access to resources to cope with climate variability. Where the formal process becomes weak or obsolete, an informal process has emerged that seeks to address the adaptation needs of the urban poor. But, the informal process is exclusionary because claims, rights and

entitlements to services or opportunities such as financial assistance have to be negotiated through informal channels. Thus it is found that the informal process often excludes the extreme poor households from access to productive assets, which are important for adapting to climate change. This understanding of the asset based autonomous adaptations to extreme weather events and their limitations for the urban extreme poor households through the international literature on the topic will be used later in Chapter 6 to explore the individual adaptive responses and the constraints affecting the asset adaptation of the extreme poor households in the Dhaka case study.

In conceptualising the asset adaptation process of the extreme poor, the chapter also has drawn on critical analyses of planned adaptation by social sector programmes such as social funds for community-based adaptation, the social protection and the targeted asset transfer programme model. Social protection measures include short-term interventions to reduce the impact of climate related disasters, but also, increasingly, consider mechanisms designed to address longer-term risks posed by climate change. But, recent theories of social protection argue that social protection needs to be transformative; it should not only address economic shocks but also have positive consequences for the social vulnerability of the extreme poor. The transformative agenda of social protection provides a potential entry point for integrating an asset-based approach into the social protection agenda. The asset transfer programme model have become increasingly classified as a form of social protection, which uses a set of carefully sequenced interventions to transfer assets directly to the extreme poor households with the aim of asset accumulation at the household level. Therefore, asset transfers programme can enable the extreme poor households to build their asset portfolios, which also enhance their capability to build more effective individual adaptive responses (physical as well as socio-economic responses) to slow on-set climate events (such as extreme temperature, cold or precipitation events). In addition to enhancing household responses, it is also important to build effective community-based collective responses to extreme weather events and also need to integrate the extreme poor and marginalised with these community based efforts. Social funds and support for community-driven development can build effective community based responses (e.g. building infrastructures), which are essential for protecting households and their assets from extreme weather events. Where community-based organisations build partnership and work together with local government and aid organisations, sustainability of

community responses and the possibility of building greater resilience of poor households and vulnerable is likely to be higher. Thus this chapter has built a pro-poor asset adaptation framework that constitutes a useful theoretical framework for analysing the asset adaptation process of urban extreme poor households and the asset adaptation strategies that help them to cope with or adapt to climate variability and change. Chapter seven will analyse in more detail the role of social sector programmes in building asset-based planned adaptation for the urban extreme poor households in the case study of Dhaka city to understand pro-poor asset adaptation process in the context of Bangladesh.

Chapter 4 : Research Strategy

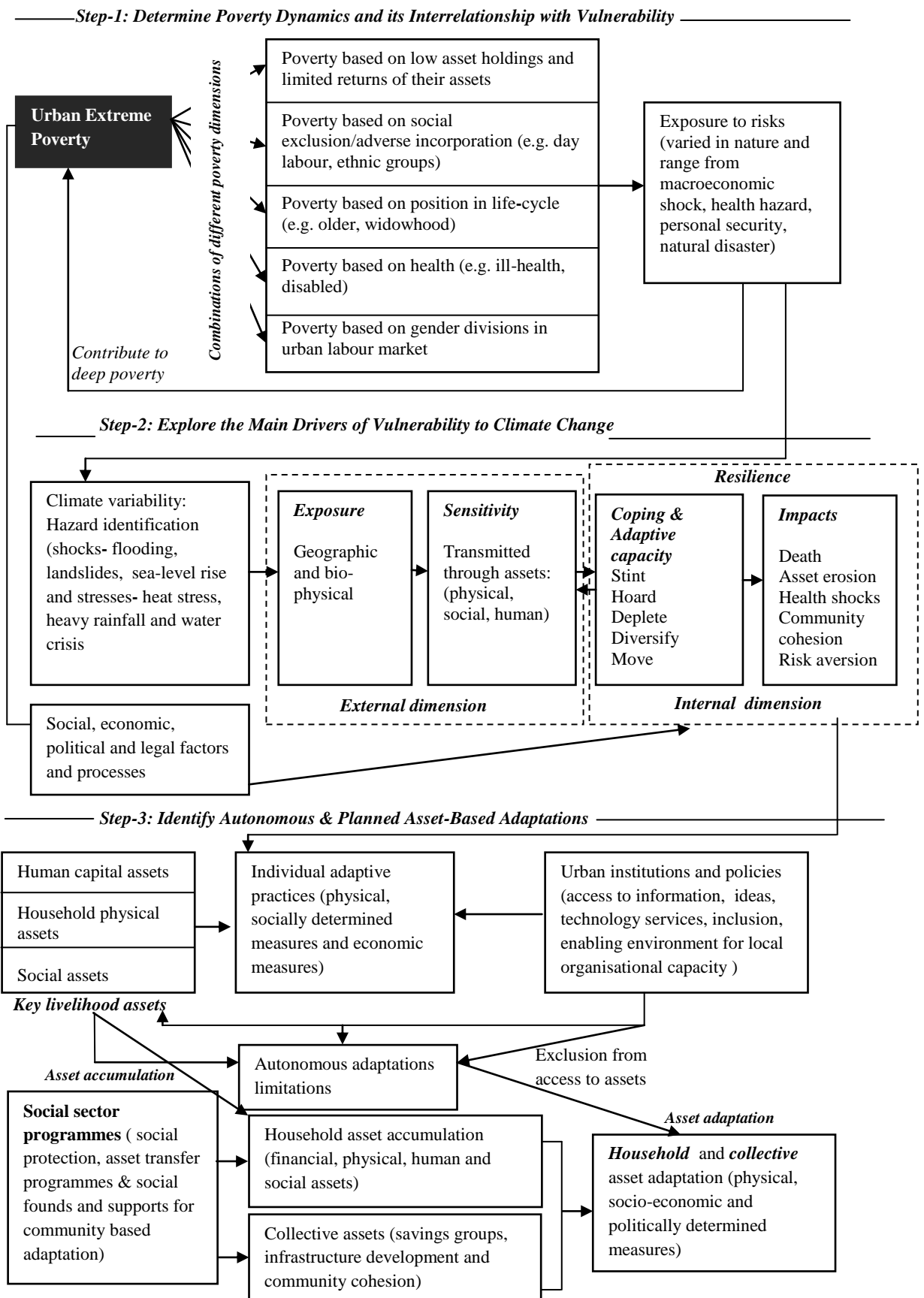
4.1 Introduction

This chapter explains the research strategy of the study encompassing the analytical framework of this research combined with the research methodology. The chapter starts with the analytical framework of the research, which has been derived from the theoretical perspective of the literature review (Chapters two and three). The chapter first develops the analytical framework for assessing pro-poor urban adaptation in Bangladesh context; and then the chapter provides an overview of the required data to operationalise this analytical framework. Later, this chapter identifies the research methodology relevant to the analytical framework of this research on pro-poor urban adaptation. This part includes the theoretical perspective of the research methodology; the process of selecting the cases; the data collection techniques and process; and the data analysis and it is followed by a reflection on the limitations of the research methodology.

4.2 Analytical Framework

As explained earlier in the Chapter one, this research analyses the Bangladesh context in an international perspective. Thus the purpose of the literature review is to explore, from the international perspective, urban extreme poverty and climate change vulnerability; and asset adaptation for the extreme poor. The review therefore explores theoretical insights from asset-based, social exclusion/adverse incorporation and vulnerability approaches to explain poverty dynamics and its linkage with risks; an integrated vulnerability framework to identify the main drivers of climate change vulnerability; and the asset adaptation approach to explore and compare adaptation options that could reduce the vulnerability of the urban extreme poor. It is essential to develop an integrated analytical framework for combining theoretical insights of urban extreme poverty, climate change vulnerability and asset adaptation to assess pro-poor urban adaptation.

Figure 4.1: An Integrated Analytical Framework for Analysing Pro-Poor Urban Adaptation



Source: author (2012) has developed using literature review and his perception

The integrated analytical framework (Figure 4.1) helps to diagnose pro-poor urban adaptation in the Bangladesh context, following three major steps: (i) determine poverty dynamics and its interrelationship with vulnerability; (ii) the interrelationship between poverty dynamics and vulnerability is taken further to explore the main drivers of climate change vulnerability; and (iii) the urban poor are not just ‘helpless victims’, but have many resources, even at times of emergency, and these should form the basis for responses (Adger et al., 2003 & Roy et al., 2011). It is essential to explore asset-based autonomous adaptations and also identify how urban institutions and policies constrain access to assets for adaptation. In addition, this step also explores asset-based planned adaptations for the urban extreme poor. More importantly, it identifies how social sector approaches facilitate asset adaptation of the urban extreme poor.

4.2.1 Analytical Framework to Understand Poverty Dynamics and its Relation with Vulnerability

This section combines theoretical insights from asset-based framework analysis with other analytical framework analysis (social exclusion/adverse incorporation and vulnerability) to assess poverty dynamics and its interrelationship with vulnerability. In the asset-based approach, poverty is characterised not only by a lack of assets and inability to accumulate a portfolio of them, but also by the lack of choice with respect to alternative coping strategies (Rakodi, 2002). Vulnerable households are forced to adopt strategies, which enable them to survive but not to improve their welfare. However, this understanding of urban poverty has limited recognition of poverty dynamics and the differentiated nature of poverty. In conceiving of poverty dynamics it is important to understand the links between low asset holdings in terms of relation social exclusion/adverse incorporation. Therefore, the urban extremely poor are identified as those households who have limited quantity and quality assets, which do not generate sufficient returns to purchase what is needed for long-term survival and advancement. This is because urban poverty is associated with exclusion from market opportunities (CPRC, 2004). The urban poor, unable to sustain themselves except through the market, find their poverty embedded within limited income-earning opportunities (Mitlin, 2005c). If they cannot find a living through their labour, they take up informal sector activities that, without capital, offer only very low returns (ibid.).

In most urban contexts, there are many groups who face social exclusion and discrimination with severe consequences for their ability to develop secure urban livelihoods. Mitlin (2005a) found that three major groups that face widespread discrimination are women, migrants, and those discriminated against on grounds of race, caste or ethnicity. There are several reasons why these groups may be at greater risks of suffering extreme poverty including low levels of human capital; weak links to client network and institutional discrimination which may limit access to productive assets (not least through patriarchal inheritance systems) (Amis, 2002).

The analysis of vulnerability framework reveals that adverse shocks or repeated shocks mainly drive poor households into deep poverty (CPRC, 2004). Shocks are varied in nature and can range from macro-economic shocks, natural disaster, health hazard, and socially compulsive expenses such as dowry. Coping with these events is often difficult for some poor households because they have limited quantity and quality assets and also they face adverse structural context (Heltberg et al., 2009). In urban contexts, there is a clear relationship between vulnerability to the market, low pay, lack of assets and ill-health (Mitlin, 2005c). Ill-health or the depletion of assets further increase vulnerability to the market. This cycle can increase vulnerability to stresses and shocks. Life-cycle events such as old age, childhood, widowhood, divorced and abandonment may also influence risk of suffering extreme chronic poverty. CPRC (2004) argues that poverty experienced at a certain point in an individual's life does not only affect that individual at that particular time, but can have consequences over the entire course of that person's life, as well as over the lives of other members of the household. Considering these theoretical insights, this research explores household assets (and their returns), structural factors for different extreme poor groups (male heads, women headed and migrants) and life-cycle factors to assess poverty dynamics in the Bangladesh context (Chapter 5). In addition, this research analyses life-histories of the urban extreme poor in Bangladesh to explore the relation between vulnerability to the market, low pay, lack of assets and ill-health (Chapter 5).

4.2.2 Analytical Framework to Identify the Drivers of Climate Change Vulnerability for the Urban Extreme Poor

While climate has always been risky, ongoing climate changes are changing the risk profile and shifting it toward the poor in many ways such as increasing direct and indirect risks, higher frequency and irreversibility of climate events, slow-onset impacts and covariate risks becoming idiosyncratic (Heltberg et al., 2009). This research adopts integrative approach to vulnerability in order to conceptualise climate change vulnerability. This approach sees vulnerability as the extent to which a natural or social system is susceptible to sustaining damage from climate change (Adelekan, 2010; Romero Lankao and Qin, 2011 & Wilbanks et al., 2007). Vulnerability is a function of the sensitivity of a system to changes in climate and the system's ability to adapt to these changes. These factors are considered to be largely determined by the development context, which has a strong influence on households' income and assets, and access to information, on people's exposure to environmental hazards in their living environment and workplaces, and on the quality and extent of provision for infrastructure and services (Adelekan, 2010). In urban areas, vulnerability is also greatly influenced by the extent and quality of infrastructure and public services, especially for vulnerable populations (Wilbanks et al., 2007). Therefore, vulnerability to climate change represents the conditions determined by physical, social, economic, political and environmental factors or processes, which increase the susceptibility of a household or community to the impact of hazards. All of these factors reflect the extreme poor households' characteristics and the context where they live. These are closely related to the three types of vulnerabilities, physical, socio-economic and politico-legal, experienced by extremely poor people in different contexts with differing consequences. This research analyses these factors in the Bangladesh context in relation to 'vulnerability from something' and 'vulnerability to something' (Chapter Five) (Roy et al., 2013, p.4). The former highlights exposure to (whatever) risk and the latter is concerned with susceptibility to particular outcomes, e.g. malnutrition, homelessness (ibid.).

4.2.3 Analytical Framework to Identify Asset-Based Autonomous and Planned Adaptation

This research uses the 'asset adaptation framework' as an analytical framework to identify adaptation options that could reduce the vulnerability of the extreme poor. An

asset adaptation framework argues that the asset portfolios of individuals, households, and communities are a key determinant of their adaptive capacity both to reduce risk and to cope with and adapt to increased risk levels (Moser, 2010). It also emphasises that poor urban households and communities have already built a range of individual and collective adaptations to mitigate the impacts of the extreme weather events. These individual and collective adaptive practices are the sources of resilience for poor urban households living in the informal settlements. As vulnerability and adaptation may vary according to poverty categories, it is reasonable to assert that the extreme poor's autonomous adaptive practices are ad hoc. They use their limited assets to adapt but this interferes with their ability to maximise productivity. At a time of crisis, households often have few coping options apart from drawing on their assets. The extreme poor households therefore sacrifice long-term benefits for short term survival (e.g. selling productive assets; sending children to work). The review of poverty dynamics (as explained above) helps us to understand why the urban extreme poor fail to build resilience through their autonomous adaptations. The formal and informal context within which the extreme poor operate provide the constraining environment for accessing necessary assets to adapt. Considering these theoretical insights, this research explores poor households' autonomous adaptations in Bangladesh context and also whether or how urban institutions and policies influence or constrain the urban extreme poor's access to assets for adaptation (Chapter 6).

The asset adaptation framework also recognises that in most urban contexts, municipal and city government are unable or unwilling to provide the infrastructure, services, institutions, and regulations to reduce risks from extreme weather events for many of their people (Moser, 2010). In addition, they are unlikely to develop the capacity necessary to adapt to climate change. Therefore, asset-based frameworks highlight the importance of support household and community-based responses, as well as supporting citizen capacity to negotiate and work with government (ibid.). Social policy approaches can support household and communities for building their asset adaptation for promoting greater resilience and also help to break asset-based poverty traps (Heltberg et al., 2009). For example, 'asset transfer' programmes can protect the extreme poor people from shocks and allow them to reduce their extreme vulnerability; can help them conserve and accumulate assets, promoting their livelihoods; and can transform their socioeconomic relationships, to further improve their longer-term

livelihood prospects. Social funds and community development support can enhance asset adaptation of the vulnerable communities by scaling up their work relevant for creating resilience such as slum upgrading, water supply and sanitation, pro-poor housing and disaster risk reduction (many of these activities are already happening in urban contexts but not a wide scale) (Heltberg et al., 2009 & 2010). These social policy approaches to adaptation create synergies between climate action and poverty alleviation (ibid.). Considering this, the research explores whether and how social sector approaches facilitate asset accumulation and asset-based adaptation process for the urban extreme poor (Chapter Seven).

‘Resilience’ can be used to demonstrate the effectiveness of social policy approaches in building asset adaptation of the extreme poor for vulnerability reduction. ‘Resilience’ within risk-hazards research continuum is generally focused on “engineered and social systems, and includes pre-event measures to prevent hazard-related damage and losses (preparedness) and post-event strategies to help cope with and minimise disaster impacts” (Cutter et al., 2008, p. 600). In the recent ‘Special report on managing the risks of extreme events and disasters’, the IPCC defines resilience as the “ability of a system and its component parts to anticipate, absorb, accommodate, or recover from the effects of a hazardous event in a timely and efficient manner” (IPCC, 2012, p. 5). This multiplicity of terms reflects the broadening of the concept into a more elaborated concept which embraces the ability not simply to bounce back but also to adapt and to transform. Considering this, Béné et al. (2012) developed a resilience framework which includes three components: ‘absorptive’, ‘adaptive’ and ‘transformative’ resilience. This framework is useful to evaluate the effectiveness of social policy approaches in mitigating the vulnerability of the extreme poor. The concept of ‘absorptive’ capacity or resilience incorporates multiple coping strategies by which individuals and/or households moderate or buffer the impacts of shocks on their livelihoods and basic needs (Béné et al., 2012). However, when the absorptive resilience or capacity is exceeded, the individual will then exercise their adaptive resilience (Cutter et al., 2008). This adaptive resilience refers to the various adjustments that people undergo in order to continue functioning without major qualitative changes in function or structural identity (Béné et al., 2012). These incremental adjustments and changes can take many forms (e.g. adopting new farming techniques, change in farming practices, diversifying livelihood bases, engaging in new social networks, etc). Transformative resilience is the

“capacity to create a fundamentally new system when ecological, economic or social structures make the existing system untenable” (Walker et al., 2004, p.5). For instance, when a household adopts a new direction in making a living or when a region moves from an agrarian to a resource extraction economy. It can be a deliberate process, initiated by the people involved, or it can be forced on them by changing environmental or socioeconomic conditions. Béné et al. (2012) argue that building resilience would require social sector approaches that strengthen the three components (absorptive resilience, adaptive resilience, transformative resilience) together, and at multiple levels (individual, households, communities, region, etc). Applying this resilience framework in the case of social sector approaches in the urban context of Bangladesh, this research explores how and to what extent these social sector approaches help to strengthen the resilience of the urban extreme poor (Chapter Seven).

4.2.4 An Overview of Analyses and Required Information

The analytical framework (Figure 4.1) guides the appropriate analyses and also helps to identify the data to be collected to explain poverty dynamics and the interrelationship between poverty dynamics and vulnerability, climate change vulnerability and asset-based autonomous and planned adaptation in the Bangladesh context. Table 4.1 lists the different analyses, already discussed in this thesis, that will guide the knowledge progression in this research and also contribute to later chapters of this thesis. The analysis of household assets (and their returns); structural obstacles that face the extreme poor in the urban labour market; households and community; and relationship between vulnerability to market, limited assets and exposure to shocks will reveal multidimensional aspects of urban extreme poverty in the Bangladesh context (Chapter Five). The analysis of climate variability and drivers of vulnerability will draw attention to climate change vulnerabilities that the urban extreme poor of Bangladesh face (Chapter Five). The assessment of individual adaptations and also urban institutions and policies provides the analysis of local level adaptive capacity and its limitations in the context of Bangladesh (Chapter Six). Finally, the analysis of the social sector approaches to adaptation identifies the process through which the asset adaptation of the urban extreme poor can be built (Chapter Seven). The next section of this chapter discusses the range of primary and secondary sources these analyses will require and the theoretical perspective behind the research methodology.

Table 4.1: The Analytical Framework and their Data Requirements

Analytical Framework	List of Analyses	Data to be collected	Sources of Data
Step-I: Determine poverty dynamics and the interrelationship between poverty dynamics and vulnerability	Analysis of household assets and their returns	Socio-economic characteristics of the extreme poor households, household asset characteristics, housing characteristics, access to infrastructure and services, access to community resources	Primary
	Analysis of structural obstacles	Employments, access to labour market, working environment, working stresses, relation with employers, community members, neighbour and relatives, shocks and stresses and coping strategies, life-cycle factors, gender division in labour market	Primary
	Relation between vulnerability to market, limited assets and shocks	Shocks and its consequences, exclusion from services, vulnerability to market and coping strategies	Primary
Step 2: Identify the drivers of climate change vulnerability	Analysis of climate variability	Temperature and rainfall variability, the effects of previous flooding events in the informal settlements	Secondary
	Physical drivers of climate change vulnerability	Locational characteristics, services and infrastructure, living environment	Primary
	Social, economic, political and legal drivers	Household social and economic characteristics, community cohesion, participation of community network, legal barriers and collective action	Primary
Step3 : Identify asset-based autonomous and planned adaptations	Individual Adaptive Practices	Types of autonomous adaptation, reasons, the effects of adaptations, any assistance, community level adaptation, access to resources, assets at time of emergency	Primary
	Assessment of Policies and Urban Institutions	National and local adaptation policies, laws and legal framework at local level and implementation process of laws, programmes, projects by public, private, international institutions	Primary and Secondary
	Analysis of asset-based planned adaptation through social sector programmes	Strategies of transferring assets, asset accumulation process, asset adaptation practices to vulnerability reduction	Primary

Source: author (2012)

4.3 Research Methodology

This section outlines the methodology and methods employed in this research. Research methodology involves the strategy, plan of action, process or design lying behind the choice and use of particular methods and linking the choice and use of methods to the

desired outcomes (Crotty, 1998). It is basically the theory and analysis of how research should be conducted whilst the methods show how theory is applied in particular disciplines (Yeboah, 2008). In addition, research methods have been defined as tools or techniques used for addressing specific questions and for undertaking, solving, etc., diverse scientific and empirical problems (Bryman, 2008). In this context, this section explains a detailed account of the research methodology including a reflection on the philosophical stances of the research which accounts for the chosen research paradigm, approach adopted, selection of the case study settlements, methods of data collection and analysis employed.

4.3.1 Theoretical Perspectives of Research Methodology

The deductive (theory to research) and inductive (research to theory) strategies are widely used in scientific research depending on the discipline and the nature of the research topics⁴⁰. As explained in this chapter, the research intends to analyse urban extreme poverty, climate change vulnerability and asset adaptation. However, the existing theoretical framework of pro-poor asset adaptation has been developed without considering the differentiated nature of poverty and vulnerability. In order to address the gaps and theorise asset adaptation from the urban extreme poverty perspective, the present research adopted a strategy of abduction and retroduction⁴¹. Following the abduction strategy, the research analysed the existing theories and practices of asset adaptation through the lens of urban extreme poverty and vulnerability. Then, this research built a theoretical framework (Figure 3.2) in order to interpret the existing asset adaptation framework from extreme poverty perspective. This figure 3.2 can be considered as the conceptual hypothetical models which aim to explain what is actually going on (Lawson, 2006). ‘Retroduction’ follows ‘abduction’, moving from the theoretical framework, the research developed an integrated analytical framework

⁴⁰‘Deductive’ strategy is sometimes described as “a top-down process that tests general premises through a series of steps to reach specific conclusions”. Associated with positivism or postpositivism, quantitative research seeks generalisability through controlled, value-free (or value-neutral) processes. ‘Inductive’ strategy is a process that develops “general conclusions based on a series of steps that explore specific premises”. Sometimes described as a bottom-up approach to research, qualitative research is associated with constructivism or interpretivism and seeks to understand or make sense of the world based on how individuals experience and perceive it (Wheeldon and Ahlberg, 2012, p. 7).

⁴¹The abduction strategy involves “interpretation and recontextualisation of the phenomena under consideration, using a plausible, justifiable set of explanatory ideas and concepts”. This model is tested and revised in the second retroductive stage, using methods such as “contrastive and counterfactual questioning, in order to provide a more competitive explanation” (Lawson, 2006, pp. 262-263).

(Figure 4.1) which guided the required analyses and information for testing and confirming the theoretical assumptions related to the conceptual model (Figure 3.2).

Research Paradigms

The approach of this research (in this research a qualitative approach) is characterised by the stance taken on the paradigm, the strategies used to apply the design and the methods of data collection; particular paradigms, strategies and methods tend to be associated with each approach (Creswell, 2003). The research paradigm is a basic belief system or world view that guides the researcher, not only in the choice of method, but in ontologically and epistemologically fundamental ways (Bryman, 2008). Crotty (1998) sees this basic belief system or world view as the philosophical stance that informs the methodology and thus provides a context for the process and is grounded in its logic and criteria. He also argues that the researcher's ontology and epistemology are embedded in the research paradigms and thereby in the methodology. Creswell (2003) explores four research paradigms (knowledge claims): post-positivism, constructivism (also called interpretivism), advocacy/participatory and pragmatism. These research paradigms differ in terms of ontology (nature of the knowledge), epistemology (way of knowing), and methodology (how we know) (Rahman, 2012). As ontology, epistemology, and methodology are interrelated and sequential thus it is essential to position any research in terms of understanding the reality to neutralise the bias of the researcher (ibid.). The section discusses different research paradigms which provide a basis for identifying the philosophical assumptions of this research.

The post positivist research paradigm, (also called quantitative, positivist or empirical science) relies on a deterministic philosophy in which causes determine effects (Creswell, 2003). This theoretical perspective is thoroughly objectivist in character, perceives that things exist as meaningful entities independently of consciousness and experience, that have truth and meaning residing in them as objects ("objective truth and meaning") and that careful ('scientific') research can attain objective truth and meaning (Crotty, 1998, pp. 5-6). Research done in the post positivist spirit might select survey research and employ the quantitative method of statistical analysis. Therefore, the positivist approach refers to knowledge that can be acquired through a series of activities such as prediction, closed experimentation and the separation of research findings from interpretation (Chileshe, 2005 & Steinmetz and Chae, 2002). 'Social

constructivism' (often also referred to as constructionism) is one of the social science research philosophies that contrasts with a 'post positivism' philosophy. Within the social constructivist research philosophy, knowledge is active and creative; knowledge creation is a social process, but this process is not in isolation and no perception is independent of a pre-existing conceptual framework; therefore, the role of power and interests are always vital in creating knowledge (Schwandt, 2000).

According to Creswell (2003), researchers also claim knowledge through an advocacy/participatory approach. The advocacy/participatory research paradigm challenges the post-positivist assumptions because this philosophy believes, post-positivist philosophy imposes structural laws and theories that do not fit marginalised individuals or groups or do not adequately address issues of social justice (Creswell, 2003). This has an inherent bias on how to support marginalised populations. When researching, it is also focused on developing an action agenda to change practices and emancipate populations (at the end an action agenda is put in place for change) (Rahman, 2012). The pragmatism paradigm claims a commitment with the problem to the detriment of any philosophical approach and methods (Wheeldon and Ahlberg, 2012). The pragmatic researchers examine the 'what' and the 'how' of the research problems. Through multiple stages and methods of data collection and/ or analysis, a pragmatic researcher can arrive at a better understanding of a phenomenon by combining the reliability of empirical counts with the validity of lived experience (ibid.).

The aforementioned research paradigms- post positivism and social constructivism- appear to dominate research ideology in social science research. In contrast, the 'critical realism' approach attempts to overcome the unproductive social science dualism of positivism and social constructivism by involving both in the approach to social research (Prowse, 2008b). Ontologically, the basic understanding of critical realism is that reality exists; and it can be possible to describe it by developing theoretical frameworks (Jeppesen, 2005). Epistemologically, critical realism intends to explain the relationship between experiences, events and mechanisms; and the perspective "emphasises questions of how and why a particular phenomenon came into being" (ibid. p.5). Critical realists believe that social science should make generalisable claims, but the subjectivities of individuals are important to understanding the external world

(Prowse, 2008b). Thus, critical realists argue that understanding and analysing a phenomenon is theory-laden and concept dependent and they have an impact on the study, but don't determine the outcome (Jeppesen, 2005). In this respect, research design is critical. Sayer (1992) outlines two different kinds of research designs: 'intensive' and 'extensive' research design⁴²; and these designs are important at the time of fieldwork. He argues that the research design needs to link with the theoretical framework for demonstrating the underlying scientific and methodological coherence in the design.

Understanding these research paradigms, this research bases itself on the assumptions of critical realism. Considering the aim and research question of this research, this research shows a clear intention of the researcher to question the existing theories and practices for addressing vulnerability and asset adaptation of the extreme poor. The research interprets and recontextualises theories and concepts of vulnerability and pro-poor asset adaptation from the multidimensional nature of extreme poverty and its dynamics. The research intends to illustrate the arguments made by Sayer (and other Critical Realists) concerning the importance of: a) establishing a scientific framework; b) applying it; and c) securing how to formulate the lines of argumentation, which this research aims to implement. The researcher's experiences and understanding of the local context of the urban extreme poor in the Bangladesh case study, together with the literature review helped to redefine the main question of this research, which became the focus of this study. Thus the epistemology of the research clearly indicates that this research is based on a critical realism philosophical approach.

Approach of the Research

Understanding different paradigms of research, it is important to identify whether the research will follow the quantitative or qualitative or mixed methods (incorporation of both qualitative and quantitative elements). There has been an ongoing debate on the appropriateness of different approaches and methods in social research. As a matter of fact, many authors point to the heated discussions, sometimes even wars (the so-called 'paradigm war'), between the adherents of quantitative and qualitative research designs

⁴² Intensive research design is used in research where the researchers aim to explore in-depth knowledge of specific phenomenon, whereas the extensive research design is appropriate where the researchers want to explore an overview of a phenomenon (Sayer, 1992).

(Kohbacher, 2006). However, there is also growing acknowledgement that the use of quantitative and qualitative approaches together can provide a better understanding of a research problem (Teddlie & Tashakkori, 2009 & Wheeldon and Ahlberg, 2012).

Qualitative approach can be best understood as the ‘gathering’, ‘analysis’, ‘interpretation’, and ‘presentation of narrative information’ (Teddlie & Tashakkori, 2009, p. 6). It seeks to understand the phenomena of “real world setting [where] the researcher does not attempt to manipulate the phenomenon of interest” (Patton 2002, p. 39). Denzin and Lincoln (1994) argue that qualitative research is difficult to define clearly, has no theory or paradigm that is distinctly its own, and does not belong to a single discipline. This method is concerned with how the world is viewed, constructed and experienced by social actors. It provides access to the “motives, aspirations and power relationships, existing in a societal context, that account for how people, places and events” are represented (Smith 2000, p. 660). In qualitative research, data are collected with the assumption that all knowledge is contextualised and that relationships will become apparent through the subjective analysis of the researchers (Wheeldon and Ahlberg, 2012). It also uses observational research to observe and record phenomena while acknowledging their own role in the way their analysis unfolded (ibid.). Qualitative studies may include surveys, interviews, or other more detailed ethnographic approaches.

Quantitative research is supported by the positivist or scientific paradigm, a paradigm that leads us to regard the world as made up of observable and measurable facts (Bryman, 2008). It allows the researcher to familiarise with the main problem to be studied, by generating central question or hypotheses to be answered or tested. Quantitative methods can be described as the techniques associated with the ‘gathering’, ‘analysis’, ‘interpretation, and presentation of numerical information’ (Teddlie & Tashakkori, 2009, p. 5). Through clearly defined dependent and independent variables, quantitative research relies on hypothesis testing to test and validate theories through falsification, which requires that one modify or reject certain beliefs based on the integrity and consistency of research findings through a logical investigation (Wheeldon and Ahlberg, 2012). Thus quantitative studies often begin with a related hypothesis, collect defined categories of data, and objectively analyze the data based on existing assumptions about knowledge.

Understanding conceptual underpinnings of qualitative and quantitative research, this research adopts the techniques of qualitative research approach. Considering the above analytical frameworks, this research focuses on the interpretation of the urban extreme poverty, vulnerability and asset adaptation in a narrative form. Urban extreme poverty and vulnerability, and especially the understanding of processes that underlie persistent exclusion or deprivation and it relates with vulnerability are only amenable to a qualitative analysis. In addition, a focus on qualitative methods is also important for understanding the process of asset accumulation for the extreme poor households and groups. However, descriptive statistics have been used in this research to understand the extreme poor household demographic and also socio-economic characteristics in Bangladesh context. Thus the major analytical approach is based on qualitative tools and techniques.

4.3.2 Research Design

The research focuses on the analytical framework (Figure 4.1) to understand the reality in Bangladesh. As per the nature of the analytical framework this research demands different types of analysis and data (Table 4.1), which involves different types of data collection procedures. In this context, the research considers an intensive research design which involves a number of qualitative research methods such as households' life-history interviews. These intensive research methods are supplemented by an extensive research design (secondary data analysis) and an exploratory research design (key informants' survey, focus group discussions, grey materials analysis, academic literature reviews, photographic survey and observations). To contextualise the research at the micro level, this research required empirical research in case study settlements in Bangladesh. Thus, before explaining the methods and process of data collection and analysis, it is essential to give a description of the case study settlements and their selection procedure for this research.

Selection of the Case Study Settlements

Bangladesh is at high levels of risk and vulnerability to severe climate events. The Germanwatch Global Climate Risk Index (CRI) 2013 has identified Bangladesh as one of the countries most affected by extreme climate events during 1992- 2011 (Harmeling and Eckstein, 2012). Similarly, a WWF (2009) report finds that, amongst 11 Asian coastal mega-cities, Dhaka is the most vulnerable to climate change impacts. The report

ranks Dhaka as having the lowest adaptive capacity, second highest exposure and second highest sensitivity. Rapid urbanisation exacerbates Dhaka city's vulnerability to climate change. While Bangladesh has 522 urban centres and these centres are evenly distributed spatially across the country, there is regional imbalance in the concentration and level of urbanisation. Dhaka district⁴³ has by far the highest level of urbanisation, and as the capital city, is expected to be the world's second largest urban agglomeration with about population of 20 million by 2020 (World Bank, 2007). The concentration in the city of political, administrative and financial institutions of national and international commerce and business, and of education facilities, offers a wide scope of formal and informal sector employment and thus attracts rural people to migrate to Dhaka (Hossain, 2012).

This urbanisation process also increases the concentration of urban poverty in the city. As explained in Chapter one, more than one third of the total population of Dhaka city live in slum and squatter settlements (*bustees*) and rapid migration has increased the population in slum and squatter settlement from 1.5 million to 3.4 million between 1996 and 2005 (CUS et al., 2006). Table 4.2 illustrates some basic characteristics of slum and squatter settlements of major cities of Bangladesh. While most slum and squatter settlements (62.5 percent) are small in all of the larger cities in Bangladesh, these larger cities have fewer and much larger settlements (Angeles et al., 2009). Three percent of slum dwellers in Dhaka account for over half of the city's total slum and squatter population, while almost two-thirds of settlements hold only 10 percent of the slum and squatter population (*ibid.*).

⁴³ Bangladesh has divided into seven administrative divisions and divisions are sub-divided into districts (*zila*). There are 64 districts in Bangladesh, and each district is further subdivided into *upazilas* (sub districts).

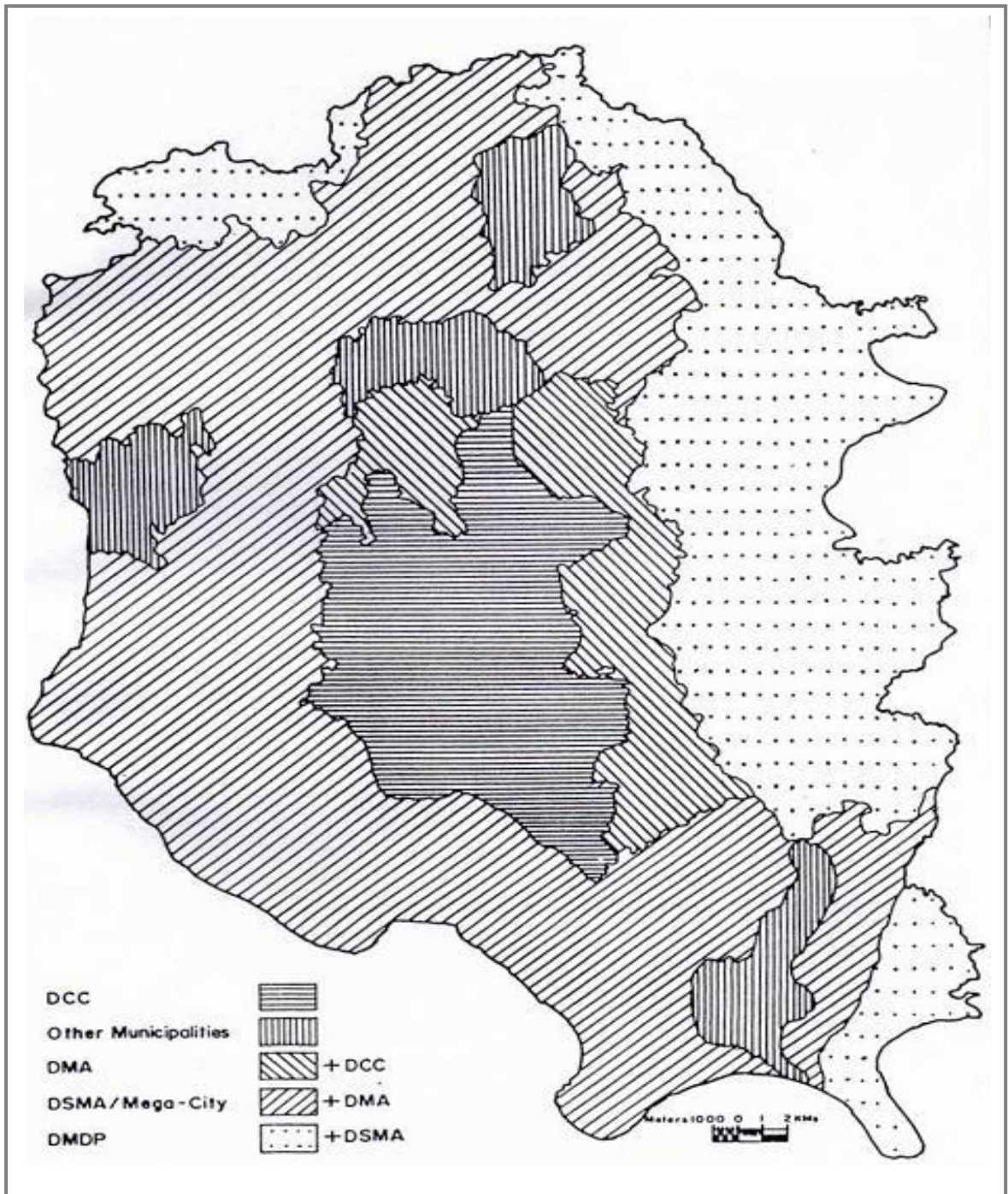
Table 4.2: Basic Characteristics of Low-Income Settlements in Bangladesh

City	City population (estimate)	Slum population (people)	Slum population (% of total population)	Number of slums	Slum population density (persons per km ²)	Non-slum density (persons per km ²)
Dhaka	9,136,182	3,420,521	37.4	4,966	220,246	19,677
Chittagong	4,133,014	1,465,028	35.4	1,814	255,100	15,543
Khulna	966,837	188,442	19.5	520	132,988	16,884
Rajshahi	489,514	156,793	32.0	641	67,236	6,796
Barisal	365,059	109,705	30.1	351	133,730	5,084
Sylhet	356,440	97,676	27.4	756	154,741	9,630

Source: Angeles et al. (2009, p.8)

To explore the concentration of slums and squatter settlements in Dhaka city, it is essential to understand the administrative jurisdictions of Dhaka city. There are four different administrative jurisdictions in urban Dhaka where there is an overlapping of responsibilities between two authorities – the Dhaka City Corporation (DCC), and the Capital Development Authority (RAJUK) (Ezaz, 2005). Map 4.1 shows the administrative jurisdictions of different government agencies in Dhaka. The Dhaka City Corporation (DCC) is the first administrative entity, with an area of 360 square kilometres, where the estimated number of inhabitants is 8 million (Nahiduzzaman, 2012). The second administrative jurisdiction is the Dhaka Metropolitan Area (DMA), which is administered by the police authority (Ezaz, 2005). The third administrative area is the Dhaka Statistical Metropolitan Area (DSMA), also known as the mega city, consisting of the Dhaka City Corporation (DCC) area and a number of adjoining *thana*- a small administrative subdivision. The fourth administrative area is known as the Dhaka Metropolitan Development Plan (DMDP) area, and is governed by the Capital Development Authority (RAJUK). The DMDP has an area of 1530 square kilometres that consists of the DCC and DMA areas (DAP, 2008; Nahiduzzaman, 2012).

Map 4.1: Administrative jurisdictions of the DCC, DSMA, and DMDP



Source: Nahiduzzaman (2012, p. 55)

The Slum Census of 2005 identifies some 4,966 slum clusters in DMA with a total population of 3.4 million, a 65% increase in the number of clusters and more than doubling of the slum population over the 1996 levels (CUS et al., 2006). Of the 4,966 slum clusters, 4,342 were within DCC limits and the slum population in the DCC was

2.5 million with an additional 0.9 million in the DMA areas outside of the DCC. Map 4.2 shows locational distribution of slum and squatter settlements in Dhaka.

Map 4.2: The Distributions of Slums and Squatters in Dhaka Metropolitan Area



Source: adapted from Geo-Consultant Enquiry (23rd May, 2012)

Map 4.2 reveals that the concentration of slums is found in the eastern fringe of the city, along the border of the city corporation. A large concentration is found in Khilket. To the south of this agglomeration, the larger slum clusters are identified in the Badda-Satarkul area, which is in the vicinity of the Gulshan and Baridara residential areas. The single largest concentration of slums is found in Kamrangirchar on the western fringe of the River Buriganga. The area is just outside Dhaka City Corporation (DCC), and the total population of that area is about 300,000 of whom some 265,000 are slum dwellers. There are several other agglomerations in the western fringe, particularly along the western embankment (CUS et al., 2006). Hazaribagh and west Mohammadpur contain a larger number of slum clusters. Mirpur also has one of the largest concentrations of slums, mainly located on public land. The largest single slum in Dhaka is Karail in Mohakhali near Gulshan, with more than 100,000 people. However, several large slum communities were evicted from the central city in the last few years, with evictees relocating eventually to peripheral areas such as Kamrangirchar, Shyampur, and Uttara (ibid.). This research intends to create policy relevant knowledge about how climate change impacts on the livelihoods and living conditions of the extreme poor who are living in different slums and squatter settlements of Dhaka city. To give the answer to the research questions the study is intended to identify urban extreme poverty, vulnerability and asset adaptation through the case study method.

According to Yin (2003, p. 2) “the distinctive need for case studies arises out of the desire to understand complex social phenomena because the case study method allows investigators to retain the holistic and meaningful characteristics of real-life events.” The definition reveals that a case study is not a method but a research strategy (Hartley, 2004 & Titscher et al., 2000). This research adopts the criteria of case study selection mentioned by Curtis et al. (2000) for conducting qualitative research with a critical realist approach in the field of human geography. The criteria are: (1) relevant to the conceptual framework and the research questions, (2) generalisability, (3) richness of information, (4) feasibility and (5) research ethics (ibid. p. 1003). Considering these criteria Karail and Kamrangirchar squatter and slum settlements were selected as case study areas.

In terms of the relevancy to the research questions it was important to select the areas where any kind of poverty focused initiatives or programmes such as ‘community-

based' and/or 'asset transfer' programmes are being implemented by the government, the international organisations, the donors and civil society organisations in order to address extreme poverty and vulnerability. Reviewing Bangladeshi literatures, it is found that under the framework of the Millennium Development Goals, a range of actors, in collaboration, implement a number of social protection, community based and asset transfer programmes both in the rural and urban areas of Bangladesh. The researcher examined through a desk study six such projects which had either incorporated the extreme poor and the poor or targeted directly to the extreme poor households and marginalised groups (such as disabled). After the field visits, the researcher decided to select Karail and Kamrangirchar as the case study settlements because of the existence of project-based interventions for the extreme poor households which differ in approach. In Karail, a community based approach is being implemented where both poor and the extreme poor households are included, whereas in Kamrangirchar, the extreme poor households are supported through an asset transfer programme⁴⁴. It provides the researcher with the opportunity for comparing the impacts of these programmes on building the asset adaptation of the extreme poor; thus the selection of the case study settlements satisfies the criteria of relevancy.

As the extreme poor households are spatially distributed in the inner city squatter settlements, scattered pockets within the city, and peripheral settlements within a city, this research adopts one squatter settlement from inner city and another slum is taken from the periphery of Dhaka city. The research selects the case study settlements which have different ownership patterns with Karail selected from the 'public settlements' of Dhaka city that have illegal tenure arrangements and Kamrangirchar selected from the 'private slum settlements' where tenure arrangements are legal. These two settlements can generalise the context of other inner city and per-urban slum settlements of Dhaka city. These case study settlements also represent the general picture of Bangladesh as Karail and Kamrangirchar are located in Dhaka Metropolitan Area where 55 percent of

⁴⁴ In Karail, the local government (Dhaka City Corporation) in collaboration with the United Nations Development Programme and Local Government Engineering Department (LGED) have been implementing the Urban Partnerships for Poverty Reduction Programme (UPPRP) since 2009 where the extreme poor households are supported with social protection as well as community based measures; and in Kamrangirchar, the civil society organisation- Dushtha Shasthya Kendra (DSK) has been implementing an 'asset transfer' project for the last 3 years, which is part of the national extreme poverty reduction programme jointly implemented by the Shiree (Stimulating Household Improvements Resulting in Economic Empowerment) and Bangladesh government (see details in the Appendix 4.2).

total slum clusters of Bangladesh are located (CUS et al., 2006). However, feasibility was another criterion for the selection of these two settlements as the researcher has better institutional and community linkages in Dhaka city. These institutional linkages were helpful to accomplish the data collection in the limited period of time available. In terms of richness of information, the settlements were under the UPPRP and DSK-Shiree projects respectively, where the researcher exchanged views with the project researchers about the targeting, the monitoring process, and the tracking studies used to gather maximum information about extremely poor people's life-cycles. The ethical issue was another consideration for selecting these two case study settlements. While doing field work of this research, the researcher joined in the networks of the 'Action Research for Community Based Adaptation in Bangladesh (ARCAB)⁴⁵'. The ARCAB helps the researcher to understand current adaptation strategies in Bangladesh and also to collaborate with the researchers and the implementing organisations who are currently working in climate change adaptation and the extreme poor. This institutional network paved the way for the researcher to work with the vulnerable communities and the researchers, which considers the ethical issues for conducting research in an urban poor settlement.

Karail, an Inner City Squatter Settlement

Karail is an inner city slum, located in Dhaka City. It is like a peninsula, which is situated in the northern side of Mohakhali-Gulshan Road of Dhaka City. It is considered to be the biggest slum which has developed on government owned vacant land⁴⁶. In the late 1960s, a piece of land in the Karail was acquired by a government department, Telephone and Telecommunication (T&T), from several landowners for its own use. During 1980s' because of technology advancement, the installations of the T&T in the Karail area became obsolete. Most of the technical setups were withdrawn from the area at that time. The Telephone and Telecommunication authority transferred the land ownership to the Public Works Department (PWD) and the Ministry of Science and Technology. In the meantime, the original land owners therefore filed several cases in the court about the ownership of the land. Generally, under the current judicial process,

⁴⁵ ARCAB is a research network of climate change adaptation research in Bangladesh which is implemented by Bangladesh Centre for Advanced Studies (BCAS).

⁴⁶ The Slum Census of Bangladesh, 2005 reveals that most slum clusters in Dhaka city (88.6%) were established on privately owned land where as only 9.3% slums were on public land (see Table in appendix 4.3). But, this 9.3% lands constitute 25.7 percent of total slum population (CUS et al., 2006).

such contentions take a long time to resolve and this persuaded a few groups of local leaders, many of them T&T employees and their relatives to occupy these public vacant lands illegally, and they built huts and rented them out mostly to migrants coming from different parts of Bangladesh. As a result of the growing demand for inexpensive housing, these inhabitants slowly expanded to create the Karail slum as it is today. Presently, many of the inhabitants at Karail are becoming owners of their spaces by illegally purchasing from their current landlords, who initially seized the land unlawfully as well (Mridha et al., 2009). This creates a cycle of ownership issues and impacts on the social structure of the slum, with slum dwellers living in constant anxiety of evictions. In 1991, 1998 and 2001 there were attempts for evictions (ibid.). In 1999, a part of the slum was evicted, which has remained unpopulated since.

As explained in this chapter, Karail is the single largest slum in Dhaka city with a population of 100,000. Map 4.3 shows the settlement pattern in the Karail slum. The main two units of Karail are known as *Jamaibazar* (unit-1) and *Boubazar* (unit-2). Within *Boubazar*, there are four sub-sections known as *Ka*, *Kha*, *Ga* and *Gha*. The adjacent and surrounding squatter settlements in Karail area have also been included as a part of Karail slum. These additional sections are *Beltoli bustee*, *T&T bustee*, *Baida bustee* and *Goodown bustee*. The area of the slum is highly speculative among its residents as they claim it to be roughly between 180 to 220 acres (Mridha et al., 2009). Because of its location near the high-end residential and commercial areas of Dhaka (*Gulshan*, *Banani* and *Mohakhali*) it has attracted low income people engaged mostly in different formal and informal service sector employments like cleaners, household helpers, rickshaw pullers as well as workers in readymade garments industries. Most of the houses are made of corrugated iron. The houses are overcrowded; in most of the households there are more than 5 to 6 members (Mridha et al., 2009). Because of the illegal tenure arrangements, there is no legal supply of electricity and water, and government health, educational, and social security facilities are non-existent. Some NGOs are working on some relevant issues like health, economic, education, water and sanitation activities.

Map 4.3: Map of Karail Squatter Settlement, Dhaka City

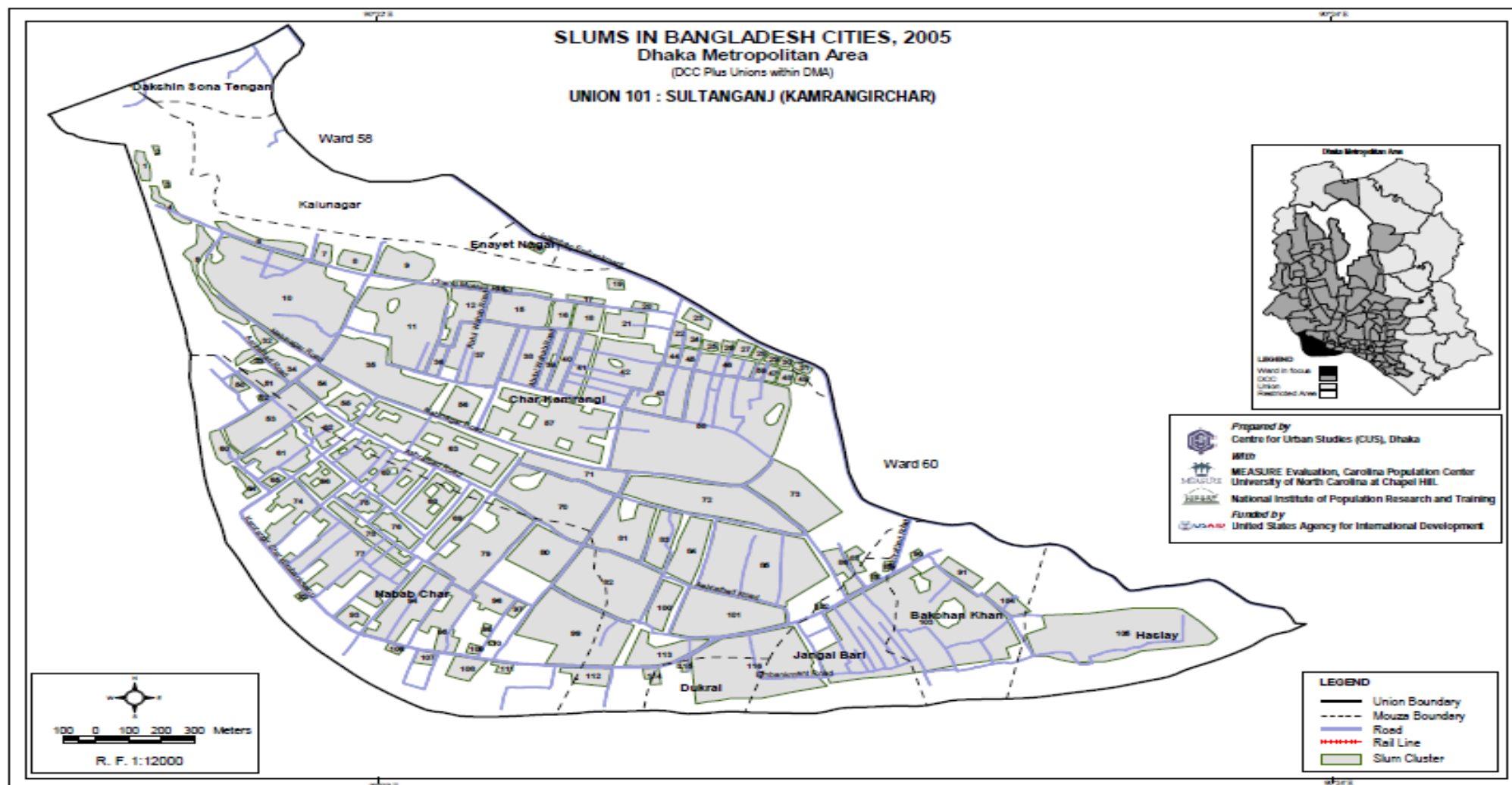


Source: map collected from Urban Partnership for Poverty Reduction Programme (2012)

Kamrangirchar- Slum Settlements in the Peripheral area of DMA

As explained in this chapter, the single largest concentration of slums exists in Kamrangirchar on the western fringe of the River Buriganga with 265,000 slum dwellers. In this area, the slums are mostly developed on private lands and the slum clusters are relatively smaller in size with 100-500 population. Only a few slum clusters have population of 1000-3000 (CUS et al., 2006). Map 4.4 indicates the distribution of slums in Kamrangirchar area. As the area is on the outskirts of the Dhaka City Corporation administrative boundary, a substantial part of the Kamrangirchar is devoid of infrastructure required to serve this rapidly growing suburb of mega Dhaka (RAJUK, 2010a). The area is particularly deficient in physical infrastructure, such as, standard road network, piped water supply, drainage and waste management. The area shows a rapid increase of population with an increase of net population density (RAJUK, 2010a). The factor acting behind the situation is the scarcity of land in the core city. Especially, low income people find accommodation here at a cheaper rent and at a closer vicinity to their work places. It has become a common refuge for environmental migrants namely people who have lost everything in river erosion, floods and cyclones (DSK, 2009). Economic opportunities have been increased as a significant number of poor people are involved in different light and medium industries such as; shoe and *chury* (hand bracelets) factory, aluminium and plastic industries and so on; but already poor and partial infrastructure becomes further overloaded with densification (Mitlin, 2005a). Some NGOs have been implementing micro-credit, health and education programmes in this area. However, the coverage of the WATSAN projects of NGOs is limited in extent.

Map 4.4: The Distribution of Slums in Kamrangirchar



Source: map collected from Centre for Urban Studies (2012)

Data Gathering Process

One of the most important goals of this research is to collect primary data in order to fill the knowledge gap about urban extreme poverty, vulnerability and asset adaptation. This section discusses methods of data collection and analysis which involves the process of selecting interviewees, the focus of the interviews, the process of interviewing and also the process of analysing the field data. As explained above, the research has adopted three types of research designs for the fieldwork to collect primary data, secondary information and policy documentations. The ‘intensive research design’ was used in this research to obtain in-depth knowledge of the urban extreme poverty and the vulnerabilities of the extreme poor households; in addition the design explores the asset accumulation process and also the asset adaptation of the urban extreme poor households. Intensive research design mainly applies to qualitative methods and analysis. Qualitative methods (household life history interviews of the extreme poor used in this research) are concerned with how the world is viewed, constructed, and experienced by different vested actors. This method provides access to the motives, aspirations, and power relationships that exist in a societal context and that account for how people, places, and events are represented. This method enables the researcher to thoroughly understand the context of the urban extreme poor. The research also used ‘the extensive research design’ in order to explore an overview of the socio-economic characteristics of the extreme poor households. These methods have been supplemented by explorative research designs where the research has involved different methods including key informants’ surveys, focus group discussion, and analysis of grey materials and secondary academic materials. Table 4.3 shows data that the researcher actually extracted from the field by using aforementioned methods.

Table 4.3: List of Extracted Information by Using Different methods

Methods	Collected Information
Household life-histories	Socio-demographic background, family background, employment patterns and entry to urban labour market, working environment, asset characteristics and returns of household assets, major shocks and stresses, coping strategies, migration history, environmental shocks (flooding, cyclones, river erosion), climate stresses and adaptive strategies, asset accumulation process at time of emergency, persistent hunger, loss of pride, social support, family relations and marital instability, social support network, housing and service accessibility, events that influence asset accumulation and process of accumulating assets, institutional engagement, gender discrimination, extended family network, community network, rural-urban relations and social learning
Key informant surveys	Slum development process, services and infrastructures, community leadership, social network, slum vulnerability to the extreme climatic events, flooding history, preparedness responses and recovery strategies after floods and major fire events, collective assets, community based collective actions, formal institutional (municipality, NGOs and other civil society organisations) assistance in the slums, advocacy of civil society organisations on behalf of the urban poor, problems to support slum communities, implementation process of laws, rules and programmes, preparedness and emergency responses of the formal institutions and problems related to these responses, barriers to implement national and local housing, climate change adaptation and social sector policies, urban governance process in Dhaka city, eviction threats and poor people's participation in decision making process
Focus group discussions	Institutional mapping and engagement, community based collective actions, service delivering process, access to credit, major flooding and fire events history and community based adaptive strategies, community network, political participation, urban governance actions, evictions and community-based actions, and civil society network
Secondary data analysis (including analysis of the extreme poor database)	Household demographic information (age, household size, household head type, migration, residence types, reasons for migration, length of stay, educational status), employment pattern, income, expenditure, savings history, housing (condition, room size and structure), service accessibility and condition, asset characteristics (rural land assets, physical assets, livestock), and asset transfer of the programmes
Grey material analysis	Pro-poor housing policies and strategies, climate change policies, urban governance structure, programme implementation process, laws, rules and legal framework

Source: author (2012)

Households' Life-History Interviews

This research selected the respondents for life-history interviews in Karail from the extreme poor beneficiaries of the UPPR project, whereas the interviewees in Kamrangirchar were selected from the beneficiaries of the DSK-Shiree project. Before selecting the respondents, the researcher first reviewed the selection criteria and process of the above mentioned projects before selecting respondents for the life-history

interviews. Reviewing the targeting criteria of the DSK-Shiree and the UPPR project⁴⁷ (see Appendix 4.4 for the targeting criteria used in the DSK-Shiree and the UPPR projects), it was found that both these projects have focused on the multidimensional deprivations of the extreme poor households that fits with the conceptualisation of urban extreme poverty in this research (as explained in Chapter two) and can therefore be considered representative of the extreme poor households in Dhaka city. The DSK-Shiree project's integrated targeting methodologies (participatory methodologies, door to door survey, cross-checking with neighbours, community leaders and verification by the donors) to reach the extreme poor make the targeting more identical because the selection process has more opportunity to check and balance the errors (Kumar, 2003). The UPPR project's participatory poverty assessment collected poor people's views regarding their own analysis of poverty and the survival strategies that they use. It mainly focuses on poor people's capacity to analyse their situations and to express their priorities themselves. Involvement of the poor people in the beneficiary selection of the project reduced the chance of mis-targeting of the extreme poor households. Therefore, the beneficiary lists of these two projects are being considered useful in selecting extreme poor households for household life-history interviews.

Considering this, the research adopted a judgmental sampling technique⁴⁸ to select 40 interviewees (20 respondents from Karail and same number of respondents from Kamrangirchar) for a face-to-face life-history survey⁴⁹; and beneficiaries were selected with the help of the local gatekeepers (i.e. members of the community-based organisations and field staffs of these two projects). The interviewees were selected from socially (old, widow/divorced, and chronically ill/disabled) and professionally

⁴⁷ The *DSK-Shiree* project particularly targeted three types of extreme urban poor: (i) the extreme vulnerable poor who are economically active yet marginalised (e.g. fragmented female-headed households and socially excluded ethnic minorities); (ii) the extreme dependent poor who are economically inactive and rely heavily or solely on charity or government safety nets (e.g. the disabled or elderly without family support); and (iii) women and children in the above categories. Thus, it involved participatory methodologies (transect walk, social mapping and wealth ranking) as well as door to door survey by fixing essential and supplementary criteria to select the beneficiaries. The *UPPR* project has applied participatory methodologies (social mapping and wealth ranking) to select different categories of the urban poor. The community members have fixed the criteria to select different social groups in Karail.

⁴⁸ It is a non-random (non-probability) based sampling technique where the sample is selected based on the administrator's preconceived knowledge on the sampling units (e.g., households) (Zikmund, 2003).

⁴⁹ In Karail, the *UPPR* project has mobilised different poor groups (extreme poor 687, poor 1340 and non poor 71 households) under the primary groups in 2009 (at the beginning of the project). On the other hand, the *DSK-Shiree* project has selected 1032 households in Kamrangirchar in 2009. Thus, the present research has selected 20 respondents from 687 households in Karail; and 20 households have been selected from 1032 beneficiaries of the DSK-Shiree project in Kamrangirchar.

vulnerable groups (rickshaw pullers, maids and beggars). In most cases, these two criteria overlap each other. In the life-history interviews, each respondent was interviewed separately; and flexibility was given to the respondents for choosing their time, day and place for the interviews.

The techniques used in this research to select the respondents for household interviews offered several advantages: (i) While the extreme poor households were interspersed with the poor and the non-poor households in the case-study settlements, the beneficiary lists of the UPPR and the DSK-Shiree project helped the researcher to reach the extreme poor households for household interviews; (ii) by using the beneficiary lists of these projects, this research can select the households who suffer poverty in multiple dimensions, which fits with the research's conceptualisation of the urban extreme poverty (as explained in chapter two); (iii) the researcher obtained prior knowledge about the condition of the extreme poor and the urban slums before interviewing the households, which was found useful at time of interviewing; and (iv) the researcher also got opportunity to build rapport with the extreme poor households before the interviews, which enabled the researcher better communication with the interviewees. Although the techniques used in this research offered several advantages for the household interviews, the researcher missed the opportunity to observe behaviour of different poor groups through direct participation in poverty assessment process. Through applying participatory poverty assessment process, the researcher can observe day to day interaction of the extreme poor respondents with other groups living in the slums. This can be the opportunity for the researcher to take part in whatever activity the respondents engage in and the presence of the researcher does not alter the natural behaviour of the researched although the process is time consuming.

Background of the Respondents

The distribution of socio-demographic characteristics of the respondents by the neighbourhood is presented in Table 4.4. Table 4.4 reveals that the respondents are spread evenly amongst all of the age groups. It appears from the table 4.4 that a small proportion (10%) of the respondents are aged fifty-five and above in Karail, whereas the respondents in Kamrangirchar constitute 15%. In both settlements, the respondents are mostly distributed among the age groups of 35-44 (40% in Karail & 30% in Kamrangirchar) and 45-54 years (35% in Karail & 40% in Kamrangirchar). The

remaining 15% are in the age group of 25-34 years and above in both of the case study settlements. The mean age of the respondents is 42.80 years with a wide variation in age of the household heads (SD= 8.91). As women or female headed households may be at greater risk of suffering extreme poverty, the proportion of female respondents is much higher in this survey. According to table 4.4, female respondents represent 67.5% of the total respondents; whereas male respondent constitutes 32.5 %. In the survey the head of the household has been given priority for providing data and therefore most of the respondents (65% in Karail and 70% in Kamrangirchar) come from female headed households. Table 4.4 reveals that overall 35% and 30% of total respondents are married in Karail and Kamrangirchar respectively with 40% and 45% reporting to be widow or widower and the proportion of the respondents whose marriages have been dissolved through divorce or abandonment stands at 25 percent in each of the case study settlement. The average household size of the respondents is 3.71. But there is a variation (std. dev. 1.72) in the household size of the extreme poor communities (table 4.4). Table 4.4 shows that 45% of the respondents in both Karail and Kamrangirchar have 1-3 members in their households. Among this category significant portions are identified as single-headed households. Out of the total respondents 50% in Karail and 55% in Kamrangirchar have 4-6 members in their households. And the remaining 5% of the total respondents in Karail have 7-9 members in their households.

Most of the respondents (70% in Karail & 55% in Kamrangirchar) are illiterate and have never attended school (Table 4.4). Another 30% in Karail and 40% in Kamrangirchar have attended primary school but most of them dropped out at different stages of primary schooling. Only 5% in Kamrangirchar completed primary school and attended a secondary school. The length of urban residence of the respondents is summarised in Table 4.4. Out of total respondents 15% in Karail and 20% in Kamrangirchar were residing in the city for less than 5 years. The length of residence of another 30% and 20% in Karail and 25% and 30% in Kamrangirchar are 5-8 years and 9-12 years respectively. The remaining 35% in Karail and 25% in Kamrangirchar were living in those areas for 13 years and above. The extreme poor households in this research have mostly taken up rental accommodation in the city of Dhaka. Table 4.4 shows that 85% of the respondents in Karail are residing in the rental accommodation whereas 90% respondents in Kamrangirchar dwell in the rental accommodation. Only

few respondents (15%) in Karail reside in their own house, whereas 10% of the total respondents in Kamrangirchar are residing in the rent-free houses.

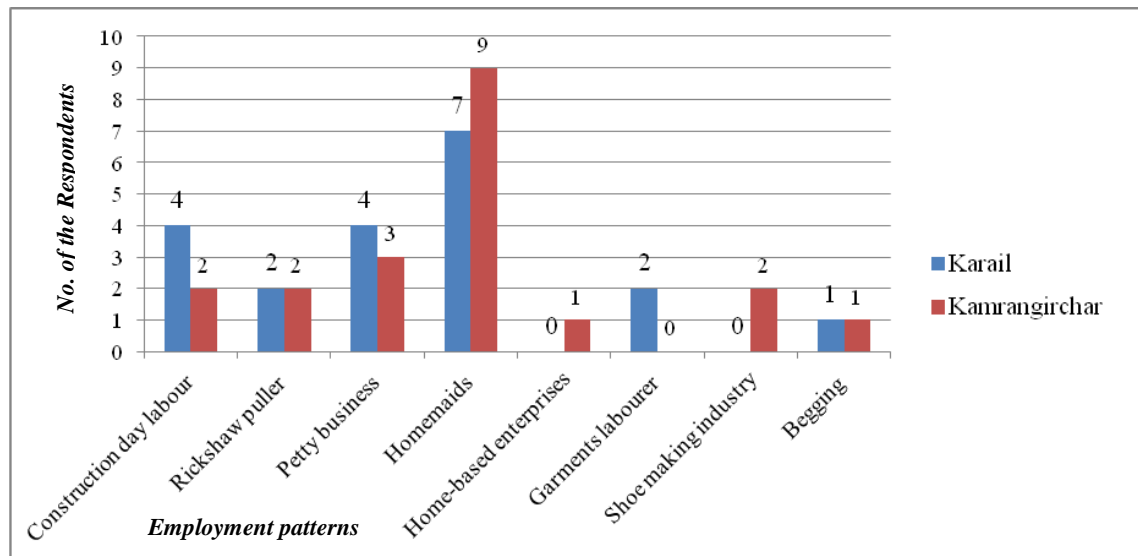
The extreme poor respondents in this research are mostly involved in a variety of occupations in urban informal sectors. Due to a lack of education and employment training they usually do not gain entry into the more competitive formal sectors of urban employment. Employment pattern of the respondents is generally presented in figure 4.2. According to this figure 35% in Karail and 45% in Kamrangirchar are employed in homemaids in the city. Another 20% and 10% of the respondents in Karail and Kamrangirchar respectively are involved in the construction sector as labourers. The poor also work in other occupations like rickshaw pulling (10% in Karail & another 10% in Kamrangirchar), street peddling or petty trading (20% in Karail & 15% in Kamrangirchar), garments and factory work (10% in Karail), home-based enterprises (5% in Kamrangirchar) and shoe-making industry (10% in Kamrangirchar). The figure also shows that 5% of the respondents in each of the case study settlements can't work because of their age, ill-health and disability. They are mainly involved in begging.

Table 4.4: Socio-Demographic Background of the Respondents

Characteristics	Karail		Kamrangirchar	
<i>Age Distribution of the Respondents</i>				
Age level	No.	Percentage (%)	No.	Percentage (%)
25-34	3	15	3	15
35-44	8	40	6	30
45-54	7	35	8	40
55+	2	10	3	15
Total	20	100	20	100
<i>Gender of the Respondents</i>				
Gender	No.	Percentage (%)	No.	Percentage (%)
Male	7	35	6	30
Female	13	65	14	70
Total	20	100	20	100
<i>Headship of the Respondents</i>				
Household Head Type	No.	Percentage (%)	No.	Percentage (%)
Female headed	13	65	14	70
Male headed	7	35	6	30
Total	20	100	20	100
<i>Marital status of the Respondents</i>				
Marital status	No.	Percentage (%)	No.	Percentage (%)
Married	7	35	6	30
Widows	8	40	9	45
Divorced/abandoned	5	25	5	25
Total	20	100	20	100
<i>Dependency Ratios of the Households</i>				
Household size	No.	Percentage (%)	No.	Percentage (%)
1-3 members	9	45	9	45
4-6 members	10	50	11	55
7-9 members	1	5	0	0
Total	20	100	20	100
<i>Educational level of the Respondents</i>				
Completed years of schooling	No.	Percentage (%)	No.	Percentage (%)
No education	14	70	11	55
1-4	6	30	8	40
5+	0	0	1	5
Total	20	100	20	100
<i>Length of the Stay in Dhaka City</i>				
Duration of stay	No.	Percentage (%)	No.	Percentage (%)
Less than 5 years	3	15	4	20
5-8 years	6	30	5	25
9-12 years	4	20	6	30
More than 13 years	7	35	5	25
Total	20	100	20	100
<i>Residential Patterns of the Respondents</i>				
Type of Residence	No.	Percentage (%)	No.	Percentage (%)
Living in own house	3	15	0	0
Rented house	17	85	18	90
Rent free	0	0	2	10
Total	20	100	100	100

Source: Field survey, 2012

Figure 4.2: Occupational Structure of the Respondents



Source: Field survey, 2012

Interviews were recorded, with permission of the interviewees, with small unobtrusive digital voice recorders. The researcher did not attempt to write full transcripts, but digital recordings were used for checking back on interviews for the initial same-day write-up of the life-history narrative. The life history was written as a chronological account of life events, identifying causal mechanisms and drawing from discussions which had encouraged counterfactual thinking (see figure 5.6 & 5.9). In the life-history interviews, the researcher has identified three life trajectories of the households (before moving to Dhaka city- living in the Dhaka city- involved with the project) in order to explore different life events and their causal relation with household well-being and ill-being. Life-history interviews were performed in order to explore the extreme poor household dynamics including household assets and economic activities; service accessibility and process of social exclusion or discrimination, shocks and stresses (including extreme weather events) and coping strategies; access to alternative coping and community assets; asset accumulation process; asset adaptation and level of institutional engagement.

The aim was to produce, as accurately as possible, the participant's perspective on his or her life trajectory, the causes behind improvement or decline in wellbeing, and how life could have been if the events that emerged – both positive and negative – had not occurred. The researcher used a wellbeing ranking (Table 4.5), developed by the research partner (the University of Bath) of the Shiree (Stimulating Household

Improvements Resulting in Economic Empowerment) programme in Bangladesh, as a basis for tracking improvement or decline in wellbeing of the research participants.

Table 4.5: Well-being Ranking

Ranking	Category	Diets (meals a day)	Employment	Assets (Income generation)
1	Destitute	1 meal, nothing in difficult times	Begging/dependence on others	None
2	Working extreme poor	2 meals 1 in difficult times	Labourer or domestic maid	Virtually none – Rely on labour power
3	Moderate poor	3 meals 2 in difficult times	Small IGAs or business combined with casual labour	Some IGAs, business or skills, may lease land
4	Lower earning (non-poor)	3 meals No reduction	Larger scale occupations with assets or higher skilled work	Greater value of assets, higher scale business or skill (may require education)
5	Middle elite	3 meals No reduction	Medium scale employer, money lender or trader (wider distances)	Greater
6	Wealthy elite	3 meals No reduction Expensive side dishes	Large-scale	Even greater

Source: Shree (2012)

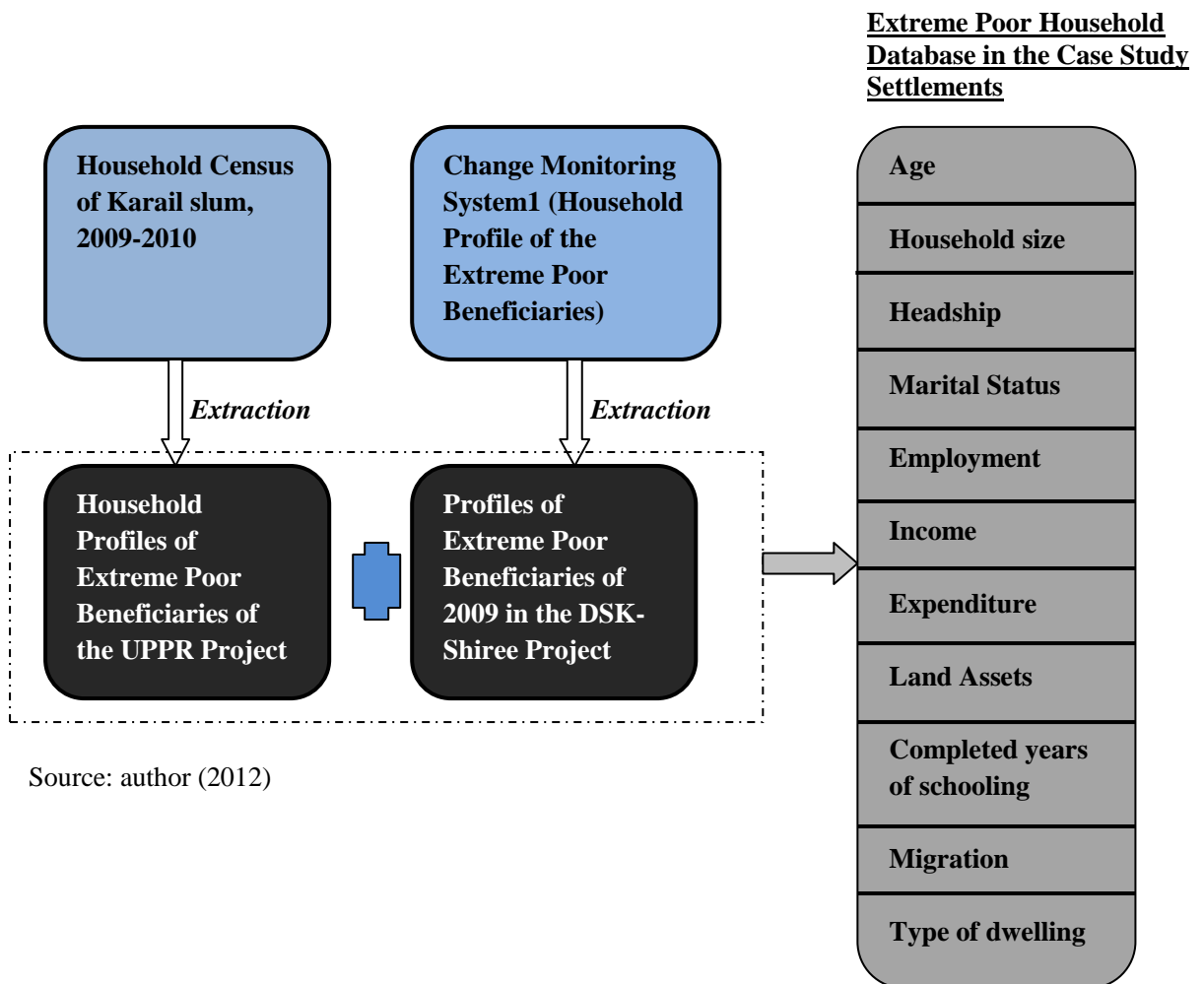
Extensive Research design: Secondary Data Analysis

The extensive research design within the ‘critical realist’ research paradigm is appropriate when the researcher wants to establish an overview of the phenomena or the subject (Sayer, 1992). The extensive research typically uses more quantitative methods and analysis (ibid.). Considering this, this research has employed some descriptive analyses by using the extreme poor households’ socio-economic information. The households’ socio-economic information has been collected from the UPPR⁵⁰ and the

⁵⁰ The *Urban Partnership for Poverty Reduction (UPPRP)* project teams performed *Household Census Survey* in 2009-2010 in Karail in a collaborative way representing international researcher, voluntary organisation and representative of local communities. The *UPPRP* project team followed three major stages of data collection procedure including mapping, household census, and data automation. The research has collected the spreadsheet of the census survey; and then extracted the information of the extreme poor beneficiaries of the project (i.e. members of the primary groups of the project).

DSK-Shiree project⁵¹; and then, these two projects' databases have been data mined under some common socio-economic variables (age, household size, headship, marital status, occupation, income and expenditure, land assets, migration education, and type of dwelling units) to explore the socio-economic profiles of the extreme poor households in the case study settlements (Figure 4.3).

Figure 4.3: Process of Developing Extreme Poor Database for the Case Study Settlements



Source: author (2012)

Key Informant Surveys

The researcher held dialogues with representatives of the public service delivering organisations, members from community based organisations, academic community, policy makers, civil society organisations and knowledgeable members of the selected

⁵¹ The *DSK-Shiree* project developed a household profile of the extreme poor beneficiaries, which is called the *Change Monitoring System1 (CMS1)*. This is a detailed profile of every beneficiary household that is undertaken at or soon after the enrolment of a household onto the programme. The household profile is completed by project staffs through with a close supervision of donors and the international research institutes. The researcher has collected a database of profiles for the *DSK-Shiree* beneficiary households who have been selected in 2009 from the project, and then the research has converted the data format into a spreadsheet of the SPSS for creating a common database for the case study settlements.

settlements for a broader testing of findings (more than 25 representatives from 17 organisations) (see Appendix 4.5 for the list of key informants). In addition, the purpose of the key informants' survey was to explore the role of urban institutions in asset adaptation and their focus on the urban extreme poor. The research conducted unstructured key informant interviews with community leaders, policy actors, civil society actors and academics. Literature reviews and also chain or purposeful sampling (e.g. snowball sampling) were undertaken to explore the respondents. Snowball sampling is an approach for locating information-rich key informants. It is a technique for finding research subjects whereby one participant gives the researcher the name of another subject, who in turn provides the name of a third, and so on (Vogt, 1999). The researcher first identified academics and researchers who have been researching on climate change and urban poor; and then the research asked them to identify organisational respondents for this study. Later on, the researcher finalised the lists of organisational respondents by reviewing the lists of the respondents in terms of the purpose of interviewing. Similar to the household interviews, the researcher has conducted face to face interviews, recorded them and took notes.

Focus Group Discussions and Observation Methods

Focus group discussions (FGDs) were used to identify urban institutions and processes at the micro level (case study settlements) in housing and basic services, disaster preparedness, post disaster measures and urban health. In order to explore the levels of interaction of different poor groups with the urban institutions, the researcher selected diversified groups from the case study settlements. In each settlement two different focus group discussions were undertaken to validate the information. In Karail, seven research participants were selected for the focus group discussion and the group consisted of two house/room owners and five tenants. According to the poverty category, two non-poor, one moderate poor and four extreme poor participants were selected. In this context, the UPPR project's participatory poverty category in Karail was considered. The community development committees (CDCs) of the UPPR project helped the researcher to select the research participants. In Kamrangirchar, two non-poor house owners and five extreme poor tenants were selected as the participants for the FGD; and the selection process of the research participants was mediated by the leaders of the extreme poor's organisation. As the focus group was undertaken after the

household interview, the researcher also was in a better position to apply his own observation in selecting the participants of the FGDs. Following the interviews and focus group discussions, the researcher also used observation and reflection methods as an added technique to capture respondents' behaviour and their body language during the interviews and focus group discussions. The observations were extended beyond the period of interviewing and focus group discussions, but lasted throughout the whole field work period. The observation included accompanying participants to their accessible services, working places, housing and community organisations. The observations helped to supplement some of the information that the research participants provided.

Analysis of Grey Materials

To understand the role of national and local policies in mediating the asset accumulation of the urban extreme poor, the main source of information was the collection of grey materials and review of policy papers. Thus the data collection technique was based on the rapid appraisal of contemporary policies in Bangladesh. To appraise the policies of Bangladesh, this research has considered the national housing and basic services policy, national adaptation policy, climate change strategy, social sector policies and local development plan. Most of the policy documents do not have any direct policy framework related to adaptation of the urban poor or the urban extreme poor. Considering this impediment, a pattern matching technique has been adopted in this research to identify asset accumulation process for the urban poor from the collected unpublished policy documents. The pattern matching has been implemented by exploring the key words: (i) Urban poor; (ii) Housing and Basic services; (iii) Infrastructures; and (iv) Community-based/driven development.

Data Analysis and Organisation

The process of organising the primary data was to review each datum collected at the end of each day in the field. This process started and continued alongside the field work. The researcher identified gaps in the surveys and also solves these in at the end of each day. The researcher downloaded the recorded interviews onto a computer and replayed them to write down narratives of the interviews and generated necessary figures from the interviews which give the researcher an opportunity to validate the information and fill in the gaps in the interviews. Information gathered from household interviews and

transcripts from key informants' surveys and focus group discussions and researcher's field notes were organised under themes and nodes. The initial step was a preliminary reading of all transcripts from the primary data in relation to the research questions from the various sources. From the initial reading, themes were developed which were used as a foundation to build upon for further development. For the purpose of this research, some of the themes developed are: multidimensionality of poverty, vulnerability, urban institutions, and the role of programmes.

In building upon the themes developed, detailed categories were developed manually which enabled the researcher to organise data in different ways particularly with sub categories. For example, the multidimensionality of poverty was divided into male-headed households and female headed households. These categories were divided into sub-topics or categories such as service accessibility, migration, participation of labour market, barriers to enter into the labour market, etc. Then, the research applied coding for themes, categories and sub topics or categories in order to organise the primary data come from the field work. Coding is important because it helps to sort the data out according to categories (Yeboah, 2008). With the data coded, the information was reviewed several times while quotations from the interviews were noted. The data was studied in order to identify themes and concepts from the literature. Later, the researcher reviewed the research questions and studied the data to identify various themes and categories necessary for answering the research questions. Due to the qualitative nature of the study, the researcher had to cross-check all information for accuracy, reduce the bias through triangulation⁵², and ensure the credibility, dependability and reliability of the information (Stringer and Genat, 2004). To supplement the primary data and to triangulate the study, secondary sources of data were also consulted. Secondary data includes published or unpublished documents collected from various public and private organisations, which are directly or indirectly related to the issues at hand.

⁵² Triangulation is defined as “comparing different kinds of data (quantitative and qualitative) and different methods (observation and interviews) to see whether they corroborate one another. This form of comparison, called triangulation, derives from navigation, where different bearings give the correct position of an object” (Silverman, 2000, p. 156).

4.4 Limitations of Research Methodology

The main limitation of the research is the lack of quantitative and qualitative analyses in the urban context of Bangladesh that differentiate between groups of the urban poor. The Slum Census Reports of Bangladesh and other urban literature in Bangladesh context deal with aggregate groups of the urban poor, and therefore, the research has to rely on the extreme poor households' lists developed by the aforementioned projects in order to select respondents for life-history interviews. In addition, the researcher had to depend on local gatekeepers to select respondents for the life-history interviews as well as participants for the focus group discussion, which can be considered as another limitation of how participants were selected. However, these gatekeepers are active in their community based organisations and also they have prior experience of collaborating with national and international researchers. So, the selection of participants was purposive but still has a bias as the selection of individuals or households was done by the gatekeeper. As the relative newness of the field is notable, the researcher has to rely on only a small body of research to compare the research results. The analysis of policy documents was the major challenge as there is no separate chapter for adaptation. Thus the pattern matching technique was the only way to explore the strategies and actions related to the adaptation of the urban poor. However, the information extracted in this way was later validated by the key informants.

The fieldwork process is an important part of this research. During the fieldwork process, the researcher encountered a number of problems related to the data collection process. Pre-testing of the survey questionnaire provided useful feedback. A pre-testing of the survey checklist allowed the researcher to evaluate the validity of the survey checklist and the extent to which it generated the desired responses. Four pre-testing survey checklists were administered at the case study settlements. The initial stages of the interview generated a lot of anxiety among the interviewees because they thought the research was going to bring immediate financial gain to them. These perceptions affected the research to the extent that, while the men believed that by being vocal and open about their situation, the information gathered would be forwarded to the government and eventually lead to their getting support from the government, the women, in contrast, wanted us to realise how poor and pathetic their situation was so they exaggerated their stories. Conducting interviews at the time interviewees were

working made the research process burdensome to the participants. The researcher did not want to interfere with their work because they needed the money and there was competition in the job. Although they were compensated for their time and energy, the researcher arranged and scheduled interviews such that it enabled them to perform their jobs and also participate in the study.

Chapter 5 : Urban Extreme Poor and Asset Vulnerabilities to Climate Change in the Context of Bangladesh

5.1 Introduction

In this chapter the case study of Bangladesh has been analysed to understand the links between vulnerability and poverty dynamics and also the main drivers of climate change vulnerability for the urban extreme poor. The links between vulnerability and poverty dynamics and also the drivers of vulnerability to climate change, which were reviewed in Chapter two, have been explained in the context of the urban extreme poor of Bangladesh. This context analysis fits into the analytical framework of this research by exploring different dimensions of poverty and their linkages to vulnerability; and also identifying how external and internal characteristics influence the main drivers of climate change vulnerability for the urban extreme poor. Thus this chapter provides information on, and analyses, the multidimensional aspects of urban extreme poverty in Bangladesh, climate variability and the main drivers of climate change vulnerability for the urban extreme poor. The chapter is divided into three broad sections. The first section explains urban extreme poverty in the context of Dhaka city through analysing the asset characteristics of the extreme poor; the structural factors that the urban extreme poor face; the coping strategies amidst insecure livelihoods; the household composition; and life-cycle factors. The second section provides information on climate variability in the context of Dhaka city. Thirdly, this chapter explores the main drivers of vulnerability to climate change and how these are shaped by both external and internal characteristics.

The urban extreme poor households were selected from the ‘public settlement’ (Karail) where the land is owned by the public authorities and also the ‘private settlement’ (Kamrangirchar) where land is owned by the private land owners as explained in detail in Chapter four. This chapter is based on several different types of information and methods of analysis. The household characteristics such as asset characteristics (and economic returns of the assets), their livelihood activities, headship, marital status, household size, housing condition and services have been analysed through descriptive

statistics using the household database of each settlement which were collected by the Urban Partnerships for Poverty Reduction Programme (UPPRP) in Karail and the DSK-Shiree Project in Kamrangirchar (known as the Change Monitoring System1, CMS1). Further information has been gained through the household interviews of the urban extreme poor households in the two settlements. The processes that drive and maintain urban extreme poverty have been analysed using the narratives from the household interviews and also supported through the key informants' survey. Climate variability in the context of Dhaka city is analysed based on secondary information, extracted from the climate variability studies on Dhaka city. The asset vulnerabilities that face the extreme poor households in the context of climate change have been analysed through household interviews, the key informants' survey and also the analysis of recent academic publications on urban poverty and urban climate change vulnerability in Bangladesh and unpublished documents such as newspaper, government documents (such as local level plans), donors' publications on urban poverty and climate change and NGOs' reports.

5.2 Urban Extreme Poverty in the Context of Dhaka City

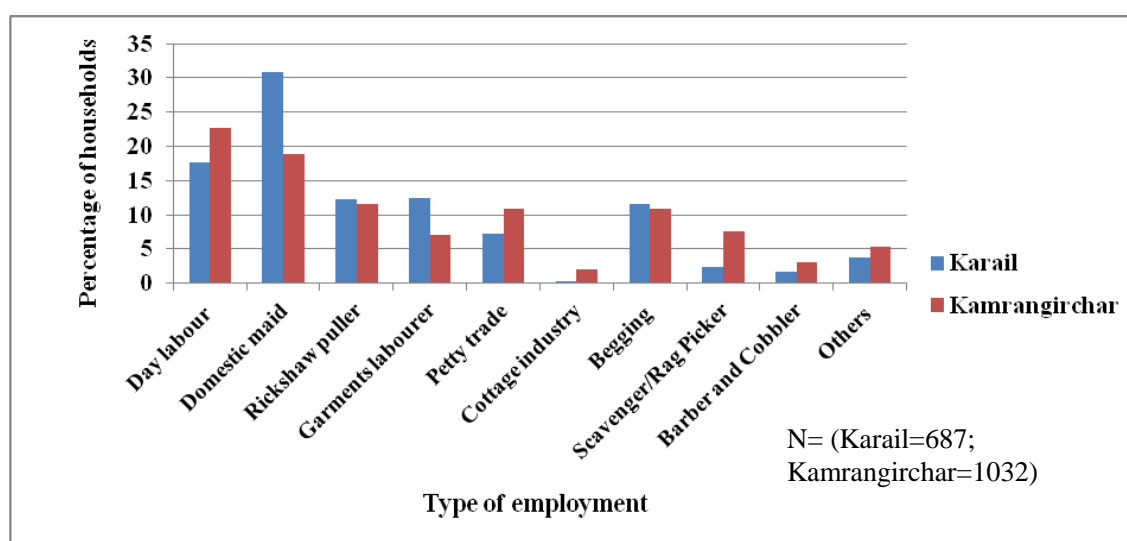
The multidimensional understanding of urban extreme poverty recognises extreme poverty as more than income or consumption poverty and that captures the multidimensional aspects of human deprivations, exploitations and exclusions. As explained in Chapter two, low level asset endowments (and their returns) as well as adverse incorporation and social exclusion (AISE) need to be considered as the dimensions of urban extreme poverty. This section explores the theoretical assumptions regarding the multidimensional aspects of urban extreme poverty in the context of Bangladesh through a case study of Dhaka city. Assets are closely related to capabilities (Moser, 2010) that can enhance a person's ability to perform useful work for his/her livelihood. Ellis (2000) argues that assets and the way individuals and households access them are important building blocks that combine to shape the livelihood activities that people engage in and the possible outcomes. Across the two study locations, the urban extreme poor interviewed for this research engage in a variety of livelihood activities, but these activities often fail to meet what is needed for long-term survival and advancement, and can only ensure their survival in the urban environment. Of the five capital assets identified in the livelihood literature (see Chapter two), low levels of social, human and physical assets were found to be available and utilised by

the respondents. Structural factors (labour and product market, age and gender) reinforce the processes regarding the persistent exclusion and deprivations of the extremely poor households in Dhaka city. In addition, lifecycle factors also exacerbate the process through which the extreme poor face multiple deprivations. This section first explains the assets that are available to the urban extreme poor households (and their returns). Then, it critically explains the processes by which male and female headed households slide into extreme poverty, and even stay in the extreme poor category for a long time, through analysing the structural factors related to the labour and product market; the opportunities and constraints related to coping strategies; the household composition; and life-cycle factors.

5.2.1 Human Capital: Key to Livelihood Engagement

Human capital includes skills, knowledge, ability to labour, good health, and physical capability (Rakodi, 2002; Moser, 1998; Satterthwaite, 2002 & Yeboah, 2008). It is one of the primary assets for livelihood engagement. Moser's (1998) study on asset vulnerability identified labour as a specific asset. Chambers (1989) claims that the main asset of poor people is their body, in the form of 'labour power' or 'labour availability', used to generate income. Therefore, labour can be considered as the most valuable asset for the urban poor. The economic livelihoods of men and women in both case study locations (Karail and Kamrangirchar) are associated with labour intensive activities such as rickshaw pulling, day labour, house maids, petty trading (mainly street peddling), readymade garments industrial labourers, scavenging and labour in cottage industries. Figure 5.1 reveals that domestic maid, day labour and rickshaw pulling - three physical types of work are predominant in the employment pattern in both case study settlements. Petty trading and readymade garments in industrial low skilled employments (such as machine helpers or operators) are two more types of employment providing employment for around 5-10% of the extreme poor household heads. A small percentage of household heads in Kamrangirchar engage in home-based income-generating activities (e.g. cottage industry) not found in Karail. Scavenging activities, at around 8% of households in Kamrangirchar is much higher than in Karail. Begging is also an option for the urban extreme poor household heads to earn and a considerable percentage of the household heads engage in begging in both case study settlements (nearly 12% in Karail; and nearly 11% in Kamrangirchar).

Figure 5.1: Employment Pattern of the Extreme Poor Household in the Case Study Settlements



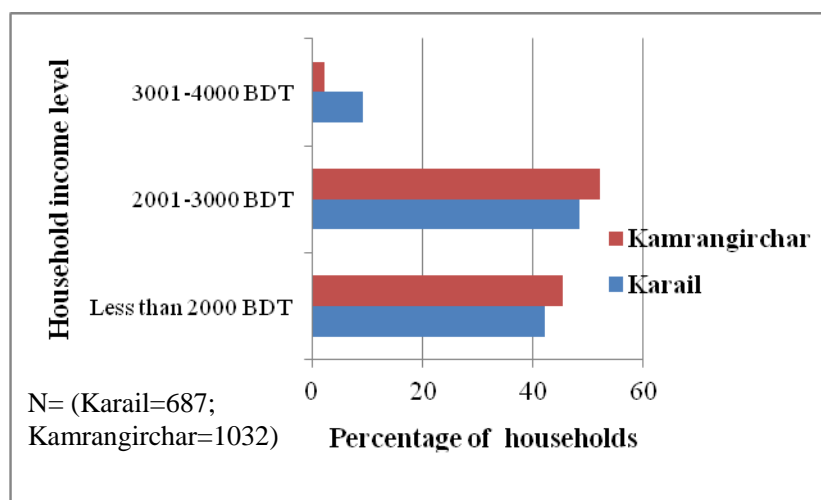
Source: Analysed from UPPRP database (2009) and DSK-Shiree Project database (2009)

Financial returns from their Human Assets

Figure 5.2 reveals that most of the extreme poor households from the case study settlements belong to a very low-income level that ranges from less than 2000 BDT to BDT 4000 (approximately less than £17 to £25) a month (Figure 5.2). But, only a few households in both these settlements belong to the higher income band of BDT 3001 to BDT 4000 (approximately £26 to £37) a month, which is also hardly sufficient to meet basic requirements. The mean income of the urban extreme poor households in Karail is 2531 BDT (approximately £21) (UPPRP Household survey, 2009-2010), whereas the households in Kamrangirchar have an average income of 1960 BDT (approximately £15.45) a month (CMS1, 2009). It is evident that the extreme poor household heads who are in employment, whether formal (e.g. garment labour in Dhaka city) or informal (labour intensive activities e.g. rickshaw pulling), do not receive sufficient remuneration to lift them above a poverty line⁵³.

⁵³ There are two official poverty measures in Bangladesh and both comprise of an upper and a lower poverty line. The Daily Calorific Intake (DCI) measure defines people consuming > 2,122 Kcal per day as absolute poor and those consuming >1,805 Kcal per day as extreme poor. The Cost of Basic Needs (CBN) measure defines people with per capita income between BDT 33 (urban) and 27 (rural) as absolute poor and those with BDT 22 (urban) and 16 (rural) as extreme poor. Considering the cost of the basic needs poverty line, it can be argued that the extreme poor households in the case study settlements are extreme poor because the per capita income per day in Karail and Kamrangirchar is BDT 18.70 and BDT 17.79 respectively (UPPR household survey, 2009 in Karail; CMS1, 2009 in Kamrangirchar) which is relatively lower than the national urban extreme poverty line.

Figure 5.2: Monthly Income Pattern of Households in the Case Study Settlements



Source: Analysed from UPPRP database (2009) and from DSK-Shiree Project database (2009)

5.2.2 Low Levels of Social Capital Assets

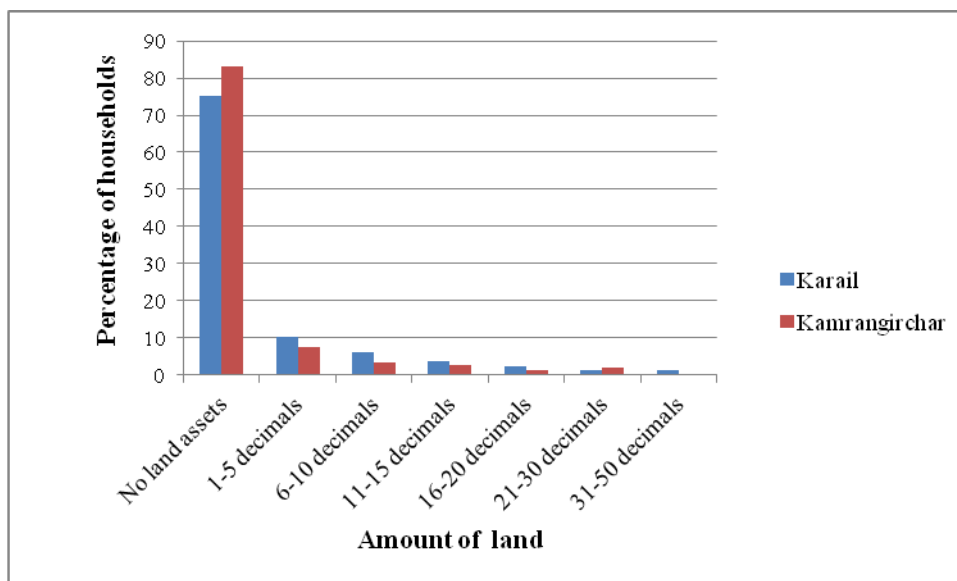
In urban areas ‘social capital’ is one of the significant assets of the urban poor; and it can be considered as the social resources/assets on which people draw in pursuit of their livelihood (Rakodi, 2002). The social capital of the urban poor can comprise of several assets such as, reciprocity and trust, urban-rural network, patron-client relationship, etc (Tamanna, 2012). Close household relationships are the site of the generation of norms and habits of trust and cooperation which when applied to wider forms of association can generate social capital (Coleman, 1988). Narayan (1997) argues that close family ties are thus considered important as social glue and for guarding against vulnerability. However, the research found that household relations are fragile among the extreme poor households and often increases the level of vulnerability of individuals (women and children) or households. Most of the poorest families interviewed had close relations with only a very few family members. This was either because the family was small, or had reduced in size often as a result of health shocks, or for polygamous families where relationships between the husband and wives and her offspring had not been maintained equally and often exploitative, or household de-composition where more able members of households decide to separate from the weaker, often non-earning, members believing that their dependence poses a serious livelihood threat. These may place their household relations in an adverse vulnerable situation.

Despite fragile household relations, the research found that social networking based on kinship, and friends of similar origin often plays an important role in helping to build coping strategies at the time of adversities and crises. In both the case study settlements, most of the slum people are coming from different disaster prone, river eroded and drought (*monga*) affected areas such as the Northern islands and (*chars*⁵⁴) and coastal belts, and many other pockets of extreme poor communities from all over the country just with a better hope of survival. The Slum Census Report (2005) shows that, the slums of Dhaka attracted significant numbers of migrants from nearly 28 districts (out of 64 in the country) (CUS et al., 2006). At the transition period, social networking works as a source of social capital in the context of migration to Dhaka city - by providing information related to migration and coping with city life, and by providing initial accommodation and employment information. The role of social networks in the urban adaptation of poor households is explained by one respondent as *“I moved to Dhaka city with my wife and 2 children 8 years before by losing my key livelihood productive assets (small grocery shop and house) due to meeting the cost of medical expenses. I came to Kamrangirchar and stayed in my brother-in-law’s house..... He helped me to find accommodation..... As I was a diabetic patient, it was difficult for me to pull a rickshaw and work as a day labour in the construction site. So, my brother-in-law gave me a loan of 2000 BDT (£17) without interest as a start-up capital for starting a business.....”* (Personal interview, interviewed on 30th March, 2012). However, most of the poorest families interviewed had close relations with very few relatives or friends and neighbours within the community. In the case study settlements, some extremely poor households acknowledge the short term or immediate support of their neighbours, which they receive from them in many ways such as food assistance if the earning member fails to go for work, taking to hospital during their sickness, raising a subscription from the community to afford the cost of treatment etc. However, they also add that as their relatives and neighbours are also very poor, their ability to support others is limited. The urban poor may have an urban-rural network (in terms of networks and critically access to rural land) in which they can construct survival strategies in urban settings (Amis, 2002 & Moser, 1998). The substantial literature regarding livelihood and asset based approaches has documented the rural-urban

⁵⁴ The chars are low-lying riverine islands that are prone to annual flooding during the monsoon. Such floods can erode whole chars, forcing people to leave their homes and move to higher ground, embankments or flood shelters (CLP, 2013).

network as ‘the insurance policy’ aspects through which the urban poor can construct survival strategies (Rakodi, 1995).

Figure 5.3: Landlessness of the Households in the Case Study Settlements



Source: Analysed from UPPR database (2009) and from DSK-Shiree Project database (2009)

Note: Decimals = A decimal is a unit of area in India and Bangladesh approximately equal to 1/100 acre (40.46 m²).

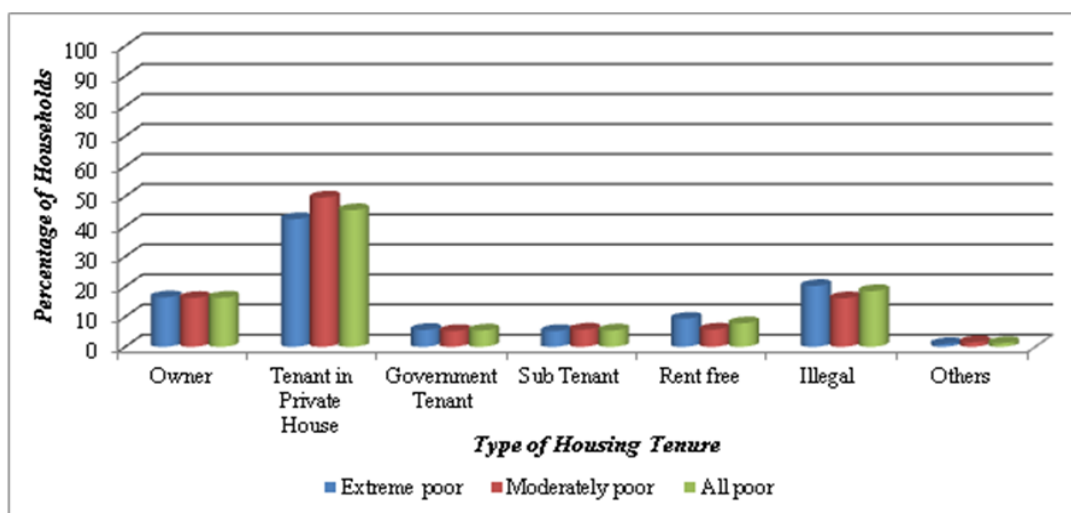
Figure 5.3 shows that 75.2% and 83.2% households have no rural networks (in terms of rural land) in Karail and Kamrangirchar respectively. When rural land endowments are disaggregated by neighbourhood, the extreme poor households in Kamrangirchar are slightly more deprived in rural land endowments than that of the Karail (Figure 5.4). The extreme poor households who have few land assets (especially home and no cultivable land, as found in the household interviews) in their rural area appear to use this only when they run out of options within the city. One respondent (42 years old) explained that “*when my wife and one of my daughters became ill, I sent my family to the rural area. Initially, when my wife fell ill, I tried to manage on the income of mine. But, when my daughter also became ill, I decided to send the rest of the family to the rural areas*” (Personal interview, interviewed on 31st April, 2012).

5.2.3 Low Levels of Physical Capital Assets

As Chapter two notes physical capital assets include housing and basic infrastructures (such as roads, drainage, water supply and sanitation facilities) and also the production

equipments and means which enable people to pursue their livelihood. Moser (1998, p. 11) considered housing as “productive assets”; and in the context of the urban poor this is primarily the “ownership” and/or use of housing as an asset – whatever the precise legal status. Residential land values in the inner city locations of Dhaka range between US \$ 30 and \$ 60 per square foot, which are high compared to those found in developed countries. For example, areas in the US where land prices exceed \$ 60 per square foot are rare (World Bank, 2004). These prices make it impossible for the poor and extreme poor households to purchase land in the open market within the inner city locations of Dhaka city⁵⁵. As a result, the areas affordable to different poor households are those that others deem undesirable for residential purposes, or unusable for other urban activities. Slums have resulted from squatting on vacant or undeveloped lands, or from the deterioration of existing neighbourhoods (UN-HABITAT, 2003). Figure 5.4 illustrates the housing tenure of the urban poor in Dhaka city.

Figure 5.4: Housing Tenure of the Urban Poor



Source: Analysed from World Bank (2007)

Figure 5.4 indicates that less than 20 percent of the extreme poor of Dhaka are owners. The World Bank survey (2007) found that 16 percent of the poor in Dhaka were

⁵⁵ The cheapest ready-to-build plot within Dhaka inner city area is priced at BDT 500,000 per *katha* (i.e., 720 square foot lot) or US \$ 12 per square foot (World Bank, 2007). Normally the Capital Development Authority of Dhaka city does not grant building permission on lots smaller than 1050 square foot. This would cost Tk. 729,000 (£6075), which is equivalent to nearly 20 years of income for an average poorest household (BDT 3000 per month, £25, although the income of some extreme poor households is less than BDT 3000 per month). The cost of housing would be additional. In any case, such small lots are hardly available in the open market, and only rarely supplied by the government in a subsidized market (ibid.).

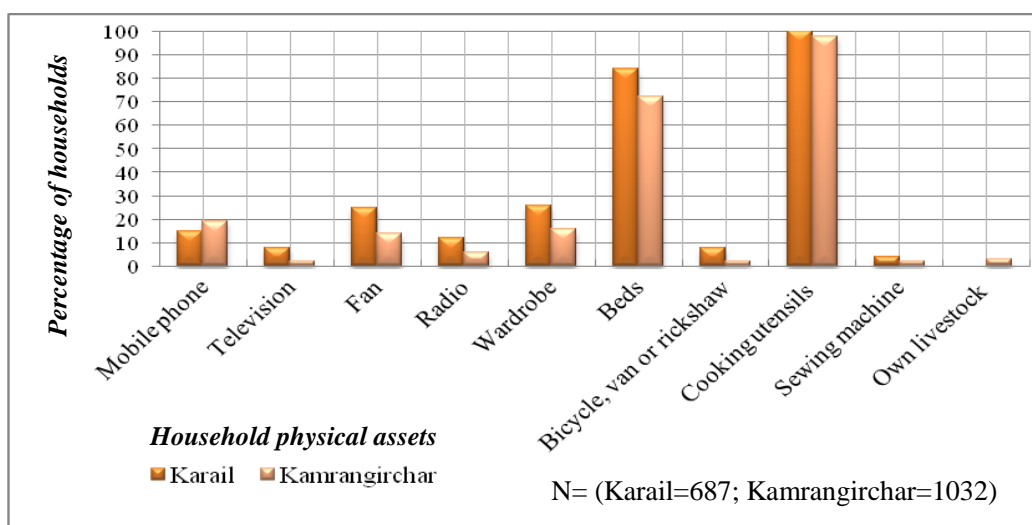
owners; nearly 43 percent were tenants; 9 percent were rent free dwellers, and nearly 21 percent were squatters or illegal occupants (Figure 5.4). As explained in Chapter 4, Karail is a squatter settlement, which developed on public land. In the case of squatter settlements, occupants generally have to pay 'tolls' to *mastaans* (musclemen) and agents of employees of the land owning authorities. In the squatter settlement of Karail, a few groups of local leaders, many of them Telephone and Telecommunication (T&T) employees and their relatives occupied the public vacant lands of Karail illegally, and they built huts and rented them out mostly to migrants coming from different parts of Bangladesh. Karail experienced a dramatic increase in population starting from the end of 1990s. This trend is still continuing and also the land occupancy is happening by buying the 'position' from the previous occupier. These owners became the 'de facto' owners, even though they were not provided with any formal land tenure security or rights. Despite this, they have incrementally developed houses using light and temporary construction materials and the pace of incremental constructions is triggered by the heightened demand and relatively high rents for the rooms in this area. The rent varies from 800 to 1200 BDT per month and increases 10% every year (A landowner in Karail, interviewed on 02/05/2012). There are 2,200 landowners in Karail slum (Rahman, 2012) who mainly offer rental accommodation to the poor communities in the slum. Among the 20 extreme poor respondents of this research in Karail, only two respondents have been found room owners and rest of the respondents live in rental accommodation. Rents in the rental accommodation are reported to be high. Islam et al. (1997) found that slums dwellers in Dhaka city were paying higher rent per square meter than non-slum households, even though the latter usually benefited from a much better physical environment and level of services. As the slum is on public land, the urban poor are living in these settlements under the persistent fear of eviction. The influential members of the elite or political leaders assign some intermediaries (local *mastaans*) to collect the monthly rent to ensure some sort of land tenure security to the tenants, which is associated with their performance in regular house rent payment.

Kamrangirchar is situated outside the administrative boundary of Dhaka City Corporation; the majority of the people of the area are grouped in the middle and low income range and they are unable to buy land in the established urban areas. As a result, they are finding shelters in remote areas like Kamrangirchar without basic services including access to facilities. These people also offer rental accommodations to the

urban poor and the extremely poor households with minimum basic services. In this area, the extreme poor households live in the private owned slums. In the privately owned lands, the house owners build small rooms. In the private owned lands, the house owners build small rooms with the temporary construction materials in their housing clusters. The extreme poor can enjoy stable tenure security by the payment of monthly rent because of the legal registration system of these houses in Kamrangirchar.

Rakodi (2002) also notes that productive and household assets or belongings (tools, equipments, household goods as well as stocks like jewellery) can be considered as physical assets. The ability to invest these assets in production equipment may directly generate income and enhance labour productivity. Moser (1998) argues that the urban poor can use household physical assets as a buffer against shocks. However, the extreme poor households in the case study settlements had only a few household physical assets or belongings. Figure 5.5 shows that most common household belongings are beds and cooking utensils in the case study settlements. Only a few households have productive household assets such as livestock, sewing machines and bicycles, van and rickshaws. Figure 5.5 indicates that households in Karail have more productive household assets than that of Kamrangirchar, except livestock. In Kamrangirchar, 3 percent of households have their own livestock but no households have their own livestock in Karail slum.

Figure 5.5: Household Assets or Belongings in the Case Study Settlements



Source: Analysed from UPPR database (2009) and from DSK-Shiree Project database (2009)

5.2.4 Economic Livelihoods of the Male Headed Extreme Poor Households

The Labour Force Surveys (LFS) of Bangladesh reveal that the urban labour market in Dhaka city has grown rapidly and largely informally in last two decades. The LFS 2000 highlights Dhaka's labour market growth as twice as fast as that across the country as a whole (World Bank, 2007). The LFS 2005 reveals tremendously high levels of informality, finding 88 percent of all workers to be employed informally in Dhaka and the other largest metropolitan cities in Bangladesh, subject to low wages, minimal benefits and high levels of job insecurity (Maligalig et al., 2009). Almost all of the extreme poor this research interviewed migrated from the countryside, were previously agricultural labourers in rural areas (i.e. among the extreme rural poor) before they moved to urban areas, seeking to improve their situation and to cope with the unemployment, food insecurity and loss from natural disasters such as floods, cyclones and river erosion.

Structural Obstacles for Male Adult Earning Members in the Urban Labour Market

With many lacking skills and qualifications, unskilled labour dominates employment opportunities for the male headed extreme poor households. As explained in this chapter, two types of unskilled employments such as rickshaw pullers and construction day labourers are predominant among male heads or male adult earning members of the extreme poor households. This illustrates the limited barriers to entry into this sector, which requires only a reference to access a rickshaw garage or to make connections with contractors for accessing regular work. While in the informal labour market the recruitment process is based upon personal connections, some extreme poor male heads were not capable of accessing regular employment after migrating to Dhaka city (Interviews with the construction sector labourers, 2012). They cope with employment instability by joining labour gangs and secure employment at a financial cost. One male respondent (23 years old) reported that *"I migrated about 6 years ago when I was only 18 years old to join my brother who had been living in Dhaka city. My brother was a construction labourer and I also wanted to join him but it became difficult for me to find work every day as I looked very young and was not physically strong. After 3 months, I joined a neighbouring labour broker. Then, I got certainty of regular employment, but it costs about 25 percent of my daily income"* (Personal interview, interviewed on 03/03/2012). Although the daily income from the unskilled employment makes it easier for extremely poor daily labourers, low income and work irregularity provide little

scope for household advancement because of the high level of uncertainty, risk and income fluctuations. The respondents reported that they can secure 10-15 days' work in each month, due to a lack of work availability, bad weather, health shocks, seasonal disruptions and more periodic barriers, such as *hartals* (strikes) called by the opposition (Construction sector labourers, 2012). While rickshaw pullers can work flexibly and regularly according to their needs and physical capabilities, physical exertion dampens long-term prospects for household mobility and escaping from extreme poverty, with multiple health shocks driving a deterioration of economic and social indicators with age and the length of time in the occupation (Interviews with the rickshaw pullers, 2012). This finding corresponds with the survey conducted by Begum and Sen (2005) in Dhaka city. Their survey found that an extraordinarily high proportion (75 percent) of rickshaw pullers reported having encountered at least one crisis in the last five years, with an average incidence of two major crises per household. They also found that the average financial loss per health crisis is more than the average monthly household income.

Household interviews reveal that starting a small business is the priority for male headed extreme poor households because it offers greater prestige as well as not being dependent on physical labour. Barriers to accumulating capital exclude most of them from starting their own business. Despite this, among extreme poor households, this research also found some male heads involved in small business activities (especially in road side vending and hawking). Most of the petty traders report that they struggle to secure stable incomes against an adverse structural environment. They don't have any registration from the government authorities which blocks their access to the formal credit system in order to expand their business. They also report that the access to and use of public spaces is not 'free' for them as their rights to access and use depend on their resources and their social relations to the powerful street agents, *mastaans*, the police and the staffs of the municipal authority of Dhaka city. The extreme poor traders have to pay 10-15 percent of their daily income to get access to public spaces in order to operate their businesses. Such businesses also face high competition, low turnover; and asset erosion (human as well as financial) due to their frequent health problems (including family members) that limits the expansion of their activities. The majority of the extreme poor households in the case study settlements report that they simply do not have access to credit and productive assets (such as a rickshaw, ownership of a house,

livestock or rural lands) to build income generating activities (small businesses such as grocery shops or pulling own rickshaw); and NGOs do not support them to build these activities either (Interviews with the rickshaw pullers and the maids, 2012).

Coping Strategies of the Male Headed Households: Opportunities and Constraints

With the majority of male heads facing adverse structural obstacles in accessing regular employment opportunities, most of the male heads are confined to lower incomes that cannot provide for all of the basic necessities in the urban environment. In this situation, additional labour mobilisation was therefore central to their coping strategies for household survival and further advancement. Household interviews reveal that the ability of the household head and his wife to work is integral to food security for all of the household members, which also plays a crucial role in mobility in terms of building resilience and offering scope for investment (Male respondents, 2012). However, the household timeline or life trajectories reflect that household asset portfolios change over time; and it also found that households are pushed into extreme poverty when women are not in a position to use their existing labour capital for various reasons such as childcare, pregnancy related sickness, etc. (Interviews with the male headed households, 2012). The common characteristic for poor households is the overdependence of one resource such as human capital (in terms of labour). The households' life trajectories or time lines also reveal that households' accounts of the decline of their livelihoods are punctuated by episodes of health shocks. The consequences of health shocks are enormous including losing labour capacity and food production and income generation suffers; the erosion of assets to meet increased expenditure on hospital treatment, medicines, and the associated transport costs; and also indebtedness.

Exploitation occurs because an episode of health related shocks for poor people provides opportunities for others to benefit (Davis, 2011). The households' life-trajectories revealed patterns in treatment where help was often initially sought from traditional healers (*kobiraj*) or medical stores (where qualified medical assistance is absent) and they charged for their usually ineffective treatments and sometimes harmful services; then when the illness did not respond, the households went to government hospitals and often private clinics, with costs of medicines and diagnostic tests increasing as the illness deteriorated. At each stage money was collected which often came from their savings, land sale or mortgage, sale of household belongings, and

sometimes help from friends, and relatives. Sometimes, but not always, when they did not have any personal sources of extracting money, they took loans with high interest from the informal brokers, which leads to the household's indebtedness (Both male and female headed households, 2012). When the health related problems of breadwinners become chronic illness or disability, then households are pushed into extreme chronic poverty. The household timeline also indicates that the repeated shocks (such as health related shocks combined with loss of employment or natural hazards and also loss of productive assets) are particularly difficult for poor households to recover from, especially if they follow in close succession or trigger off a series of further shocks. This sets into motion a downward spiral of reduced income and assets and households become food insecure. One interviewee, age 30 years, who has been living in Karail slum for the last 8 years, spoke about his life-history:

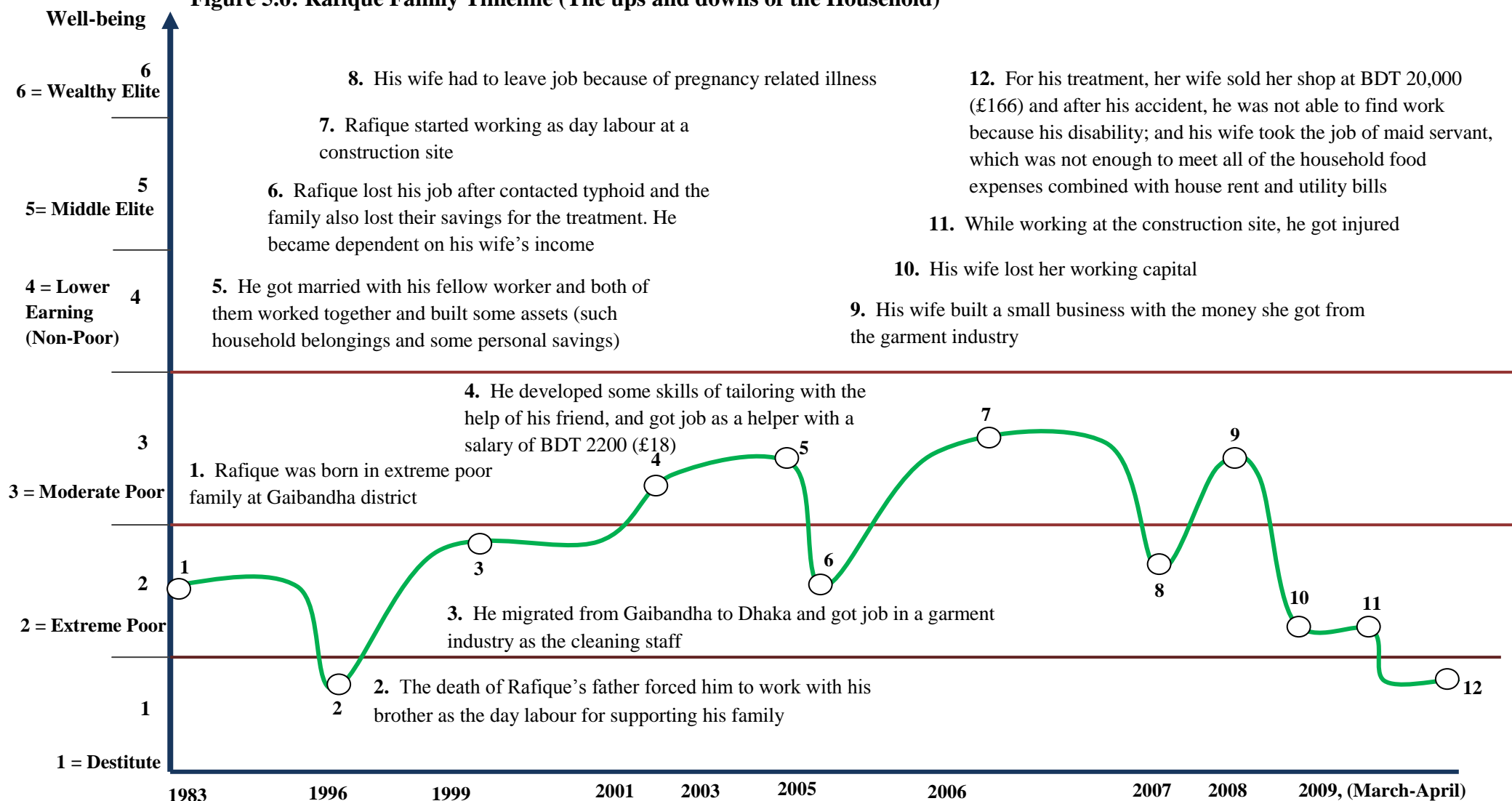
“I was born in 1983 at Palashbari upazila⁵⁶ of Gaibandha district. My father was a day labour and it was difficult..... Despite this, my father and my two elder brothers gave me the opportunity to go to school. The death of my father forced me to leave my school and work..... Then, I moved to Dhaka.....and with the help of my relative, I got a job in a garment industry as a cleaning staff. Although my work is confined to mornings, I stayed in the industry and tried to develop some tailoring skills..... In 2001, I got a job as helper with a salary of 2200 (£18) in that industry. Then, I had an affair with my fellow worker and I got married in 2003; both of us worked together and had a reasonable income. This helped us to build some household belongings as well as some savings. In 2005, I lost my job after contracting typhoid..... I lost my savings..... After recovering from illness, I started working on a construction site. In 2007, my wife became pregnant and had to leave her garments job..... On leaving her job, she received a total of BDT 12,000 (£10) of allowances and salary from the employer. With this amount, she bought a shop and started a business of mobile flexi-load and grocery items. But, my wife lost the working capital of BDT 5000 (£41). In the mean time, I also got severely injured..... I was in the hospital for 3 months and my wife had to sell her shop..... After that accident, I became disabled. Although I have a small child, my wife has to go out for work..... I want to

⁵⁶ Upazila is the second lowest tier of regional administration in Bangladesh.

support my wife, but nobody is willing to give me a job.....” (Personal interview, interviewed on 28/02/2012).

In Rafique’s life history, depicted in Figure 5.6 below (using the wellbeing ranking as explained in Chapter 4), it is possible to trace the impact of a series of health related misfortunes to his household wellbeing. It also indicates how repeated shocks undermine the coping capacity against shocks and stresses and causes an erosion of assets. The life-history of Rafique also indicates the importance of mobilising additional labour in an urban poor household. The ability of Rafique and his wife to work is integral to their savings, which plays a crucial role in ensuring wellbeing (in terms of three meals) and offering scope for investment. But when the household loses labour capital, the household falls into a vulnerable situation; and sometimes their savings, productive resources and also social network help them to cope or adapt to the increased risk levels. An erosion of assets leads to the household descending into extreme poverty and also the structural barriers (based on lifecourse as well as disability) exclude the household from accessing the resources for adaptation. This adverse vulnerable situation can slide the household from extreme transitory poverty to extreme chronic poverty.

Figure 5.6: Rafique Family Timeline (The ups and downs of the Household)



Source: Personal interview on 28/02/2012; the figure adapted from Shiree (2011, 2013a); Davis (2012) & CLP (2012)

Life-Cycle Factors and Urban Extreme Poverty

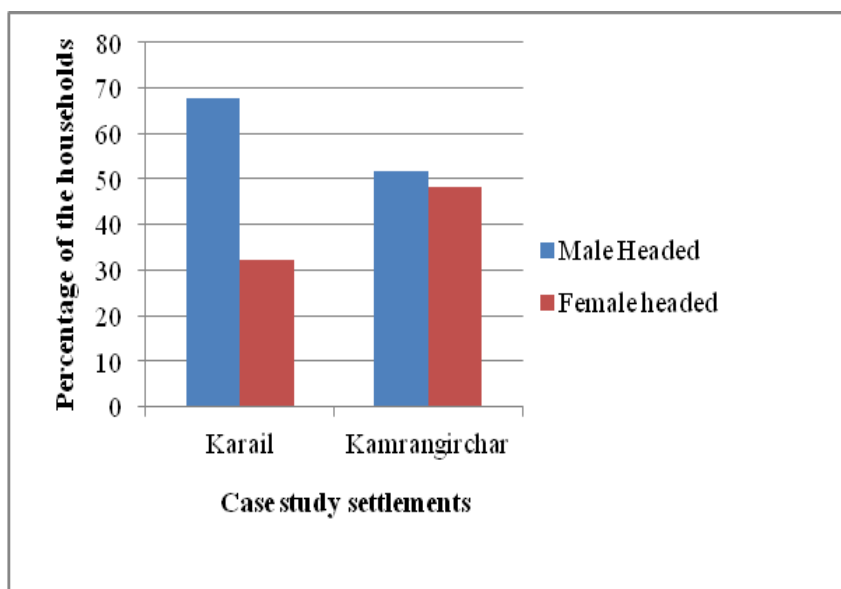
The experience of extreme poverty is not only associated with structural factors; individual and household life-cycles have a significant influence (CPRC, 2004). Life-courses/life-cycle (childhood, old age), high dependency rates and small households need to be considered as one of the dimensions of extreme poverty (Cleaver, 2005). Household interviews also reveal that elderly males and females face downward mobility due to their lifecycle vulnerabilities, which limit their access to earnings and food security. Across the case study locations, there are male-headed households consisting of aged and/or chronically ill, who usually depend on their wives' earnings for their sustenance. Some elderly male-heads have been found pulling rickshaws in the streets of Dhaka city, but fail to generate enough income to maintain their family. Because of old age or illness they usually cannot pull a rickshaw for more than two days in a week. In addition, they pull the rickshaw slowly so earn much less compared to a young and physically fit rickshaw puller. Because of their very low income from rickshaw pulling they depend on their wives or adult children to run the family. A difficult situation is faced by older people who have no one to care for them as they become increasingly frail; they, therefore, are forced into begging for survival. Socially, life-cycle factors, e.g. elderly and/or chronic illness of the breadwinners result in increased dependency and a burden of care for the extreme poor households, and a decreased ability to participate in wider slum life, social, and reciprocal activities (Interviews with the elderly respondents, 2012). This often restricts the ability of the extreme poor households to build social networks in the wider community. Therefore, the inability of the poorest people to maintain wider community relations beyond their immediate household and neighbours severely constrains their livelihoods (Cleaver, 2005).

5.2.5 Female Headedness and Urban Extreme Poverty in Dhaka City

It is evident that widow and divorced/abandoned women-headed households are often disproportionately found among the poorest (CPRC, 2004). The following Figures 5.7 and 5.8 also confirm the prevalence of widow and divorced/abandoned women-headed extreme poor households in both Karail and Kamrangirchar. Among the households in Kamrangirchar there are a higher proportion of female-headed households (48.16%) than in Karail (32.4%) (Figure 5.7). It is found that female heads are comparatively higher in Kamrangirchar than that of Karail. Figure 5.8 reveals that 17.6% and 29.83%

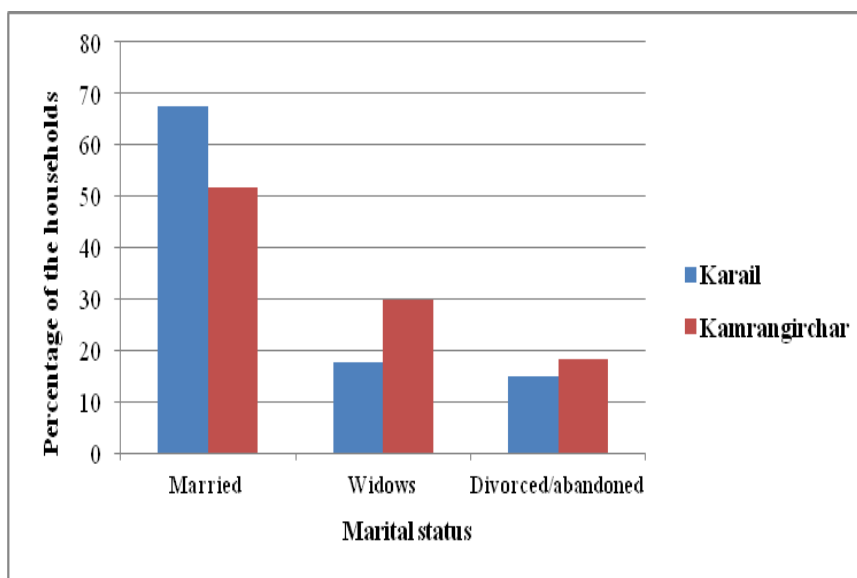
women heads reported to be a widow and the proportion of the heads whose marriages have been dissolved through divorce or abandonment stands at 14.8% and 18.33% percent in Karail and Kamrangirchar respectively.

Figure 5.7: Percentage Distribution of the Household Heads in the Case Study Settlements



Source: Analysed from UPPR database (2009) and from DSK-Shiree Project database (2009)

Figure 5.8: Distribution of the Household Heads according to Marital Status



Source: Analysed from UPPR database (2009) and from DSK-Shiree Project database (2009)

Structural Obstacles for Women in the Urban Labour Market

Traditionally, women in Bangladesh are discouraged from employment, especially while their husbands are alive (McIntyre et al., 2011); however, most of the women in this study, whether their husband was living with them or not, were required to earn income to support their families. They stated that their potential to generate income was influenced by their gender and social standing, as most had received very little education and were married at a young age to husbands chosen by others (Interviews with the female respondents, 2012). As uneducated women, they lacked employment opportunities in general, and some explicitly expressed that they suffered unequal opportunities because they were women.

In an urban environment, outdoor employment for women is concentrated in a narrow range of options, including garment work, domestic service, manual labour and home-based work. In both the case study settlements, most of the women are engaged in domestic services, whereas only a few work in other sectors such as garment work, manual labour and home-based work, although home-based work is only found in Kamrangirchar. Most of the women, in this research, engaged in domestic service because this employment is the most available option for the women in Dhaka city. However, they have little provisions and all of them were paid below the minimum wage. The domestic maids reported different forms of exploitation including defamation, inadequate compensation for demanding work, and also physical abuses; and therefore, they often were hesitant to work as a domestic maid. As domestic maids, women often received rice or meals from their employers in lieu of or in addition to a small cash payment. On occasion, food would be extended to the women's children. Even so, payment in rice or meals was generally insufficient to meet the women's most basic food needs: *"I get only one night meal and 1000 BDT (£8.33) after working so hard all day long. But, it was not enough to meet food requirements for three members of my family and major part of my cash payment that I got from this employment, pays for my house rent and electricity. After paying, I have only 100 BDT (£1) in each month. Now the price of a kg of rice is 40 BDT, so, how will I and my family live? My 12 year old son also has started working in a restaurant to supplement family income"* (Personal interview, interviewed on 13/03/2012).

Since the readymade garment sector tends to recruit only young and single women, only young female heads have the access to this sector. The research found a significant portion of women started working as a low skilled worker in the readymade garments sector when they first migrated on to Dhaka city, but they lost their jobs due to sudden illness, pregnancy and caring for small children (Interviews with the maids, 2012). Garment workers were somewhat better remunerated but their meagre salaries did not cover the rent of their urban residences. The average salary for the garment workers was 2200 BDT (£16) per month, while rental costs combined with utilities totalled 1000 BDT per month (£6-£8). They ran out of money to purchase food before they received their next wage. Furthermore, wages were typically withheld if women missed work because they were sick or when a shipment was delivered late, and women feared losing their job if they asked for concessions (Interviews with the garments workers, 2012). The interview with one home-based worker in Kamrangirchar found that the potential to build household asset bases and livelihood advancement from home-based production activities (such as duster, mat and small bags making) is lower because these activities are controlled by some middle men in Kamrangirchar; they collect orders from the shop owners and accordingly provide extremely poor women to manufacture them. They only are paid a portion of the income; the major portion goes to the middle men.

Household Composition

Poverty based on structural discrimination, exclusion and exploitation can be exacerbated and entrenched if it occurs at certain points in the lifecycle of a household, as well as that of individual (CPRC, 2004). Changes in household composition – through marriage, divorce, abandonment, and death – are important factors in determining the experience of poverty and extreme chronic poverty. As the prevalence of widowed female heads is high among the extreme poor (explored in this chapter) in both Karail and Kamrangirchar, it is important to explore how these widows descend into extreme poverty. The life history analysis reveals some reasons why female headed who find themselves widowed including the erosion of physical strength of male adult earning member resulting from hard manual labour and also subsistence food; susceptibility to chronic illness and cost of treatment; and work related accidents (Interviews with the widows, 2012). Analysis of life history indicates that high health costs combined with the death of an income earner can drive families into extreme poverty or destitution. The following quotation illustrates the case of a widow and the

process that drives the household into extreme poverty and maintains extreme poverty for a long duration:

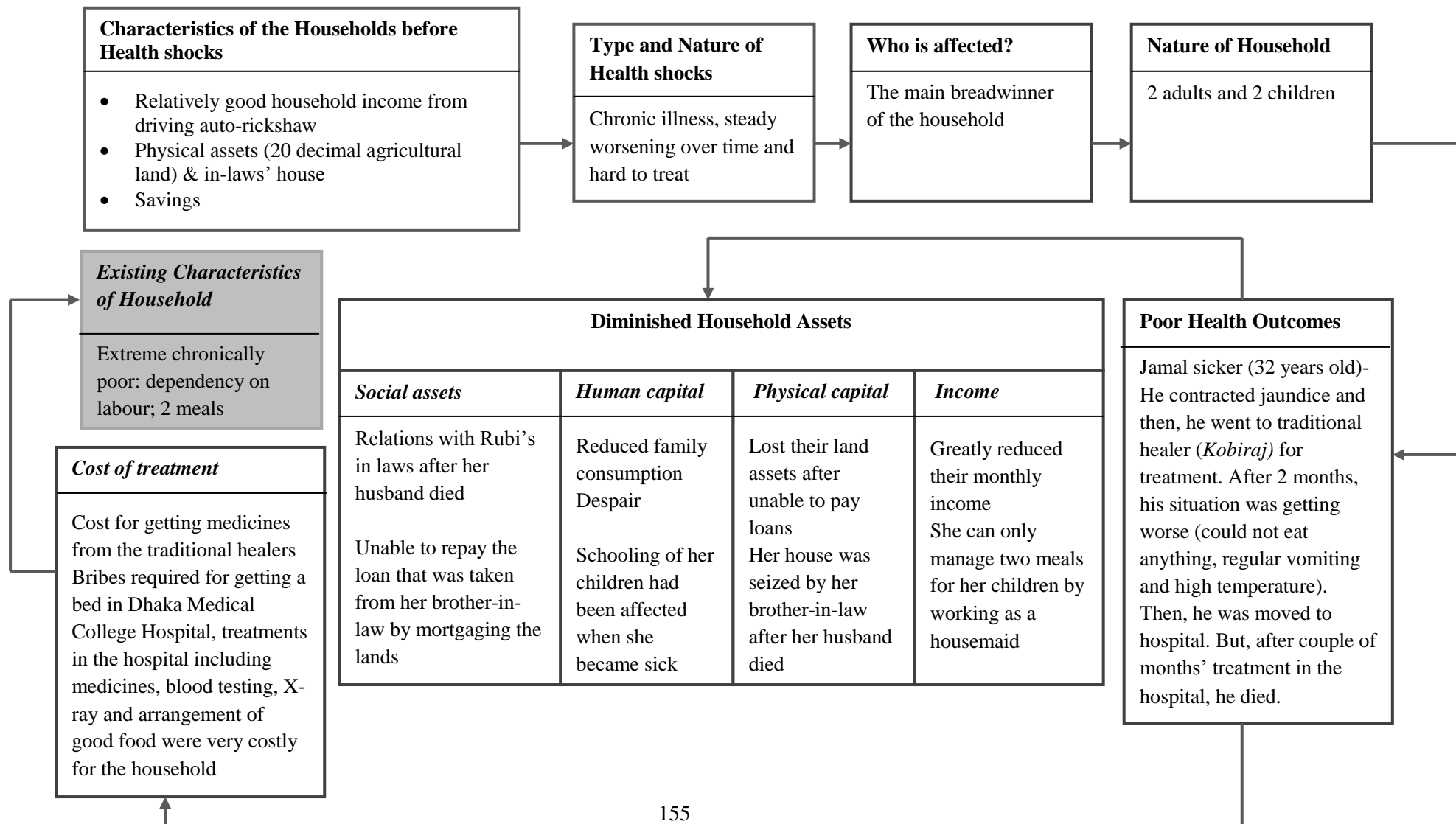
“I came to Dhaka permanently 7 years ago after my husband’s death. My husband was an auto-rickshaw driver and was working in Mymensingh city; and thus we had a reasonably secure income and an asset base (such as agricultural land of 20 decimals and the in-laws’ house)..... In 2005, my husband contracted jaundice and.....we went to traditional healers for the treatment. But, the situation had not improved..... At this time, we did not have any income..... Then, my brotheradvised me to bring my husband to Dhaka..... Then, I mortgaged our agricultural land to my brother-in-law and took BDT 50, 000 (£450).....In Dhaka, we tried to admit my husband into Dhaka Medical College Hospital, but it was difficult for us..... We had to stay for 7 days in the hospital corridors..... After giving money to hospital staffs, we got a bed.....After a month, the doctor said that my husband had liver cancer and he had the least chance of survival. For my husband’s treatment such as medical tests, medicines and food, we lost all of the money..... After 3 or 4 months, my husband died and after his death, his brother refused to give the land back and also threw me out from my in-laws’ house. It was difficult for me to get justice from the local council because my brother-in-law had good relations with a local member. Then, I moved to Dhaka with my two children; at the beginning my brother allowed me to live in his house; but later they were exhausted and told me to leave..... For having two small children it was difficult for me to get an employment..... One restaurant owner showed his sympathy and gave me a job as a cook in his restaurant where the owner allowed me to work with my small children. When I became sick, my children have to go for work without going to school” (Personal Interview with Rubi, age 35 years, has been living in Kamrangirchar for last 7 years; interviewed on 17/04/2012).

The life history of Rubi (shown in Figure 5.9 below) reveals how rapidly household asset portfolios change over time. The household had quickly moved into vulnerability through internal changes linked to their life cycle as well as in response to external economic, social and political factors. While the illness of Rubi’s husband is chronic

and costly to treat (expensive drugs, significant hospitalisation or recurrent treatment), the direct and indirect costs cause an irrecoverable drain on her household income and assets; as a result, the household became destitute. As explained in Chapter two, when the household fall into deep poverty, they are in a position where they are faced with an adverse structural context, including social exclusion, discrimination and exploitation. The above example confirms this theoretical notion about extreme poverty. As shown in Figure 5.9, with the erosion of assets the household descends into an adverse vulnerable situation (lack of income and assets) through which they also experience exclusion from accessing her productive assets which undermines the household's ability to produce at least some food each year. In addition, the exclusion from the in-laws' household make the family homeless. The analysis of this life-history also reveals small children are a burden because the woman (Rubi) has to play a dual role of income generation as well as taking care of her children simultaneously; thus, this results in a decreased ability to participate in the labour market. Her agency (in the above example) had severely been constrained by a host of structural factors but she is now seeking out ways of improving their position (forming a new network) – she is down but refuses to be out (CPRC, 2004).

This research also found a significant portion of women headed households comprising of widowed, divorced or abandoned women have small kids with them both in Karail and Kamrangirchar. The analysis of divorced or abandoned women headed households found a number of reasons that cause separation and abandonment including the polygamous behaviour of male heads, inability to pay a dowry, physical and mental torture, and male heads' addiction to drugs. It also reflects situations of impoverishment and destitution because women heads are not in a position to mobilise additional labour and are often more distant from the support of extended families. The life-history analysis of women headed households reveals that poor women's relationships to those nearest to them in blood, marriage, and residence were therefore characterised by unequal exchange (Cleaver, 2005). Help secured was minimal, intermittent, and obtained through constant and costly reinvestments in uneven exchanges (as explained in an above example of Rubi). The social choices available to people in these circumstances severely limited their access to income and also asset building capabilities and this adverse situation resulted in further contraction of their social network (ibid.).

Figure 5.9: Descent into Extreme Chronic Poverty – Health Shocks and Rising Vulnerability within a Household in the Context of Dhaka city



5.3 Climate Change in the context of Dhaka City

Climate change can affect the variability, frequency and magnitude of climatic events (such as floods, cyclones). It will affect Dhaka primarily in two ways: through floods or drainage congestion and through heat stress (Alam and Rabbani, 2007 & UN-HABITAT, 2008). The melting of glaciers and snow in the Himalayas and increasing rainfall will lead to more frequent flooding in Bangladesh (ibid.). The waterlogging and drainage congestion due to river floods and excessive rainfall during the monsoon are already causing very serious damage. Furthermore, Dhaka also faces ‘heat island’ problems because temperatures in the city are a few degrees higher than in the surrounding areas (Alam and Rabbani, 2007). The recent study by Islam and Neelim (2010) revealed that the maximum temperatures for winter and summer months are higher by about 2 degrees Celsius in Dhaka city than the surrounding countryside. Consequently, extreme heat events are predicted to become more frequent, intense and longer lasting over Dhaka city. In order to investigate future climate change, it is of primary importance to first identify the characteristics and trends of climate change in the past.

5.3.1 Temperature Variability

Table 5.1 shows the year-to-year variability of temperature⁵⁷ during 1980–2008 for the annual, pre-monsoon season, monsoon season, post-monsoon season and winter season⁵⁸. Long-term average annual temperatures are 25.81 °C, with averages for the pre-monsoon season, monsoon season, post-monsoon season and winter season being 27.79, 28.74, 25.63, and 20.03 °C, respectively. Maximum temperatures are 26.5, 28.9, 29.3, 26.8, and 21.6 °C for the annual, pre-monsoon season, monsoon season, post monsoon season and winter season. Minimum temperatures are 25.2, 26.5, 28.2, 24.7, and 18.4 °C for the annual, pre-monsoon season, monsoon season, post-monsoon season and winter season.

⁵⁷The surface meteorological data used to explore temperature variability were provided by the Bangladesh Meteorological Department (BMD, cited in Yamane et al., 2014).

⁵⁸ In Bangladesh there are four prominent seasons, namely, winter (December to February), Pre-monsoon (March to May), Monsoon (June to early-October), Post-monsoon (late-October to November). Various meteorological disturbances occur in Bangladesh throughout the year; for example, while the heavy rainfall in the monsoon season is conducive for agriculture, it can also cause severe flood damage. Before and after the rainy season, cyclones strike Bangladesh and often cause devastation. In the pre-monsoon season, thunderstorms frequently occur and the accompanying lightning, hail and tornadoes cause extensive damage. Cold snaps and fog cause damage in the winter season. In a summer, Bangladesh is a meteorological disaster prone country (Yamane et al., 2014).

Table 5.1: Annual and Seasonal Temperature Variations from 1980 to 2008

Year	Annual	Pre-Monsoon	Monsoon	Post-Monsoon	Winter
1980	25.7	27.8	28.5	25.2	20.0
1981	a	a	28.8	26.0	18.4
1982	25.4	27.3	28.4	24.7	20.0
1983	25.2	26.9	28.7	24.9	19.0
1984	25.6	27.9	28.2	25.9	19.7
1985	26.0	28.0	28.5	25.7	20.9
1986	25.9	27.7	28.7	25.3	20.7
1987	a	28.0	a	26.3	20.8
1988	26.3	27.9	29.0	26.1	21.2
1989	25.9	28.6	29.0	25.7	19.4
1990	25.7	26.5	28.8	26.0	20.8
1991	25.8	27.7	28.6	25.3	20.5
1992	25.8	28.4	28.9	25.5	19.2
1993	25.4	26.6	28.5	25.4	20.0
1994	25.8	27.7	29.1	25.5	19.5
1995	25.9	28.7	28.9	25.8	19.3
1996	25.7	28.3	28.5	25.0	19.9
1997	25.4	27.2	28.7	25.3	19.1
1998	25.9	27.0	29.3	26.8	19.7
1999	26.3	28.9	28.6	25.7	21.0
2000	25.7	27.1	29.0	26.0	19.9
2001	25.9	27.8	28.7	26.1	20.7
2002	25.8	27.2	28.6	25.7	19.6
2003	25.8	27.6	28.9	25.9	20.2
2004	25.9	28.5	28.5	25.1	21.1
2005	26.2	28.2	29.1	25.4	21.6
2006	26.5	28.4	29.0	26.1	20.0
2007	25.7	27.9	28.7	25.5	19.7
2008	25.9	28.4	28.7	25.4	a
Average	25.81	27.79	28.74	25.63	20.06
Maximum	26.5	28.9	29.3	26.8	21.6
Minimum	25.2	26.5	28.2	24.7	18.4

Source: Analysed from Yamane et al. (2014)

*a= No data

The study by Yamane et al. (2014) reveals that the annual temperature in Dhaka city has an increasing trend. They also finds that the increasing trend is statistically significant at the 99 % level. The rate of increase based on the linear trend line is 1.9 °C per 100 years (ibid.). This value is about twice as large as the growth in surface temperature averaged across the globe (0.7 °C per 100 years) reported in the Fourth Assessment Report by the Intergovernmental Panel on Climate Change (IPCC) report (IPCC, 2007).

5.3.2 High Precipitations and Flooding in Dhaka City

Flooding is a common hazard in the cities of Bangladesh (Rashid, 2000). Dhaka has been facing severe floods since its early days and its vulnerability to severe floods is mainly the result of spillover from surrounding rivers that flow to and from the major rivers of the country, as well as internal waterlogging (Alam and Rabbani, 2007). Contemporary flood history revealed that the lowlands of Dhaka have been regularly inundated during monsoons since 1954; however, in many instances, the flood situation depends on the amount of precipitation and flows from the upstream points (Nishat et al., 2000). Disastrous floods in 1987 and 1988 inundated areas of 164 and 200 km², respectively (Dewan, 2013). In total, the 1988 flood affected 4.55 million people (Hye, 2000), and most of Dhaka was under water to various depths for more than 8 weeks (Jahan, 2000). The unprecedented flood of 1998 also severely affected Dhaka and its neighbouring areas, which resulted in unusual damage and myriad sufferings to the people (Dewan, 2013).

The main reason for the 1998 flood was excessive rainfall over the catchment area of the Ganges–Brahmaputra–Meghna river basin (Alam and Rabbani, 2007). Table 5.2 shows the year-to-year variability of rainfall during 1980–2008 for the annual, pre-monsoon season, monsoon season, post-monsoon season and winter season. Average rainfall for these seasons is 2,158, 516.2, 1,378, 223 and 39 millimetres (mm), respectively. Rainfall data for Dhaka city shows the annual average rainfall is about 2,158 millimetres, of which about 50 percent falls during the months of June, July and August, generally referred to as the monsoon season. Average rainfall during the winter months is negligible, less than 2 percent of annual rainfall. Maximum rainfall for the annual, pre-monsoon season, monsoon season, post-monsoon season and winter season is 3,028, 869, 2,120, 431, and 154 mm, with minimum rainfall being 1169, 178, 834, 40, and 0 mm for the same periods.

Table 5.2: Annual and Seasonal Rainfall Variations (millimetres) from 1980 to 2008

Year	Annual	Pre-Monsoon	Monsoon	Post-Monsoon	Winter
1980	2,218	615	1,268	300	52
1981	1,865	655	1,032	91	50
1982	1,805	339	1,254	197	75
1983	2,388	804	1,238	253	32
1984	3,028	836	2,120	58	9
1985	2,053	671	1,284	79	32
1986	2,500	461	1,605	409	7
1987	2,187	372	1,667	111	77
1988	2,482	869	1,200	366	35
1989	1,627	313	1,030	240	48
1990	2,103	507	1,270	284	41
1991	2,850	628	1,675	406	154
1992	1,169	178	858	85	52
1993	2,819	757	1,774	236	67
1994	1,540	570	834	69	39
1995	1,751	352	1,156	203	22
1996	2,044	461	1,205	357	9
1997	1,921	420	1,430	40	75
1998	2,312	666	1,410	183	0
1999	2,374	449	1,544	381	57
2000	2,121	832	960	272	1
2001	1,684	481	1,007	195	26
2002	1,875	434	1,247	168	25
2003	1,693	359	1,130	134	45
2004	2,347	338	1,801	208	4
2005	2,637	537	1,676	420	0
2006	1,919	366	1,487	66	30
2007	2,885	359	2,065	431	79
2008	2,385	341	1,738	227	a
Average	2,158	516.21	1,378	223.06	39
Maximum	3,028	869	2,120	431	154
Minimum	1,169	178	834	40	0

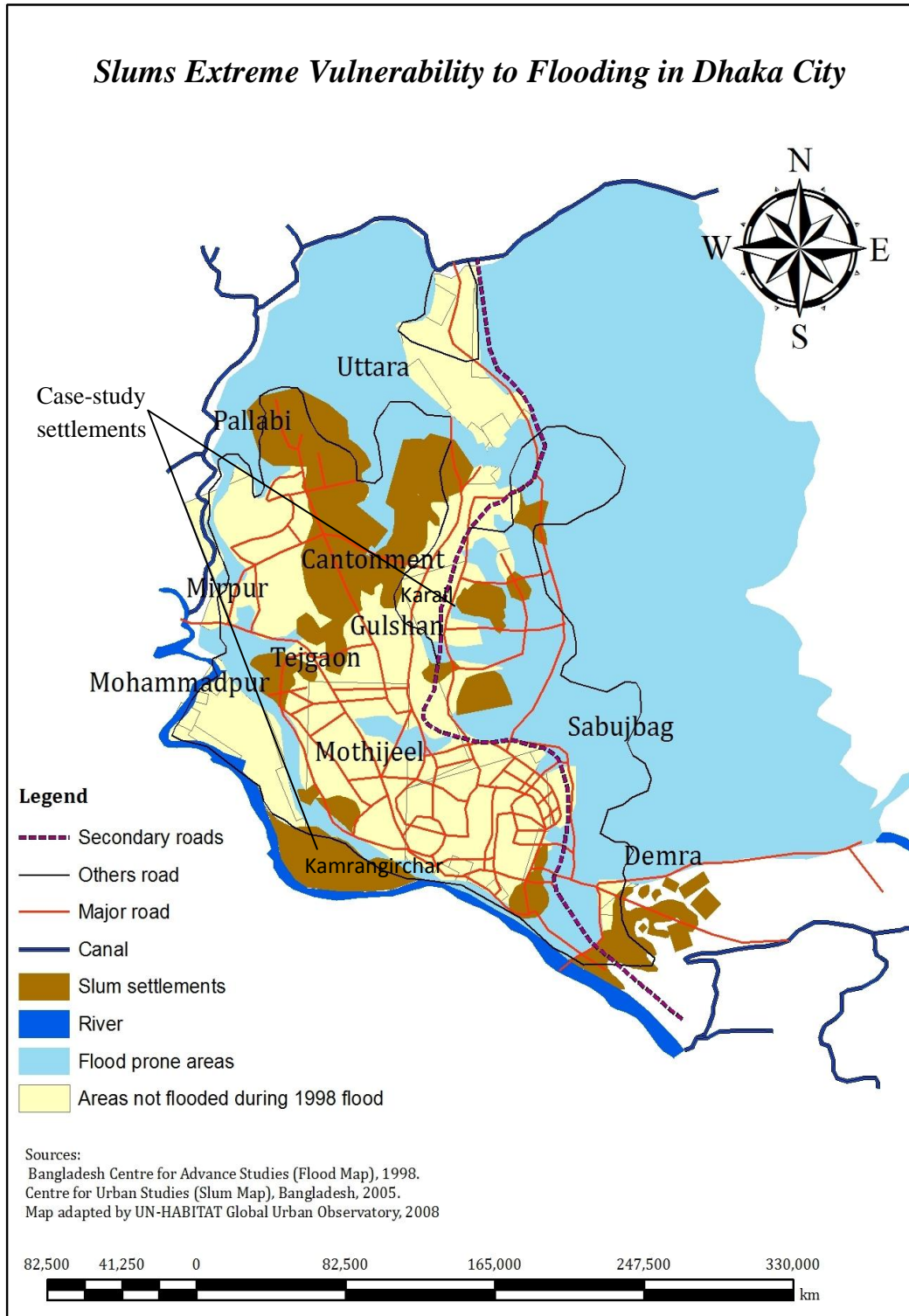
Source: Analysed from Yamane et al. (2014)

*a= No data

Alam and Rabbani (2007, p. 86) also note that three different flood waves passed through this river basin and the last one coincided with peak flows in the Ganges and the Brahmaputra. In addition, the impact of the lunar cycle, and the resulting high tide, was responsible for the slow recession of the floodwaters (ibid. p. 86). These factors resulted in prolonged flooding in both the country and the city for two months. According to the available literature, 100 percent area of eastern Dhaka was affected by flooding in both 1988 and 1998, whilst western Dhaka was 75 percent affected in 1988 which decreased to 23 percent in 1998 due to the Dhaka Integrated Flood Protection Project (DIFPP) (Nishat et al., 2000). Map 5.1 indicates the extent of the 1998 flooding in Dhaka city and also shows the slums flooded in 1998.

Dhaka was again flooded in 2004 and 2007; whilst, the magnitude was not as destructive as the 1998 flood. Intense rainfall during September 2004 (e.g., 341 mm in 48 hours) made the flood situation particularly worse (Dewan, 2013). Even though the embankment acted as a buffer to save lives and property in the 2004 and 2007 floods, water logging were seriously pronounced, particularly in the embanked part, which resulted in a number of environmental problems, including scarcity of drinking water, disruptions to economic activities, and the prevalence of water-borne diseases (Alam and Rabbani, 2007 & Dewan, 2013). The latest catastrophic riverine flood occurred in 2007 and had huge impacts on Dhaka East (Haque et al., 2012). Many people were reported sick due to drinking contaminated water. Most of Dhaka East was inundated and contaminated water went into the drinking water supply pipeline due to the poor conditions of the pipelines (Islam et al., 2008). This resulted in increased water borne diseases in Dhaka East. In 2007 over 90,000 people in Dhaka city were affected by diarrhoea in one week during flooding (ibid.). Researchers studying the impacts of climate change on Dhaka city predict that the city trends are for more devastating floods in the near future (UN-HABITAT, 2008). In addition to these catastrophic floods, waterlogging due to continuous rainfall is a near regular occurrence in the rainy season in the eastern part of the city (Alam and Rabbani, 2007). It can be argued that the extreme poor households and groups will be the worst victims of meteorological disasters. When extreme weather events interact with the adverse vulnerable situation of extreme poor households and groups, they will become externally defenceless as well as internally defenceless, thus, these extreme events will result in various consequences such as health shocks, malnutrition, displacements and etc.

Map 5.1: Extent of 1998 flooding in Dhaka city



Source: Reproduced from (BCAS, 2005)

5.4 The Main Drivers of Vulnerability to Climate Change in Dhaka City

This section explains the main drivers of vulnerability to climate change for the urban extreme poor living in the informal settlements of Dhaka city. As explained in the analytical framework (Chapter four), vulnerability represents the adverse conditions shaped by the external (geographical, environmental and physical) and the internal (social, economic, political and legal) factors and processes, which increase the susceptibility of the households' and the communities' assets to damage. Considering this, table 5.3 highlights the physical, socio-economic and politico-legal domains and shows the type of vulnerability by exposure and outcome for each of these domains. The analysis of the research data reveals that increased heat and rainfall are the two changes that the urban extreme poor in Dhaka city perceive to be the greatest risk to their livelihoods, leading to flood damage to homes and infrastructure, water-clogging, water-borne diseases, erosion of household assets, lost working days and increased health expenditures. The combination of minimal financial resources, poor quality of housing combined with lack of infrastructures and basic services, formal political exclusion and illegality of the slum, and a substantial public health burden create adverse conditions in which the extreme poor people have extremely limited abilities to cope with shocks and stresses. Thus climate change impacts are likely to affect the poorest households disproportionately, but these are not necessarily distributed evenly in the case study settlements. Some vulnerabilities within socio-economic domains such as constrained livelihood diversification, gender related vulnerabilities, increased food prices are universal for both of the case study settlements, while vulnerabilities within physical and politico-legal domains, are more localised, with physical, tenure-related, socio-political and legal factors making them more significant in one settlement than other.

The urban extreme poor households have higher levels of physical vulnerability in Kamrangirchar than that of Karail. The extreme poor of low income settlements in Kamrangirchar are marked by high levels of physical vulnerability, mainly as a consequence of the political exclusion (i.e. the area is outside of Dhaka City Corporation and hence, most of the public basic service delivering organisations do not provide any services to this area; in addition to this, the coverage of NGOs services is limited in extent because they have a bias of working in a big slum and squatter settlements). Although the extreme poor households in Karail are more concerned about

their politico-legal vulnerabilities, but they have some resilience mechanisms through which they can minimise the threat of evictions.

Table 5.3: Key vulnerabilities of Dhaka’s Extreme Poor to Impacts of Climate Change

Domains	Type	Exposure	Outcome
Physical	Proximity to waterbodies	Poor water quality	Waterborne diseases
	Lower elevation and poor drainage	Risk of flooding and waterlogging	Damaged housing, roads & ill health
	Poor water supply, sanitation and dirty environment	Water crisis, Raw sewage spillage, insects and pests	Increased stresses for women, health risks, Increased expenditure
	Poor quality of housing	Heat and cold stress, rain penetration indoors,	Discomfort, sleeplessness and ill-health
	High population density, narrow lanes and highly concentrated land uses	Close contact with disease vectors and Risk of fire incidents	Rapid spread of vector borne diseases and asset depletion
Socio-economic	Constrained livelihood diversification	Dependence on labour	Seasonal effects on income and financial hardship
	Gender related vulnerabilities	Increased work stresses, insecurity, discrimination and exploitation	Health related problems, physical and sexual harassment, abandonment by husband and loss of income
	Environment migrants	Structural obstacles to entry of labour market, exploitation	Social connections lost, rootless, low income and food insecurity
	Weather sensitivity of casual labour market	Loss of working days, Increases to health vulnerabilities	Low income and indebtedness
	Upward rising of food prices	Food insecurity	High level of food and non-food consumption loss
Politico-legal	Tenure insecurity	Evictions and market-driven displacement	Loss of assets, social conception
	Lack of socio-political platform	Exclusion from accessing services and infrastructures	Limited citizenship

Source: Author’s field survey (2012) and also from Roy et al. (2012a, 2012b & 2013).

5.4.1 Geographical and Bio-physical Drivers of Vulnerability

High levels of physical vulnerability are evident in both low-income settlements (Karail and Kamrangirchar) of Dhaka city, but these vary in nature and extent, both within and across settlements. The physical and locational characteristics of these low income settlements susceptible to increasing climate change vulnerability include the proximity to water bodies, houses built on low-lying ground and poor drainage, poor water supply and sanitation, high density, narrow lanes and inadequate circulation spaces and the use of temporary building materials for housing. Thus this research identifies five forms of physical vulnerability as particularly significant in Kamrangirchar. Within Karail, the extent of physical vulnerability varies according to the location of residence; the households who live on higher ground have lower levels of physical vulnerabilities than the households who live close to the canal.

Close proximity to Water Bodies

The entire Dhaka city is close to the river deltas, and this increases the risk of frequent flooding during the monsoon season. The physical formation of the urban slums reflects that a large number of the slums in Dhaka city are developed at the edge of the rivers, canals and also over the ponds. The informal settlements in Karail started to develop on the vacant higher ground at the beginning, but later the house owners expanded the settlements by encroaching on the highly vulnerable water edges. The eastern and southern edge of the area is defined by the *Gulshan*-lake, a main water reservoir for the adjoining areas. The slum area has a lower relative elevation⁵⁹ compared to the surrounding area, which increases the risk of inundation and waterlogging. Household interviews reveal that the Karail landlords live on higher ground while building their rental units on lower-lying land. As a result, tenants who are mostly extremely poor experience different health related problems. In Kamrangirchar, rows of houses, or ‘hanging shelters’, are built on stilts over canals and water bodies with no infrastructural facilities at all (Figure 5.10). The water bodies in both in Karail and Kamrangirchar have become highly polluted with drain water, solid waste and excreta. Hot and humid conditions make the water a breeding place for mosquitoes (e.g. *Anopheles philippinensis*, which carries malaria parasites and other disease vectors (e.g.

⁵⁹ The spot height of the Gulshan Banani Lake is recorded as more than 3.60 meters below the Mean Sea Level (MSL). The slum area lies 1 meter above the MSL (RAJUK, 2010b).

Phlebotomus argentipes, which carries the leishmaniasis virus), exposing residents to a high risk of infection (Elahi et al., 2010 & Roy et al., 2013).

Figure 5.10: Hanging Shelters in Kamrangirchar



Source: Author's Field survey (2012)

Lower Elevations Compared to the Surrounding Areas and Poor Drainage

The peripheral settlements of Dhaka city have lower relative elevation compared to the inner city area, which increases the risk of inundation and waterlogging. During serious flooding, even the highest road goes under 2/3 feet of water (RAJUK, 2010a). The area falls just outside the Dhaka flood embankment and floodwall and is therefore exposed to regular flooding. Inadequate and improper drainage systems compound the problem, resulting in frequent and prolonged waterlogging incidents. If the logged water is polluted, which is invariably the case, the spread of waterborne disease could affect people's recovery process. A male respondent from Kamrangirchar reported "*whenever there is heavy rain, we get waterlogging. Last year (2011) in July we had two days of non-stop rainfall, resulting in inundation in our area. The drain water mix with rainwater and came up to the corridor of my house. The rainwater did not stay for long, but it damaged the floor and generated nuisance and bad smell and we could not go out. My children became sick by contacting the dirty water*" (Personal interview, interviewed on 05/04/2012).

The waterlogging situation of Kamrangirchar becomes severe while abnormal floodwater increases through monsoon rain. The area seriously affected by the recent major floods of 1998, 2004 and 2007 when all of the houses in the slums of Kamrangirchar were totally destroyed. During these floods the slums became unsuitable for habitation and poor people living in this area had to take shelter in schools, community centres, railway stations, embankments and so on (An old resident & landlord in Kamrangirchar, interviewed 12/03/2012). However, interviews with the respondents who faced either the 1998 or 2004 floods or both of them reveals an important concern that was the high incidence of theft occurring when families left their belongings and sought temporary shelter elsewhere. Due to fear of losing household belongings, many poor households were often reluctant to take shelter in relief camps; and thus, they stayed on the roofs of their houses or took shelter at nearby roads where they could watch their houses. One woman narrated, *“when we went for shelter, our fans and other items such as clothing and utensils were all stolen. Even the tin roofs of our houses were stolen”* (Personal interview, interviewed on 03/04/2012). As relief activities were mostly organised in the camps, they remained outside of the reach of the public relief initiatives (ibid.). The slum dwellers were unable to return to their houses immediately after these flood events due to the damage caused to their houses. To make it worse, these poor people had to reconstruct their houses with the only resources and materials available to them. They did not receive any support from urban authorities to rebuild their homes (A landlord in Kamrangirchar, interviewed on 12/03/2012).

A large number of housing clusters in the Karail slum have been established on higher ground and the slum is within the Dhaka Integrated Flood Protection Embankment, which together protect the slum population in Karail from major floods. Although Karail has a relatively higher land elevation compared to the Kamrangirchar area, inadequate drainage facilities within the slum and poorly maintained existing drainage systems and the deposit of solid waste directly into drains (as shown in Figure 5.11) by residents compound flooding risks, resulting in frequent and prolonged waterlogging in some parts of the slum (as shown in Figure 5.12).

Figure 5.11: Poor Maintenance of Existing Drainage System in Karail slum



Source: Author's field survey (2012)

Figure 5.12: Waterlogging in the Karail Slum at the Pre-Monsoon



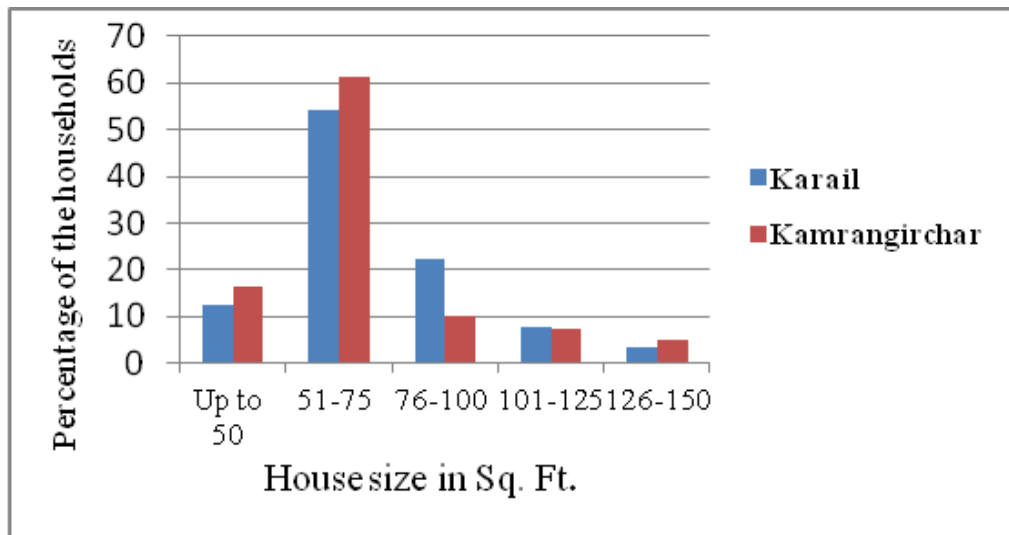
Source: Author's field survey (2012)

High Population Density, Narrow lanes and Highly Concentrated Land Uses

The high density, narrow lanes and highly concentrated land uses in the inner city slums (e.g. Karail) and the peripheral settlements of Dhaka city (e.g. Kamrangirchar) increases the physical vulnerability of the slum dwellers. The average population density in these slums (220,246 persons per square kilometre) is at least 7 times higher than that of the city overall (29,857 persons per square kilometre) (Hossain, 2012). According to the Slum Census, 2005 of Dhaka city, four fifths of the households (of 4-6 members each) of these settlements live in small rooms of less than 10 square metre (CUS et al., 2006). In the case study settlements, most of the extreme poor households live in a small room and Figure 5.13 reveals that almost 90 percent of the houses are less than 100 square feet. There is no significant difference in room sizes between the two settlements. The high demand for housing in these slums, combined with the landlords profit seeking attitude result in structural density precluding any possibility to offset the accumulated heat (A civil society actor from the Centre for Urban Studies (CUS), interviewed on 10/04/2012). In the case of Karail, passageways that open to the surrounding water bodies, which used to serve as natural cooling elements, have been blocked by new structures built on stilts or on land extensions from packaged waste. Open space in both the settlements formerly available for socialisation and children's play has been lost to more housing; and vegetation is sparse for the same reasons. Thus, haphazard layouts with minimal open space and vegetation in the case study settlements increase exposure to extreme and severe weather conditions. This also results in very narrow lanes and highly concentrated land uses (as shown in Figure 5.14) unsuitable for emergency evacuation and rescue operations.

Both in Karail and Kamrangirchar this is a concern because of a history of fire explosions. A recent survey by the Dushtha Shasthya Kendra (DSK, 2012a) reveals that 7 fire explosions occurred in the Karail and Kamrangirchar slum settlements during 2009 to 2012. During these fire explosions, a total 553 slum households were directly affected (as shown in Figure 5.15). The Chronic Poverty Report 2004/05 reports that the decline of many slum dwellers' into extreme chronic poverty in Dhaka, Delhi and Cape Town was initiated by a house fire (CPRC, 2004). It gives a range of similar reasons why a small fire can become a shock from which recovery is impossible including poor housing; narrow streets; highly concentrated land uses; limited access to water supply; asset depletion; and inadequate support from formal and informal institutions (ibid.).

Figure 5.13: Room Size of the Extreme poor in the Case study settlements



Source: Analysed from UPPR database (2009) and from DSK-Shiree Project database (2009)

Figure 5.14: Highly Concentrated Land Uses in the Karail Slum



Source: Ahmed (2007)

Figure 5.15: A Fire Incident in the Slum of Kamrangirchar



Source: DSK (2012b)

Poor Quality of Housing

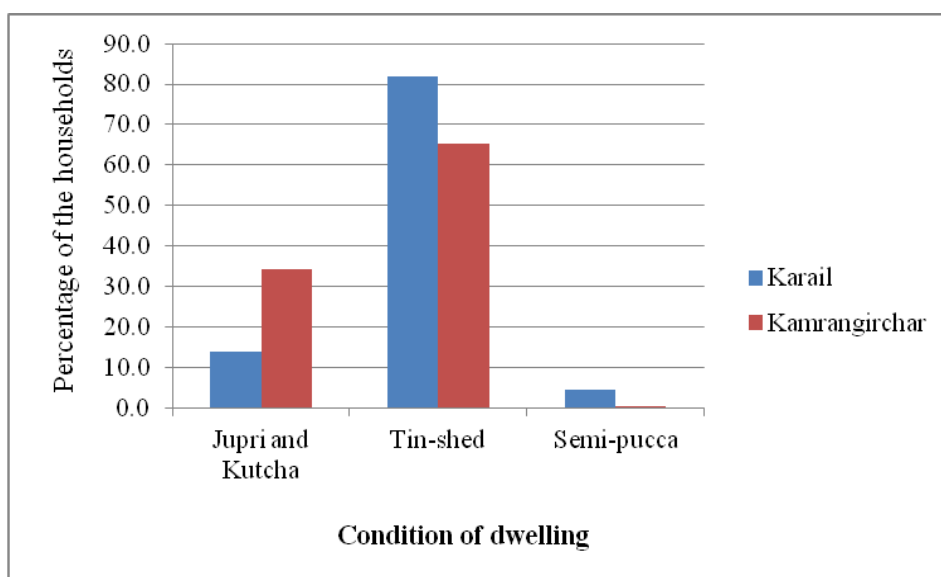
Most of the houses in Karail and Kamrangirchar are temporary in nature. A variety of materials are used for walls, floors, and roofs, such as bamboo sticks, woven bamboo, corrugated iron (CI) sheet, thatch, plastic, hard paper, etc. Therefore, most of the urban extreme poor live in temporary habitats especially *jupri or kutcha*⁶⁰ and tin-shed housing. Only a few of them live in semi-pucca houses with permanent walls. In the household survey, it was revealed that the CI sheet is the most common building material in both settlements. In Karail, nearly 82 percent of the dwelling units are made of CI sheets using it as the wall and roof material, whereas nearly 66 percent of total extreme poor households in Kamrangirchar live in households that are made of CI sheets (Figure 5.16). In Kamrangirchar, 34.2 percent households live in *jupri or kutcha* houses, which are made of grass, bamboo, straw, polythene and clay tiles; this figure (13.8 percent) is relatively lower in Karail in comparison to Kamrangirchar.

The housing condition of the extreme poor households is structurally very meagre and physically constricting. The use of bricks is limited to plinths and walls in the housing of the extreme poor households, and only found in some non-poor households in the

⁶⁰Jupri or Kutcha (both are synonymous Bengali words) is temporary in nature, construction materials may be various temporary materials such as grass/leaves/polythene etc, mud and bamboo (splinters).

case study settlements. As a result, dwellings in both Karail and Kamrangirchar have low resistance to storms and winds, poor insulation against heat or cold and are often not rainproof. The materials deteriorate fast, affecting the quality of the living environment when the abnormal floodwater increases through the monsoon rain (Interviews with old migrants in Karail and Kamrangirchar, 2012). They also reveal that children and elderly within their households were found to be increasingly suffering from respiratory infections, skin diseases and diarrhoea. In addition to this, the respondents also complained about developing sores on their feet and various skin diseases from walking in the filthy water. Thus, strong winds, heavy rainfall, hot summers and cold winters – all cause great concern for the extreme poor households. In summer a related problem is that poor people cannot store food, even for a few hours. Some of the female respondents reveal that as they only cook once a day, sometimes they eat semi rotten food, often resulting in gastro-intestinal problems and other related illness. The respondents from Kamrangirchar also complained about the cool air, day long foggy weather and low temperature of the December month in 2009 that created huge negative impact on their health and daily income. Due to cold weather combined with their inability to buy warmer clothes, they had to stay home without going to work or worked little which affected their regular income. The respondents in the interviews also complained of fevers and high temperature.

Figure 5.16: Condition of Dwelling in the Case Study Settlements



Source: Analysed from UPPR database (2009) and from DSK-Shiree Project database (2009)

Poor Water Supply and Sanitation and Dirty Environment

Due to the fact that the Karail squatter settlement has developed through encroaching on government land and is therefore 'illegal' to the formal institutional actors, its inhabitants cannot access water directly from the public water authority, the Dhaka Water Supply and Sewerage Authority (DWASA). Local leaders (*mastanns*) are involved in the illegal tapping of water from the DWASA main line with the help of corrupt government officials. As a result, most of the extreme poor households have access to a water supply in their housing compounds, some of which have a storage facility. The remaining households either store water in pots or other available containers, or carry water from water vending points to meet their additional daily water needs (Both male and female respondents in Karail, 2012). Whilst the water supply service is illegal, and there always exists a fear of losing the service, house owners are reluctant to invest in the maintenance of reservoirs and the improvement of pipeline networks (as shown in Figure 5.17). Thus, the maintenance of reservoirs and the pipeline network is poor which increases the threats to public health due to the use of contaminated water. In contrast, water demand in the slums of Kamrangirchar area is met through hand operated tubewells. Hand operated tube-wells are the only water source for drinking and all domestic purposes in the informal settlements of Kamrangirchar area. The service is very limited and access to water for the slum dwellers involves fetching water from considerable distances and waiting for a long time in queues (Male and female respondents in Kamrangirchar, 2012). Quite clearly the access of the extremely poor to the water supply is inadequate and insufficient in Kamrangirchar. As a result, the poor households in this area mostly use a number of public places for bathing and washing.

The water supply services of Dhaka city are already heavily impacted by extreme and severe weather conditions. The water supply is heavily dependent on groundwater extraction where more than 87 percent of the supplied water is being extracted from this source (Unnayan Onneshan, 2011). Such extensive dependency enhances a very high depletion rate⁶¹ of the groundwater table. Water becomes inadequate in the summer when higher temperatures and reduced precipitation are expected to cause shortages due

⁶¹ The study by Unnayan Onneshan (2011) found that Dhaka city has been experiencing a sharp decline in the groundwater table resulting in levels more than 20 meters lower during the last seven years at a rate of 2.81 meter per year (m/y).

to the slower replenishment rates of groundwater aquifers (Baker, 2012). If the temperature becomes extreme, the electricity disruption reaches its peak. This exacerbates the problems of the urban poor in the access to drinking water. In Karail, as the water supply is reliant on the electric pump, restoration of water in the reservation is interrupted frequently. In the peripheral settlement, the households have to stay in a long queue in order to collect safe drinking water during the summer time. As a result, other household activities are also disrupted (Female respondents in Kamrangirchar, 2012).

Figure 5.17: Water Supply Pipeline Network in Karail Squatter Settlement



Source: Author's field survey (2012)

The situation for sanitation is even worse in the case study settlements of Dhaka city. The extreme poor households in both Karail and Kamrangirchar depend on an inadequate number of poorly constructed community latrines. In Karail, each housing compound has one or two pit/slab latrines and one bathroom, which are shared by 8-10 households (i.e. one latrine for 30-40 people). In some housing compounds, this number is much higher (i.e. one latrine for 50-60 people) (Male and female respondents in Karail, 2012). Thus, the maintenance of these latrines is poor. Since the waiting times for sanitary latrines in some housing compounds are long, landlords have constructed 'hanging latrines' for tenants who are mostly extreme poor households over the lake.

Excessive use of community latrines results in overflow from septic tanks going into the lake, further polluting the water. The situation of the community latrines in Kamrangirchar is even worse, as many residents depend on the ‘hanging latrines’ over the ponds or canals which pollute the water - a major source of health related problems. The latrines in some housing clusters of Kamrangirchar are of very poor quality construction and the regular sewage overflow makes exposure to raw sewage a constant problem. The health risks of extreme poor households in Kamrangirchar are exacerbated by a dirty environment within the slum settlement. Kamrangirchar was used as dumping ground for the city and later the slums were developed over the dumping ground. As a result, the living environment within the housing clusters increases the risk of health hazards (as shown in Figure 5.18).

Figure 5.18: Unhealthy Living Conditions in Kamrangirchar



Source: EPRG (2012)

5.4.2 Socio-Economic Components of Vulnerability

The survey data clearly demonstrate the individual and household characteristics that limit the capacity of the urban extreme poor residents in the case study settlements to deal with shocks and stresses, including those arising as a consequence of climate variability and change. Like hazard-prone physical environments, a range of socio-economic drivers contribute to climate variability and change. The research found five socioeconomic components of vulnerability as particularly significant both in Karail

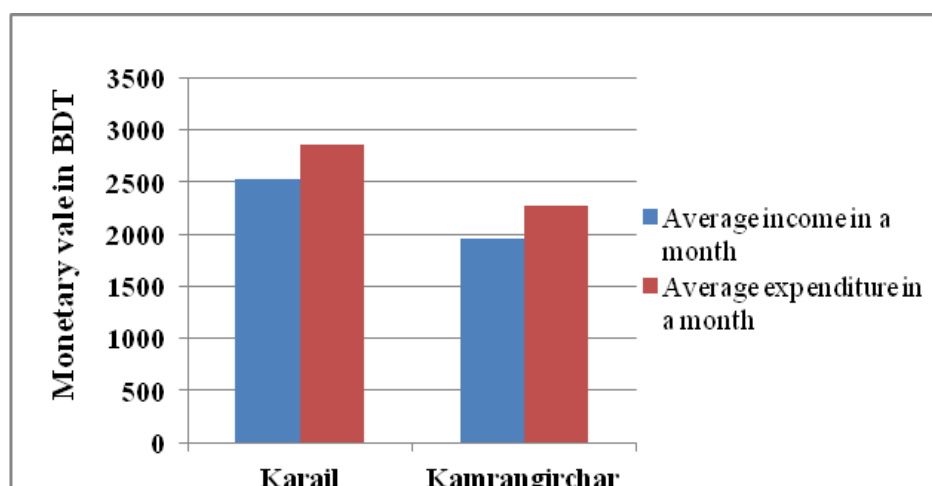
and Kamrangirchar. They are: the constrained livelihood diversification, gender related vulnerabilities, climate induced displacements, the weather sensitivity of the labour market and the increasing price of daily necessities. Socio-economic components of vulnerability come from low level asset holdings and also from exclusion from assets and services, such as financial services, to diversify livelihoods.

Constrained Livelihood Diversification

Livelihood diversification through self-employment is considered as one of the major adaptation strategies to cope with increased levels of socio-economic vulnerabilities. However, the opportunity is virtually absent for the extreme poor households in the case study settlements. Their income does not allow them to make savings and invest in a productive sector. Figure 5.20 reveals that the extremely poor households in the case study settlements (Karail and Kamrangirchar) appear to be living beyond their means; their regular monthly incomes – in cash and kind, are lower than their expenditures with an overall deficit of 332.18 BDT (£2.7) in Karail (average income and expenditure are 2530.9 and 2863.1 respectively) and 320.04 (£2.6) BDT in Kamrangirchar (average income and expenditure are 1959.26 and 2279.3 respectively) per month. This is either because the urban extreme poor households have (i) no alternative sources of income other than the employment of an adult earning member which is too low to meet all their basic needs, or (ii) the high costs of urban living, including housing, food, water and other services and transport costs exacerbate pressures on their income⁶², or (iii) the frequent health problems of the adult earning member including family members leads to the asset depletion of these households (Male and female extreme poor respondents, 2012). This cycle of low income, vulnerability to market and ill-health does not allow the urban extreme poor households to adapt to the vulnerable conditions through diversifying their livelihoods.

⁶² From Wratten's (1995) perspective, the urban household requires money to fulfil the basic needs of electricity, water, food and rent which might be free in rural areas. In Bangladesh, particularly in the rural areas, people largely depend on natural water sources and the rural poor at least have a house to stay in. Thus, they don't have to pay any money for housing and water. In addition, they have access to common property resources (e.g. rivers, canals, rural roads, public land) where they can collect food to meet their food requirements. However, when they move from the rural area they have to pay for all these commodities in an urban area.

Figure 5.19: Average Monthly Income and Expenditure of the Households in the Case Study Settlements



Source: Analysed from UPPRP database (2009) and from DSK-Shiree Project database (2009)

Gender related Vulnerabilities

The household interviews with women in Karail and Kamrangirchar support the claim that ‘vulnerability to climate change is gendered’. Women are disproportionately vulnerable to extreme climate events due to social norms and family responsibility, so that entrenched gender inequality and reproductive responsibilities constrain their mobility and survival options (Ahmed, 2012). The study findings reveal that women have to perform a range of responsibilities for managing the household, including working outside, collecting water, cooking, cleaning, and caring for children, the sick, and the elderly. Heat impact on daily routines of women is significant. Preservation and preparation of food thus puts additional stress on women, health and fire safety within the case study settlements. Food preparation becomes costly due to greater use of the already rare wood. Smoke from open stoves used in the evening increases health risks and causes anxiety during a time traditionally dedicated to family reunion and socialising (Both male and female respondents, 2012). In addition to this, heat is a significant factor in decreased household income. Women reported frequent dizziness due to increased summer heat. This often prevents them from attending work as domestic maids or garment workers (Interviews with female headed households, 2012).

In Karail, when flooding contaminates the water supplies, the women of extreme poor households collect water from schools, mosques or other places where the water sources are not inundated. In Kamrangirchar, the women have to take a boat across to the main

road to access water. Some families swim to the nearest tube-well or available water source to access water for their households. One woman reveals, “*I had to swim to the nearest tubewell with a dekchi (cooking pot). After a great struggle I managed to collect one dekchi of water which I used for the whole day*” (Personal Interview, 21/04/2012). It is found that women also face specific difficulties due to climate variability such as lack of sanitation facilities. As men were generally more mobile, they went by rafts or boats to a distant area for defecation. However, for women the situation was much more difficult and they spoke of shame and insecurity. Many of the women waited till dusk to defecate. Some used to defecate inside the house in polythene bags and others used to defecate deep in the floodwater while bathing. Thus difficulties in sanitation make women more vulnerable to illness.

In extreme weather conditions, children within extreme poor households get sick very quickly because of their insecure living environment (as explained in this chapter). It brings additional stresses for women heads because they need to stay at home for childcare and also they have to go outside to collect money for the treatment of the sick children and family’s food requirements (Interviews with female headed households, 2012). Ahmed (2012) argues that inheritance laws often increases women vulnerability and undermines their adaptive capacity to climate change. Both in Karail and Kamrangirchar, women respondents reported that they lost access to property after their father’s or husband’s death due to inheritance and personal laws, the second marriage of their father, and the lack of information and inability to access to justice. Household interviews indicate that in extremely poor households, food consumption was reduced after disasters as well as during crises such as the sudden illness of an adult earning member or children. In these cases, the women often go hungry. These extreme coping actions are also gendered which can increase malnutrition and have negative impacts in the long run.

Climate Induced Displacements/Migrants

Climate induced displacements, which force people to migrate to cities especially to Dhaka over the recent years, are a matter of concern. Increased frequency and severity of flood and cyclones due to climate change over the past recent years are not only

displacing people⁶³ physically but also exposing them to enhanced poverty by threatening their livelihoods temporarily and permanently (Akter, 2009). The most recent examples of weather related events include *Sidr* and *Aila*, which led to tens of thousands of people displaced from the coastal countryside and pushed into urban areas (Roy et al., 2011). The study by the International Organization for Migration (IOM) notes that 70% of slum dwellers in Dhaka have experienced some kind of environmental shock. The present study also reveals that a considerable portion of extreme poor households migrated to the study locations after an environmental shock. Adverse weather events causing damage to property and crops are significant causes of decline in the extremely poor's lives. Analysis of life-trajectories of the environmental migrants reveals that the lives of climate migrants follow many different trajectories. At one extreme, the landless poor with lack of assets are driven into deeper and more intractable poverty after climate shocks such as floods and cyclones. At the other extreme, a previously well-off cultivator is forced to migrate from a rural area to a urban slum in Dhaka after losing all his belongings to river erosion and successive floods/cyclones (Interviews with climate migrants, 2012). One male respondent (39 years old) from Karail slum reveals his sufferings, *"I had some agricultural lands and a house and my condition was reasonably good. But, in 2007, I was forced to migrate to Dhaka from the coastal district of Bhola after losing my agricultural land and house in the Meghna River. After coming to Dhaka, I rented a house in the slum and started living with my family of 7 members in a one room house. I have to pull a rickshaw all day-long and even at night just to manage the daily meals and house rental. In every month, I have to spend almost half of my earnings for a small slum cluster. Living in the slum I also feel insecurity about my five daughters. I often cannot manage daily meals for my whole family but don't allow my wife and daughters to work in other houses as a maidservant; because this might harm their dignity and social status* (Personal interview, interviewed on 27/02/2012).

⁶³ Akter (2009) revealed that about 25%, 3% and 2% populations had been displaced by different natural disasters like floods, droughts and cyclones respectively (the figures of displacements by floods, droughts and cyclones over the years are included in the Appendix 5.1, 5.2 & 5.3). This study also found that every year 0.1 million people become homeless because of river bank erosion. The estimation of future displacement reveals that approximately 49 million, 63 million and 78 million people might be displaced in 2010, 2015 and 2020 respectively (ibid.).

Climate migrants living in urban slums are in search of a better and secure life. Since their slums are located mostly in the low lying environmentally hazardous area coupled with inadequate facilities like food, shelter, sanitation, and health care this can make their life even worse. Low levels of human capital can prevent climate migrant households from benefiting from urban growth. Climate migrants who had migrated recently⁶⁴ to Dhaka reveal that they are just living here; they don't have any society, they don't have any cultural life because they regarded as the outsiders by the host community (Interviews with climate migrants who migrated in Dhaka city after experienced *Sidr*, 2012). They lack social capital, having lost the connection with relatives and community members after migrating to the city. They are often traumatised, affecting their capability to build new livelihoods. The vulnerability of climate migrants in the urban environment as explained by CPRC (2004) reveals that these internally displaced people tend to face high levels of discrimination and exclusion in the urban labour market and, thus, have few economic opportunities and increased vulnerability to further shocks and stresses.

Weather Sensitivity of the Causal Labour Market

Most of the extreme poor male household heads are construction labourers and rickshaw pullers in the case study settlements. These livelihood options are subject to major seasonal disruptions due to the gruelling working conditions throughout the rainy season and the hottest part of the year, which reduce the days and the hours they can work. The rickshaw pullers in the case study settlements report an increased prevalence of health related problems during the heat of the summer (especially April and May) and also during the rainy season (especially June-July) that forces them to reduce their working days and hours; resulting in a substantial decrease in family income and pressure to find alternative income sources (Interviews with rickshaw pullers, 2012). Construction day labourers report that they grind to a halt throughout the rainy season, when construction stops. In order to cope with this unemployment situation, they usually pull rickshaws as demand for rickshaw pulling in Dhaka city increases during the rainy season. However, they also report a loss of working hours due to health related problems during the rainy season (Interviews with construction labourers, 2012). This seasonality affects the household income flow seriously. During flooding, the situation

⁶⁴ After *Sidr*, a large number of climate migrant households came to the slums of Dhaka city; and this research found these climate migrants in the slums of Kamrangirchar and interviewed two of them.

of wage labourers becomes worse because rickshaw pulling and work for wage labour become scarce and the opportunities for alternative income are very limited. All of the male respondents complained of lack of available work at the time of floods of the 1998 and 2004, “*I cannot ride a rickshaw, it costs 30 taka daily to rent but where will I go with it...there is floods everywhere...so there is no income for my family*” (Personal interview with a rickshaw puller, 17/03/2012).

Upward Trend of Price of Essential Food Commodities

The extreme poor households of both settlements report that the price of essential food items is rising. They claim their daily expenditure on food is increasing every month. The effect is increasing food insecurity and, thus, the increased vulnerability of the extreme poor households. They find it difficult to make savings, and their nutritional levels are falling as they mostly depend on one or two meals with rice and vegetables. Even the members of these extreme poor households in the case study settlements often eat stale and rotten food given by the better-off households. The study found some families who ate meat at the time of last *Eid* festival time which was collected from better-off families (Interviews with female heads, 2012).

5.4.3 Politico-Legal Components of Vulnerability

The survey findings point to two main political and legal constraints which place the extreme poor households into an adverse vulnerable situation. First, the lack of a low-income settlement policy leads to different outcomes for the extreme poor households in the two settlements. The extreme poor households of the periphery settlement (Kamrangirchar) report that in the absence of a minimum standard for the low-income rental units, the landowners’ service provision is ad hoc with inadequate provision of water supply and sanitation; unsafe, inadequate and badly designed community infrastructure (such as roads); and construction of new rental units without a corresponding increase in service provision. In contrast, the extreme poor households in Karail report worse effects. The extremely poor residents here face the constant threat of eviction as well as experiencing a poor living environment combined with poor services facilities as described above. With the constant fear of eviction, the house owners’ investment in their built environment is circumscribed (Landlord in Karail, interviewed on 02/05/2012). They consider any investment in the built environment to be a risky investment, as they do not hold any land tenure security or legal rights – triggering the

risk of eviction. The field survey reveals that there was no instance of eviction in Karail by the public agencies until 2012 after a legal intervention by the High Court in 2003 (i.e. the High Court provided an injunction against the eviction of the slum dwellers). However, major investment in permanent houses might be bulldozed at any time, and be accompanied by a possible eviction in a few hours. The key informant interview (Civil society actor from CUS, interviewed on 10/04/2012) revealed that the landlords and the local business elites in Karail consider development of land for slums as a profit making business (which is higher than any other possible businesses). This finding is validated, to some extent, by the fact that the urban poor in the slums of Dhaka city are paying more rent per square feet than their upper and middle income neighbours (Rahman, 2008 & Nahiduzzaman, 2012). So, the land owners have incrementally developed small units without considering minimum living standards and services, exacerbating the vulnerability to climate change and extreme disasters. In addition, the lack of security makes it difficult for the extreme poor in the Karail slum to establish firm roots, because they believe that sooner or later they will be moving to another slum or to rural areas (Interviews with female heads, 2012), or to build upon their assets and access income earning opportunities.

Second, the lack of a socio-political platform leads to different outcomes in the two settlements, with residents in Kamrangirchar experiencing political exclusion, whereas in Karail they practise patronage democracy (Roy et al., 2013). Although the extreme poor residents in Kamrangirchar have a legal registration number, the settlements are denied the right or opportunity to get urban services as the area is outside of the municipal administrative boundary (as explained in Chapter four). This increases their vulnerability to climate change. However, in Karail, lacking a formal set of entitlements, the process of facilitating and maintaining patron–client relationships is a high priority, through which ordinary slum dwellers try to manage uncertainty and improve access to employment, finance, physical and social support (Jahan et al., 2011; Banks, 2012). However, the extreme poor households often fail to maintain this patronage network for securing benefits because of their ill-health, dependency, household composition and life-cycle factors (as explained in this chapter). As the slum dwellers live with a constant threat of eviction, the house owners and their community-based organisations are active to maintain a good network with political elites and civil society organisations to resist the possibility of eviction. This network can also save the

extreme poor households from the threat of eviction, although these households are mostly excluded from the membership of social and economic support groups within the slum, they sometimes attend the protests against the urban government where landlords and local political elites play the major roles (Both male and female respondents, 2012).

5.5 Conclusion

The chapter has analysed the urban extreme poverty and the drivers of vulnerability to climate change for the urban extreme poor from the Bangladesh perspective, which is the third objective of this research. The findings of this chapter throw light on the asset characteristics of the urban extreme poor households and also the processes through which they face multiple deprivations, which is critical to understanding the multidimensional aspects of urban extreme poverty and its links with vulnerability in the Bangladesh context. The findings and analysis reveals that labour capital, in the form of labour power or labour availability, is a major asset available to the extreme poor households through which they can build their livelihood strategies for survival in the urban context. However, the households do not generate sufficient financial returns from this asset to ensure livelihood security because of the Dhaka city labour market structural factors characterised by limited work opportunities and intense competition, low wage rates, difficult and irregular work and the gatekeeper role to the labour market played by informal networks.

The chapter identifies poor households' decline into extreme poverty is punctuated by episodes of ill-health by adult earning members. The household loses labour capacity and food production and income generation suffers. In addition, they have increased expenditure from the cost of treatment, often met through the distress sale of household productive assets. Socially, the ill-health or chronically illness of the breadwinners is notable. The chronic illness or disability of breadwinners increases the burden and dependency within the household which, in turn, decreases the household's ability to participate in wider social life and community based collective actions. Life-cycle factors (such as motherhood, widowhood, separation or abandonment, old age and childhood) have also a significant influence on households sliding into extreme chronic poverty. Widespread social exclusion on the basis of age, gender and disability represent formidable barriers for the poorest older people in their efforts to achieve

security. Widows and divorced or separated women-headed households face extreme poverty as they are forced to become the main breadwinners and are often less likely to benefit from human capital assets and asset inheritance. Their exclusion/adverse incorporation in the labour market, from their extended family network, and from accessing their husband's inheritance property after his death can maintain female headed households in extreme poverty for a long duration. All of these factors place the extreme poor households into adverse vulnerable conditions. It can be argued that low asset holdings, structural obstacles related to labour and product market, gender and age inequalities (i.e. social and political exclusion) are key factors behind the vulnerabilities and risks faced by the extreme poor households.

This context analysis fits in to the analytical framework, as explained in Chapter four, by exploring the sources of the vulnerability faced through the adverse conditions arising from the impacts of climate variability and change leading to an erosion of assets. The vulnerabilities that the extreme poor households face are, moreover, shaped by the physical, social, economic, political and legal factors or processes experienced by these households in their local context. Local physical factors or characteristics affect the nature and degree to which the extreme poor households are impacted by climate variability and change. The findings reveal that the extreme poor households in Kamrangirchar have higher levels of physical vulnerabilities than that of Karail; but in Karail, the households that live close to the lower ground are more vulnerable than the households living on the higher ground. The analysis reveals that the extreme poor households in the case study settlements are more concerned about their socio-economic vulnerability than anything else because survival is their first priority. It is found that politico-legal factors lead to different outcomes for the extreme poor residents in the two settlements as explained above. Although the slums in Kamrangirchar have legal registration, the lack of a low-income settlement policy from the government allows the land owners to provide shelter for poor people without considering living standards or basic services. Formal political isolation keeps the extreme poor households without access to basic services. In Karail, the extreme poor households are in constant fear of eviction by the public authorities, but they have a strong socio-political platform, which often saves them from eviction and they get some services from this patronage network.

Chapter 6 : Autonomous Adaptations of the Urban Extreme Poor to Climate Variability and Change: The Role of Urban Policies and Institutions

6.1 Introduction

This chapter explores the individual adaptive practices of the urban extreme poor to climate variability and change and also critically examines the role of urban policies and institutions in supporting or constraining these practices in the Bangladesh context, which is the fourth objective of this research. As explored in Chapter three, poor urban households deploy a range of physical, economic and socially oriented measures and political measures to mitigate negative impacts of climate variability and change. The household's ability to build an asset portfolio, which can facilitate an asset adaptation strategy, is a key determinant of their adaptive capacity to increased risk levels associated with climate variability and change. However, the extreme poor households and groups face institutional barriers that affect their ability to build asset portfolios. Without adequate support from formal and informal institutions, the urban extreme poor may not be able to fully use their adaptive capacity. Thus this chapter explores the practical reality of these theoretical assumptions through the Dhaka case study.

This chapter is divided into three sections. Firstly, this chapter explores the urban extreme poor's autonomous adaptation strategies to climate variability and change. Then, it critically examines the national level policies (e.g. housing policies, water supply and sanitation, adaptation strategies and climate change strategies) and also the local level plans in order to identify whether and how these policies and plans address the asset accumulation issues of the urban poorest. Thirdly, it goes on to identify the role of urban institutions in the case study settlements in supporting or constraining the adaptation practices of the urban poor households and communities. It critically evaluates important urban rules, laws and implementation processes in order to identify their effectiveness in helping the urban poor communities to cope with or adapt to the increased risk levels associated with climate variability and change. In addition to this, it also assesses informal institutional processes in order to explore whether and how they enable or block the urban extreme poor's access to assets for adaptation.

6.2 How the Urban Extreme Poor Reduce and Adapt to Urban Risks

The study data from the household interviews reveals that the urban extreme poor households employ a range of measures to reduce or adapt to their level of disaster risk shortly before potential hazard impacts. Moreover, during and following hazard impacts they also deploy ad hoc response and recovery measures. As mentioned earlier in chapter three, coping and adaptive strategies for poor urban households can be preventive as well as impact minimising. In the case study settlements, choosing a safe location and better housing to reduce and avoid hazard is not an option for most of the urban extreme poor households, as the option of taking the rental accommodation is either in the hazard-prone locations (as explained in chapter five) or building new rooms through encroachment of water edges susceptible to flooding. In that sense most of the households take few preventive actions well in advance to reduce and avoid the hazards. The range and diversity of the individual adaptive practices can therefore mainly be categorised according to two objectives: (i) impact minimising strategies; and (ii) preparedness measures for response and recovery. Under these two measures, this research found various physical, socially oriented measures, economic and political measures, which are discussed in the following section.

6.2.1 Impact Minimising Strategies

Most of the impact minimising actions have become integral parts of their coping and adapting practices generated from past experiences. In Karail, the extreme poor construct barriers at the door front (5 households out of 20), increase the furniture height (6 households out of 20) and build higher plinths (12 households out of 20). Similar physical coping and adaptive strategies are also found in the urban periphery settlement, Kamrangirchar. The extreme poor households in Kamrangirchar also deploy impact minimising strategies such as making barriers across door front (4 houses out of 20), putting furniture onto bricks (3 houses out of 20), arranging high storage facilities (3 houses out of 20) and build high plinths (14 houses out of 20). Across the study locations, this research also found some physical measures such as two storied structures and combination of construction materials to build urban poor residential units, which have the potential to reduce risk of flooding. Only 4 of the total 40 extreme poor households have been found living the two storied houses.

In the case study settlements, to help adapt to very high temperatures, creepers were grown in courtyards to cover roofs and other materials are put on roofs to reduce heat gain (3 houses in Karail and 4 houses in Kamrangirchar); a number of households (12 households out of 40) used some form of false ceiling or canopy made out of cloth (a popular practice in rural areas, adopted in urban houses). Some extreme poor households (5 out of 40 respondents) increase their power usage and buy additional electrical equipments (e.g. additional mechanical fans) during summer. Generally closely spaced structures create shaded courtyards that are used as open space for ventilation. Household activities are often held outdoors during frequent power shortages. The use of different insulating materials reduces the heat from corrugated iron sheet roofing and partitions. People use various kinds of recycled materials like paper, styrofoam, packing boxes, cement bags, bamboo mats and old clothes for insulation. The homes of the extreme poor respondents (8 out of 20 in Karail and 6 out of 20 in Kamrangirchar) living near the water's edge are usually built on stilts. The platform for the floors is made high considering possible flood levels. These stilt houses have better ventilation and experience reduced heat compared to the houses in land. The wooden planks in the floor are preferred as they face fewer problems from water logging after heavy rainfall. The stilts have the flexibility to increase in height every time they are rebuilt.

In addition to these physical adaptive practices, the urban extreme poor also employ non-hazard specific economic, social and political oriented measures to reduce or mitigate the increased risk levels associated with climate variability and change. The engagement in two jobs simultaneously is one strategy through which household heads can reduce or overcome the impacts of hot and humid weather during summer that limit the hours and days (Interviews with male heads, 2012). This research found that two male breadwinners in Karail maximise their hours worked by pulling a rickshaw in the morning and running a street peddling business in the afternoon. These two elderly male heads utilised this strategy, since they did not have the strength to work longer hours in rickshaw pulling and hot and humid weather make it more difficult for them. In Kamrangirchar, two female heads (out of 20) used this strategy (being engaged in two jobs such as domestic maid and worker in the shoe-making industry) in order to get relief from heat stresses as they worked in very unhealthy working environment and the extreme heat (temperatures nearing 40⁰C during summer), together with repeated power

cuts made impossible for them to work for a whole day. They decided to work as maids in the morning and engage in the shoe-making industry in the afternoon or in the evening (Female heads who worked in shoe-making industry, 2012).

The urban extreme poor residents of both settlements employ a number of socially oriented measures. They practise highly effective forms of reciprocity and attachment with neighbours, friends and family members, which offer them assistance at the time of adversity. The common mechanisms these extreme poor families use to cope with seasonality are borrowing money and/or goods from neighbours, friends and relatives. It is found that families are always very cautious about their repayment of a loan (Interviews with male respondents, 2012). Repayment is considered very important for getting a loan again in the future at the time of their next adversity. Either saving money by going hungry or working long hours when the rain stops is a common strategy they use to repay the loan. These financial coping strategies can create further obstacles (such as erosion of physical strength) for the households. Other measures relate to education and include sending children to study outside of the slum. In Karail, one female headed household sent her daughters to a NGO school outside the slum area where her daughters are offered not only free secondary school education but also free daily meals. Two female heads (out of 20) in Kamrangirchar sent their children to their parent's house in the rural area as they can get free education and female stipends from the government schools.

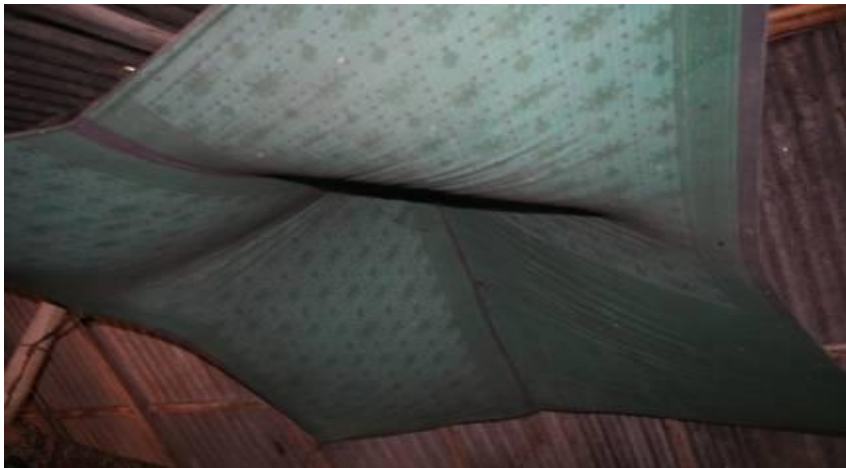
The inhabitants of Karail have a very strong social network. The interview with a 'community leader' reveals that the earliest inhabitants of Karail arrived mainly from the Comilla district. Gradually, settlers from other districts began to arrive, including Barisal, Bhola, Sherpur, Barguna, Chandpur, Jamalpur, Mymensingh, Kishoreganj, Faridpur etc. Groups from these districts tend to live together in clusters dispersed throughout Karail, i.e. Barisal party, Comilla party and Mymensingh party etc. Such similar geographical backgrounds of poor households are the foundations for the creation of strong social networks in Karail slum. Simultaneously, the fear of a sudden eviction also pushed the inhabitants in Karail slum to form local networks and structures for tackling eviction threats (A community leader, interviewed on 10/04/2012). This strong community network has prevented eviction in a number of instances.

The author's field survey found that the community network played a dominant role in tackling the eviction threats of the Karail *bustee* in 2012. The community committees mobilised the entire community in demonstration to tackle the eviction threats. They put pressure on the higher political levels, e.g. the ministers, MP, mayor and ward councillor and also public agencies, who were involved in the evictions of the Karail *bustee* on the 4th April, 2012. In addition, the community leaders developed a network with the civil society and legal aid institutions to initiate a legal action. They filed a writ petition in the High Court in order to suspend the evictions of the Karail slum until further orders. The leaders were also actively involved in the mass campaigning against the evictions of the Karail squatter settlement through the national newspapers and print media to get support from the people of Dhaka city (A community leader, interviewed on 10/04/2012). This has proved successful as they received support including financial and relief, protests and dialogues with the formal political systems (e.g. ministers, political leaders) on behalf of the evicted slum dwellers, from the civil society institutions and also from ordinary people in Dhaka city. Following their writ petition, the High Court issued a stay order on the eviction of the Karail slum. Urban extreme poor residents in Kamrangirchar did not report any politically oriented measures apart from the rickshaw pullers' participation in local rickshaw puller association.

Figure 6.1: Physical Coping and Adaptive Strategies of Urban Extreme Poor



(a) creepers to cover roof. Source: Author's field survey (2012)



(b) canopy under roof. Source: Jabeen (2011)



(c) two-storied structures. Source: Author's field survey, 2012



(d) Furniture height. Source: Jabeen (2011)



(e) Bamboo made floors of the stilt house. Source: Author's field survey, 2012



(f) enough ventilation inside the stilt house. Source: Author's field survey, 2012



(g) combination of construction materials. Source: Author's field survey, 2012



(h) Barrier at door. Source: Author's field survey, 2012



(i) High storage. Source: Jabeen (2011)

6.2.2 Preparedness Measures for Response and Recovery

The urban extreme poor of both settlements coped with or adapted to the extreme flooding events by taking a range of measures. Most of measures were taken shortly before a potential hazard impact (e.g. following a warning). In Kamrangirchar, most of the urban inhabitants moved to the nearest safe places such as primary schools, embankment, rail lines, highways and government offices during any disaster. However, in Karail, during flooding of 1998, moving to safer areas is not a preferred option as moving means losing assets, and also possibly losing the right to live in the area (A landlord in Karail, interviewed on 02/05/2012). During an emergency, the most practised option is to sleep on furniture above the flood level and use movable cookers for food preparation. Some households shared services from unaffected neighbours (ibid.). The community leader also reported some temporary measures to reduce the impacts of flooding and water logging, such as building high barriers at the doors,

making outlets from the house for easy flow of water, building high stilts inside the rooms, and community initiatives to clean drainage and move the sick children, disabled, elderly to hospitals and safer spaces within the neighbourhood (ibid.). The interviews with the extreme poor who faced the flooding event of 1998 revealed that they used their savings to address food storages and medicine needs of their family. When the water logging period lasted for a long duration in 1998, they had to borrow money for meeting food requirements of their family.

The urban extreme poor households of both the settlements also deployed some preparedness recovery strategies to help them to recover quickly from the impact of a hazard/disaster (e.g. damage to housing, loss of income) and bounce back to their former conditions. This research found a collective effort of house-owners and tenants to rebuild houses and improve living condition (Both male and female respondents, 2012). Though most of the extreme poor households stayed in the rental accommodation, they were actively involved in the post-disaster reconstruction process in their housing cluster including cleaning the courtyard and rebuild up community kitchens, repairing floors and increasing plinth levels, and changing materials for plinths, roofing and walling materials. They took loans and got help from household members or neighbours for this purpose (ibid.). House owners revealed that they took some loans from their community saving groups in order to repair their houses. In addition to these measures, the urban extreme poor also employed some socio-economic measures to recover from the effects of extreme weather events. The residents of both settlements took some common strategies to address lack of income, food insecurity and health problems e.g. using savings to build alternative livelihood; working long hours and engaging in two jobs simultaneously; selling some household possessions; taking loans from informal sources; begging; and borrowing money from the employer.

Figure 6.2: Preparedness Responses of the Urban Poor Households in Dhaka City



(a) elevated platforms to save children and household possessions. Source: Dewan (2013)



(b) bamboo-built bridges to avoid flood-water. Source: Médecins San Frontières (2011)

6.3 The Role of Policies in Helping the Urban Poor's Adaptation Practices

Government ministries in Bangladesh are responsible for sectoral policy formulation, planning, evaluation and execution. The Ministry of Housing and Public Works developed the 'National Housing Policy' in 1993, which was updated in 1999 and once again in 2004. The Ministry of Local Government, Rural Development and Co-operatives (MLRD&C) developed the national policy for safe water supply and sanitation 1998, which is the basic policy document governing the water supply and sanitation sector. Although Bangladesh does not have any formal process of strategy development for these policies (Alam et al., 2011), the Capital Development Authority-RAJUK (*Rajdhani Unnayan Kartripakkha*) has developed a local development plan (Dhaka Metropolitan Development Plan 1995-2015) through which these national

sectoral policies should be delivered (DMDP, 1995). Action on climate change adaptation is in the early stages of formation in Bangladesh. Nevertheless, climate change is a recent addition to the policy debate and action in Bangladesh, a country considered to be a leader amongst developing countries with the development of two national strategies on adaptation to climate change: the 2005 National Adaptation Programme of Action (NAPA) and the 2009 Bangladesh Climate Change Strategy and Action Plan (BCCSAP). This section critically analyses to what extent sufficient attention has been given to asset adaptation for the urban poor in these national and local policies and actions.

6.3.1 National Policies for Housing and Basic Services

The National Housing Policy 1993/2004 outlined the process of transferring necessary resources from the government to the private sector, which in turn was expected to support the government's role as an enabler, rather than as a provider. Under this strategy, the government's role is to increase access to land, infrastructure services and credit; to ensure the availability of building materials at a reasonable price especially for the low and middle income groups; and to create and promote housing finance institutions. The actual construction of housing is to be left to private sector developers, private individuals, and NGOs (GOB, 2004). The NHP 1993/2004 also emphasises increasing the access of the poor to basic infrastructure, including through facilitating the purchase of land by the poor in locations closer to their work place to ensure more affordable access. Thus, the strategy needs to focus on the needs of different income levels and personal savings amongst low-income people. The urban poor are to be given low-interest loans for income generation, house construction, and space for running businesses of different kinds. In order to improve the access to financial capital services, the policy also calls for setting up a system of easy loans through family and community business. The NHP also states that the government agencies would take steps to avoid forcible relocations or displacements of the urban slum dwellers and also emphasises the importance of arranging the relocation of these dwellers before eviction (ibid.).

The national policy for safe water supply and sanitation in 1998 describes the role of the government in the water supply and sanitation sector as that of a 'provider'. The role of government is to ensure that all people have access to safe water and sanitation services at an affordable cost to the consumer (CBSG, 2010). The policy mentions behavioural

change and sustainability through community participation in planning, implementation, management and cost sharing. In the urban context, the strategies give priority for every urban household to have easy access to hygienic sanitary latrines through technology options ranging from pit latrines to water borne sewerage (ibid.). The policy also makes statements about the institutional arrangements necessary in both the urban and rural context. Under the policy the urban local government (Dhaka City Corporation) is responsible for solid waste management, collection and disposal. In context of Dhaka city, Dhaka Water and Sewerage Authority (DWASA) are responsible for sewerage and storm water drainage systems. Except within the Dhaka and Chittagong City areas, the Department of Public Health and Engineering (DPHE) is responsible for the water supply and sanitation of the whole country.

This review of national policies and strategic options for housing and basic services reveals that Bangladeshi policies and strategic options mostly focus on providing first-generation asset-accumulation strategies (see, Chapter 1 & Chapter 3) based on access to housing financial assets, basic infrastructures and services such as safe water supply, and sanitary latrines. The urban extreme poor are targeted within the broad category of the urban poor in the policy and strategic options for housing and basic services. Such types of inclusive policy options have led to concerns about whether these national policies would be able to target the urban extreme poor at the local level. The major problem is that these strategic provisions are not completely adopted in reality; an affordable housing programme for the urban poor has not been put forward, and no regulatory laws or legislation have been enacted to support it (Nahiduzzaman, 2012). Through interviews with the civil society actors, this research has revealed why the Bangladeshi government have failed to develop the regulatory and institutional arrangements for housing the urban poor:

- A lack of coordination among the relevant departments and ministries. This is underpinned by their perception that delivering housing for the urban poor is impossible partly because of financial and administrative constraints but also because of lack of knowledge of the scale, causes and consequences of urban poverty and its dynamics (A civil society actor from CUS & An urban researcher; interviewed on 10/04/2012 & 7/05/2012 respectively).
- The government ministries and departments have a perception that poverty reduction is a responsibility of the civil society institutions because they are

supported by the donors to address the needs of the poor people. This lack of commitment to address urban poverty is one of the major barriers to implementing the national housing policies on the ground. The civil society organisations have built good networks with slum dwellers throughout the low income settlements in Dhaka city to mobilise the poor and press their demands on to local government (Civil society actor, *Nagar Daridra Basteebashir Unnayan Sangstha* (NDBUS); interviewed on 28/03/2012). The interview with one civil society actor reveals, however, that the success of these activities is limited and sometimes it is very difficult to support the urban poor people. She explains:

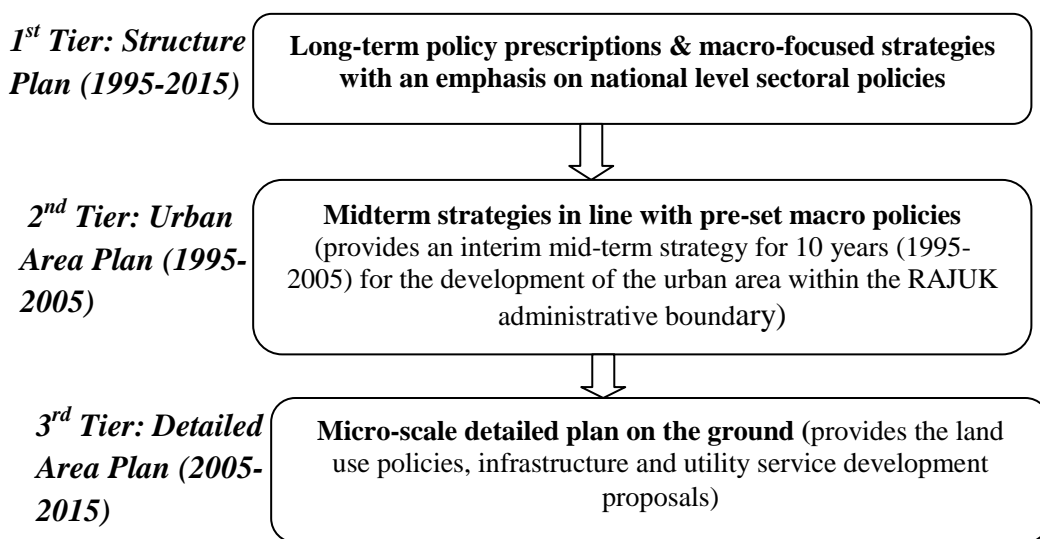
In the wake of the large scale slum eviction a National Steering Committee for Rehabilitation of Evicted Slum Dwellers was formed in the month of February, 2007. It was comprised of the Centre for Urban Studies, CUP, National Housing Authority (NHA), PWD, Ministry of Housing and Public Works, Dhaka District Administration and the Institute of Architects. Based on the recommendation of the above committee, we (CUP, CUS and NDBUS-Urban Poor Organisation) identified about 120 acres of public (Khas) vacant land in different parts of Dhaka city and submitted this to the respective ministry. Out of 120 acres of land the government agreed to lease out 7 acres of land and also prepared a draft agreement to this effect. The places where these 7 acres of land were located included Karail slum and Mirpur (Section 6). However, after a few months the government institutions unilaterally changed their previous proposal of land allocation by reducing this from 7 acres to 5 acres of land. They also changed the locations from Karail to Mirpur (section 7) with a proposal of sale. Then, we accepted the new modification and mobilised funds to buy the land; still this agreement has not seen the light of day (A civil society actor, Coalition for the Urban Poor (CUP); interviewed on 01/04/2012).

6.3.2 Local Policies and Plans for the Urban Poor

While climate change vulnerability is primarily experienced at the local level, local policy or programmatic intervention is important to generate an enabling environment for protecting or adapting assets (Moser, 2010 & Moser and Stein, 2011). As explained in this chapter, the Capital Development Authority-RAJUK prepared the Dhaka

Metropolitan Development Plan (DMDP) for Dhaka city, through a strategic planning approach and this DMDP can be considered as an official local development plan for Dhaka Metropolitan Area (DMA). The approach could be termed as a ‘time-phased focus’, from a long-term vision to a detailed physical plan on the ground (Nahiduzzaman, 2012, p. 78), as is shown in Figure 6.3. UN-HABITAT (2011) notes that the Dhaka Metropolitan Development Plan (DMDP) is intended to meet many climate adaptation needs. For example, a strategic approach to planning could help to enhance response capacity; increased public participation in the planning process could raise “public awareness of climate-related threats”; and the implementation of a sites and services schemes could “reduce the vulnerability of the urban poor” and “enhance their resilience” (ibid., p. 44). Thus it is essential to assess whether the measures regarding housing and basic services in the DMDP address the adaptation needs of the extreme poor or not.

Figure 6.3: Hierarchical Stages of Dhaka Metropolitan Development Plan



Source: adapted from Nahiduzzaman (2012)

Structure Plan (1995-2015)

The DMDP has identified housing as an asset for the urban poor living in the slums of Dhaka city, which can facilitate their fulfilment of further asset adaptation strategies. Similar to the National Housing Policy 1993/2004, the structure plan emphasises the enabler role of urban government agencies for housing the urban poor. It prescribes that the government should only intervene in an enabling capacity to remove existing impediments in the supply, transfer, and regulation of land for low-income housing;

alongside supporting and facilitating actions to increase the operations of the land and housing markets that favour low-income households (DMDP, 1995).

Urban Area Plan (UAP) (1995-2005)

Specific guidelines are prepared under the Urban Area Plan (UAP) in compliance with the structure plan policies. For upper-middle and high-income populations, a sites and services scheme and multi-storey apartment facilities are proposed; while some form of land tenure security, whereby community participation will be required to manage these services, is proposed for low-income populations (DMDP, 1995). However, there is no indication of the proposed form of tenure security and it emphasises the resources available to poor urban communities that help them to organise themselves and partner external agencies without considering the structural inequality of the urban extreme poor households that limits their access to community-level efforts. In addition, it does not provide any indication of resources available to the urban poor for partnership or the available agencies willing to be partners with the low-income community. It also proposes the gradual relocation of the urban poor from hazardous areas to a 'healthy living environment', but does not mention the timescales for such relocation. Although it is assumed that the Detailed Area Plan should address the gaps of the Urban Area Plan, it has so far failed to do that.

Detailed Area Plan

The 'Detailed Area Plan' recognises the fact that slum dwellers are a major and important contributor to city resources and form an indispensable sector, providing various kinds of skilled and unskilled services to facilitate the functioning of the city. (Bari and Efrogmson, 2009). To provide housing for an approximate 4.5 million projected slum dwellers, the DAP proposes a number of progressive policy directives such as site and service schemes, illegal settlement regularisation/slum upgrading, and the relocation of slum dwellers and low cost housing proposals. These policy directives are discussed below.

Site and service based residential plots are to be allotted to low-income people along with ownership (RAJUK, 2010b). The DAP recommends that the urban poor either buy or lease the allotted land with the assistance of loans (Bari & Efrogmson, 2009), but

how the urban poor will be given access to the formal loan service has not been specified.

Slum upgrading and development: The DAP proposes to upgrade inner city settlements including Jhilpar slum, Islambagh, and Shahid Nagar – through community development action plans (RAJUK, 2010b). In addition DAP intends to develop low-cost housing in different parts of Dhaka city, which Bari and Efroymson (2009) argue are hypothetical in nature (see appendix 6.1). This is because this proposal, in reality, does not contain answers to the important questions regarding pro-poor housing, such as:

- How much land will be allocated for slum development and from where would any additional requirement of land be met?
- How the different categories of poor (especially extreme poor) will be selected?
- What specific roles will the urban government institutions play in the slum upgrading process and how will they be coordinated?
- Will the urban poor be given tenure/property rights at their existing locations with the right to transfer? If so, how?

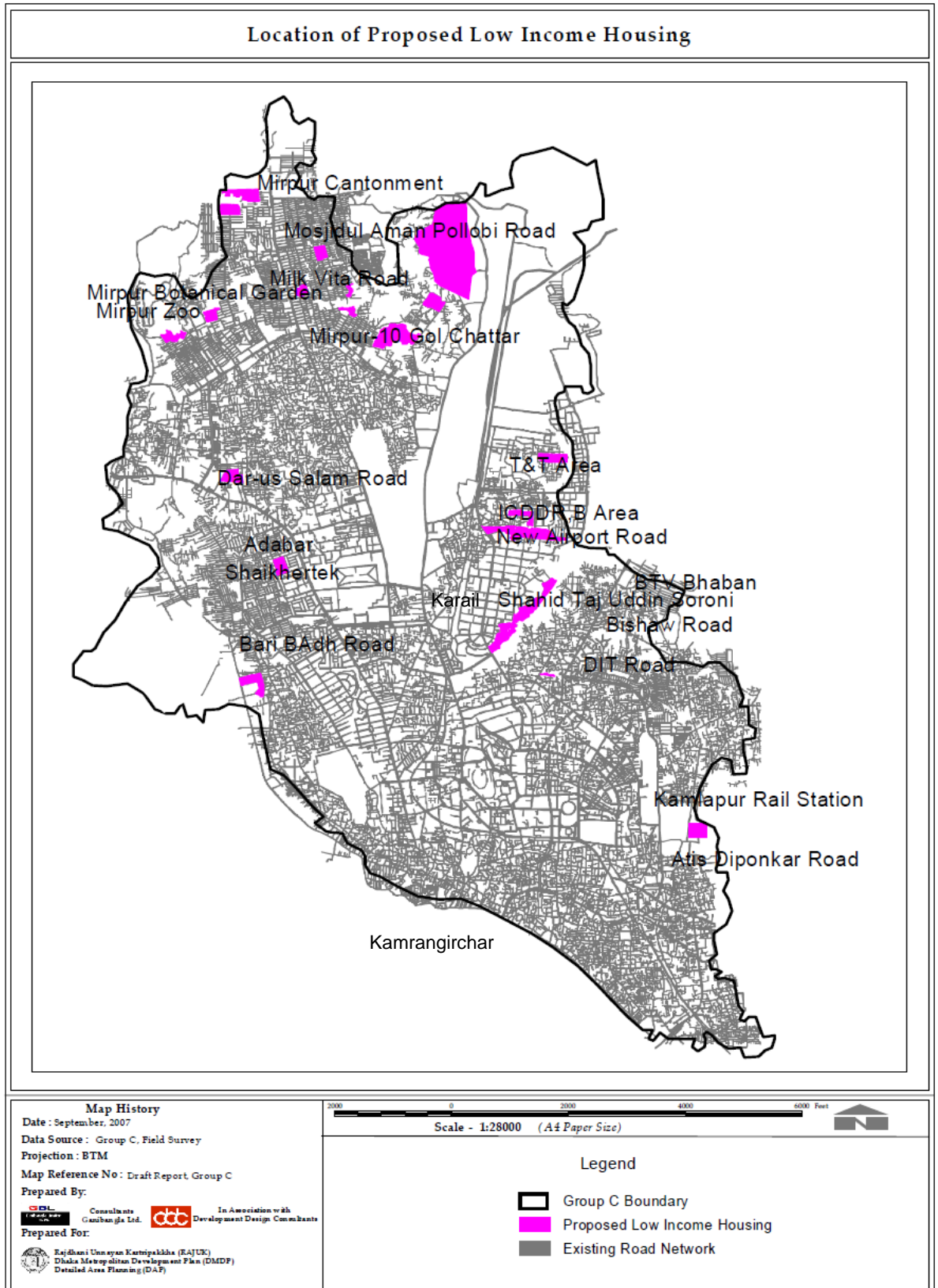
Relocation of slum dwellers: Although DAP policy recognises the need to provide housing stock for the urban poor near their workplaces, when it came to more practical actions, DAP proposed exactly the opposite, i.e. to relocate the majority of the 4.5 million slum dwellers to surrounding areas outside the central part of Dhaka City. Such areas are generally less attractive in terms of access to work and other facilities. DAP, has similarly made anti-poor proposals such as evicting slums and squatter developments, namely Karail *bustee* (16.96 acre) of DPZ⁶⁵ 10, West *Zafrabad* (19.84 acres) of DPZ-8, *Mohammadpur Bihari Camp* (13.50 acres) and *Bari Bagh* (279.87 acres) and relocating them in the north (*Mirpur* DPZ-12, 13) within the low-cost site and service schemes in the 18 existing slums. Again, it is not clear how the additional population from the central part of Dhaka will be accommodated in the 18 existing and already overcrowded slums of Mirpur Area (see Map 6.1). These relocation proposals are also a clear violation of the NHP 1993/2004. There is apparently no study

⁶⁵ Under DAP there are 26 spatial planning zones (SPZ) which have been further divided into 10 detailed area planning zones (DPZ) for the preparation of an effective detailed area plan.

suggesting that relocation to the Mirpur area would be optimal (Nahiduzzaman, 2012). This raises questions about how the proposed relocation has been justified and the extent of the development proposed in these slum areas.

Low cost housing proposals: The provision of low-cost housing in DAP is insignificant compared to the magnitude of actual need that it serves to provide lip service to the poor rather than creating any practical positive impact (Bari and Efroymsen, 2009). It only allocates 745 acres (0.3%) of the total land available outside the land area of the Dhaka City Corporation for 4.5 million slum dwellers and members of the low-income group by the year 2015 (RAJUK, 2010b). This results in a density as high as 6,040 persons/acre, which is completely unsuitable for human habitation. In contrast, the total allocation of land for low-cost housing is less than 50% of the allocated land for the ongoing *Purbachal* high-income housing development project of RAJUK comprising 1,688 acres of land for a population of only about 100,000 people, which is only a tiny fraction of the total number of projected slum dwellers of 4.5 million by the year 2015 (ibid.). There is hardly any practical and meaningful initiative in DAP to provide a sufficient quantity of affordable housing for slum dwellers in Dhaka city or the Dhaka Metropolitan Area. The current housing policies in DAP only serve to increase the inequality between high-income groups and lower income groups rather than facilitating the process of building the assets of the low income population.

Map 6.1: Location of Proposed Low Income Housing in the DAP Proposals



Source: RAJUK (2010b, p. 222)

6.3.3 National Climate Change Strategies and Actions

The first climate change strategy - the National Adaptation Programme of Action (NAPA) was formulated under the UN Framework Convention on Climate Change (UNFCCC) in 2005. The purpose of the NAPA formulation project for Bangladesh was the development of a countrywide programme to encompass the immediate and urgent adaptation activities required to respond to both current and anticipated adverse effects of climate change. These strategies have focused on reducing poverty and securing livelihoods while also addressing gender aspects in the implementation of the NAPA recommendations (Ahammad, 2011 & MoEF, 2005). The cross-linkages between the different development sectors have been prioritised to integrate goals such as water management for crop production, sustainable livelihoods for achieving poverty reduction, and improving the structural and non-structural measures for adapting to climate change. 15 actions, covering areas such as agriculture and natural resources management are proposed within the NAPA programme. Only one of these projects⁶⁶ is focussed on the adaptation needs of the urban dwellers (MoEF, 2005). It does not, however, make any explicit reference to the urban poor (or the urban extreme poor). Although the policy document was developed to meet immediate adaptation needs no policy options have not yet been implemented.

In 2009, the government of Bangladesh developed a second climate change adaptation policy framework, entitled the ‘Bangladesh Climate Change Strategy and Action Plan (BCCSAP)’. The goal of this national level policy framework is to eradicate poverty and achieve economic and social well-being for all the people (MoEF, 2009). This will be achieved through a pro-poor climate management strategy, which prioritises ‘adaptation and disaster risk reduction’, and also addresses ‘low carbon development, mitigation’, ‘technology transfer’ and ‘the mobilisation and international provision of adequate finance’ (Islam et al., 2013, p. 109). The national strategy for climate change adaptation is built upon six pillars⁶⁷; and the strategic options include some options through which the extreme poor or poorest can accumulate assets:

⁶⁶ ‘Enhancing Resilience of Urban Infrastructure and Industries to Impacts of Climate Change’ is the urban focused programme.

⁶⁷ The six pillars of BCCSAP are: i) Food Security, Social Protection and Health; ii) Comprehensive Disaster Management; iii) Infrastructure; iv) Research and Knowledge Management; v) Mitigation and Low Carbon Development; and vi) Capacity Building and Institutional Strengthening.

- Food security, social protection and health to ensure that the poorest and most vulnerable in society, including women and children, are protected from climate change and that all programmes focus on transferring assets to the extreme poor and marginalised groups such as food aid/ financial capital assets to ensure food security, safe housing, employment and access to basic services, including health.
- Comprehensive disaster management and infrastructures to ensure that existing assets (e.g. coastal and river embankments) are well-maintained and fit-for-purpose and that urgently needed infrastructure (e.g. cyclone shelters and urban drainage) is put in place to deal with the likely impacts of climate change. These strategic options can prevent the erosion of the assets of the extreme poor households.

While a number of its programmes may have some relevance to urban areas, programmes make no explicit reference to the different environmental, socioeconomic and political contexts of rural and urban areas (Banks et al., 2011b). The national climate change strategies do not consider the role of urban local government in climate change adaptation, since success in pro-poor adaptation depends on the capacity of urban local government. Dodman and Satterthwaite (2008) reveals that an important part of building urban poor's capacity to reduce climate change risk involves urban local governments working with the urban poor and the poorest, especially those living in the most hazardous locations. In this context, Alam et al. (2011) argue that local government must play a vital role in implementing climate resilient development in Bangladesh, which is an overlooked area of national climate change strategies in Bangladesh. Based on the information gathered in this research, both of national level climate change strategies (NAPA and BCCSAP) was a largely specialist driven process and without involvement of the most vulnerable communities and local level policy makers (A climate change expert/researcher; interviewed on 22/02/2012). Therefore, the proposed urban infrastructural projects in the NAPA as well as the BCCSAP appears to place little emphasis on consulting urban stakeholders such as local government, urban government departments, land developers and vulnerable slum populations. The proposed project requires a focus on strengthening urban local governments' capacity for pro-poor urban adaptation measures to be put in place. Without this measure, the proposed projects in the NAPA and the BCCSAP are unlikely to reach poor urban

communities for helping them to adapt climate variability in future. Furthermore, the proposed infrastructural and drainage improvements projects may displace low-income urban communities situated in flood-prone areas or alongside water bodies. Eviction and displacement of low-income urban communities are common in large-scale infrastructure development programmes (Islam et al., 2007). Recently, for example, in May 2011, two slums of Kamrangirchar area were evicted in order to implement the master plan of a project by the Water Development Board. Rehabilitation was not provided to the households removed from the five square kilometres of land that were cleared (Baten et al., 2011 & Banks et al., 2011b). Despite national housing policy stating the need to rehabilitate evicted residents, this was not implemented during or after evictions of these slums. Lastly, from Wratten's (1995) view, it can be argued that the adverse vulnerable situation of the poorest arises from the implementation process of government policies and strategic options.

6.4 The Role of Urban Institutions for Adaptation Practice

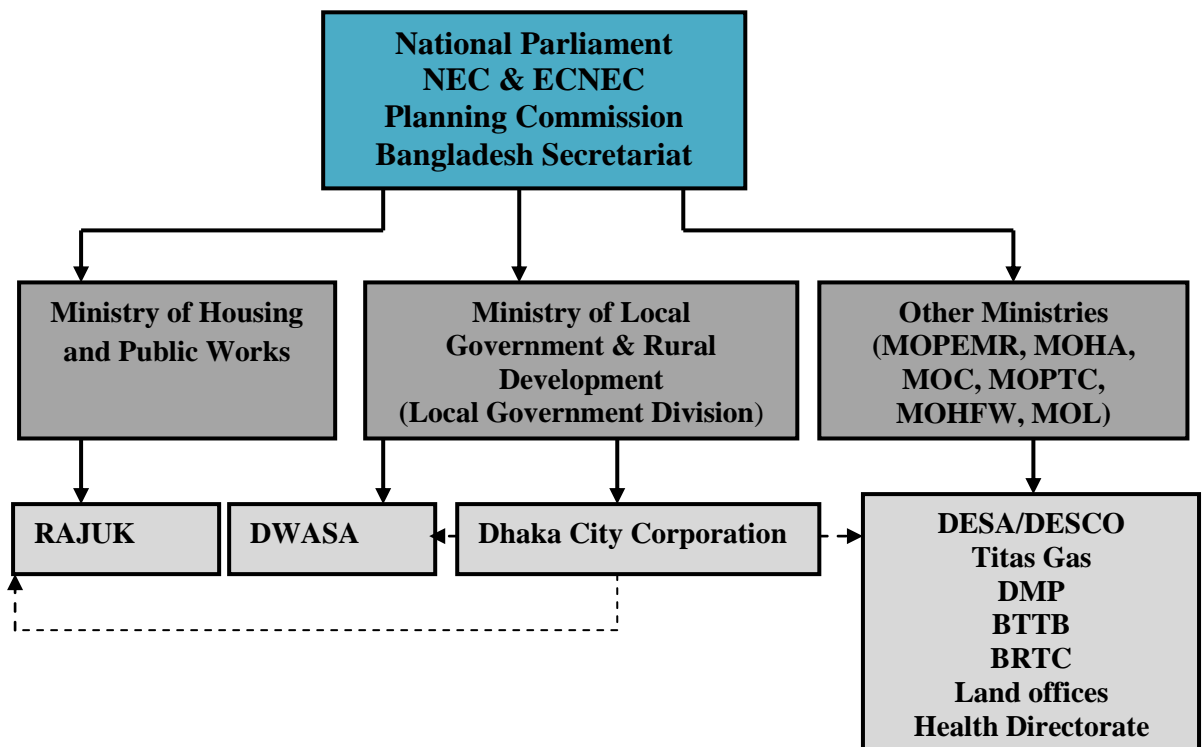
Urban institutions in the public sphere (e.g. urban governance institutions, formal political systems) and private sphere (e.g. markets, NGOs, community based organisations, local elites, and etc.) are broadly organised through two sets of relationships: formal relations (laws, legal framework and implementation process) and informal relations (norms, social relationships and collective action). This section looks at how the different forms of institution interact and influence each other to support or constrain the extreme poor households in the case study settlements.

6.4.1 The Role of Formal Institutions for Building Pro-Poor Asset Adaptation

As explained in chapter three, formal institutional processes initiated by city and municipal government authorities have a major role in facilitating the individual as well as communal asset adaptations. In this context, Stern (2007) argues that improved urban planning and provision of public services and infrastructure can help urban poor communities to build their own asset adaptation in the context of climate variability and change. The institutional arrangements related to urban planning, basic services and infrastructure such as housing, water supply and sanitation, roads, and drainage in Dhaka city are complex. Services are delivered by a mix of central and urban local governance agencies, with limited resources, weak administrative capacity and little coordination. Dhaka City Corporation (DCC) is the urban political administration and

the specialised agencies include the Capital Development Authority-RAJUK; Dhaka Electric Supply Authority (DESA Dhaka Metropolitan Police (DMP); Titas Gas; central government institutions (e.g. Land Administration, Public Works, Education and Health); the Bangladesh Telephone and Telegraph Board (BTTB); Bangladesh Road Transport Corporation (BRTC) and the Dhaka Water and Sewerage Authority (D-WASA). The urban institutional arrangements and their relationships are illustrated in Figure 6.4. As explained above, the national policies for housing and basic services do not give much legislative support and protection to the urban poor (ibid.). In the absence of legislative support, the government agencies are not willing to support the urban poor to access housing and basic services in the urban slums of Dhaka city.

Figure 6.4: Mapping of Urban Public Institutions in Dhaka City



Source: IGS (2012, p. 51)

There is a lack of clarity regarding the relative roles of the main public institutions intervening in the housing sector (World Bank, 2007). These institutions include the capital development agency- RAJUK, the National Housing Authority (NHA), the Urban Development Directorate, and the Public Works Department of the Ministry of Housing. The NHA has jurisdiction over all of Bangladesh and is responsible for producing and implementing the National Housing Policy. However, it does not have the means to enforce its policies. As explained in the Chapter four (the administrative

jurisdictions), RAJUK's jurisdiction covers the Dhaka Metropolitan Area including the City Corporation Area, and RAJUK's mission has never been to provide housing for the poor. It been known to provide serviced lots of a minimal size (100 square meters -1.5 *khatas*), which given land prices in the city makes them totally unaffordable for poor households. Dhaka City Corporation and special purpose agencies, such as DWASA, are responsible for delivering basic services such as water supply and sanitation, roads, drainages, and solid waste management. Neither of these urban government institutions can perform their functions adequately due to severe resource constraints and limited authority. The lack of legal tenure of the larger squatter settlements further complicates service delivery since neither DWASA nor DCC are willing to invest in these inner city squatter settlements such as Karail. Although the institutional structures for delivering services to the urban poor are yet in Dhaka city weak, the national and local level institutions has already identified Dhaka city's vulnerability to the extreme weather events and have also developed some laws, rules, legal frameworks and programme in order to address the vulnerability of this city. It is important to explore weaknesses of these formal institutions in addressing pro-poor asset adaptation.

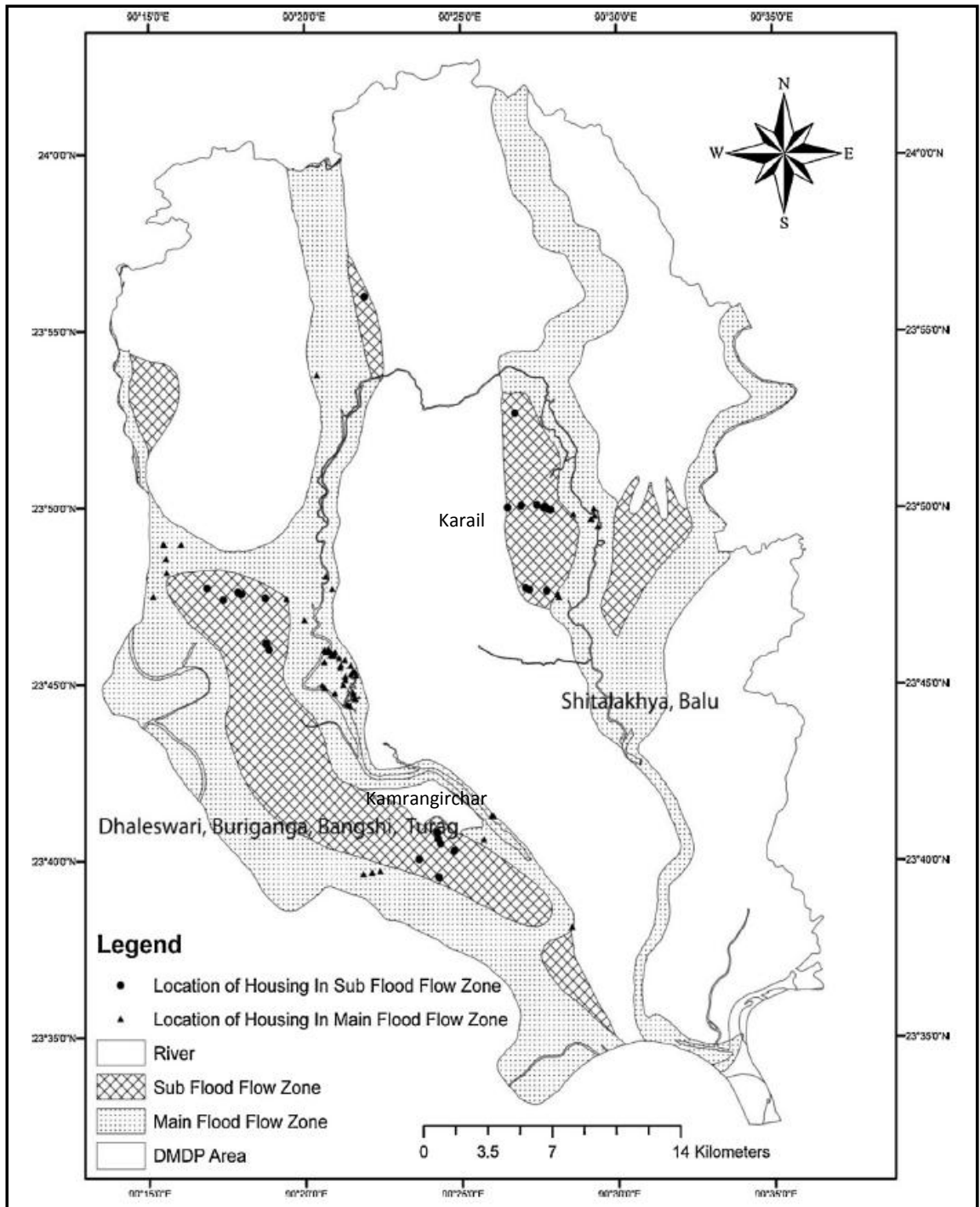
Integrating Pro-Poor Adaptation in Urban Planning

As a part of disaster preparedness, the Dhaka Metropolitan Development Plan set out the standard for land use management and floodplain management as per the guidance of the National Flood Action Plan, which recommends preserving at least 12.1% of the low-lying areas as retention ponds for flood water (DMDP, 1995). The Structure Plan of the DMDP designated two categories of flood flow zones: (i) the main flood flow and (ii) the sub-flood flow zones based on the two flow directions of the rivers adjoining the city which are the main tributaries of the floods in Dhaka (Map 6.2). As shown in Map 6.2, the first category is the *Dhaleswari, Buriganga, Bangshi Turag* rivers main flood flow zone and sub-flood flow zone for one flow direction and for the other direction, the *Sitalakhya, Balu* rivers main flood flow zone and sub-flood flow zone comprise the second category. According to the DMDP (1995), the development of land for residential, commercial and industrial development including raising the level of land via land filling will strictly be prohibited in the main flood flow zones. The only permitted land uses include agriculture; dry season recreation facilities; ferry terminals; and excavation of mineral deposits (e.g. dry season brick works) that will not cause

adverse hydraulic effects. In the sub-flood flow zones, development compatible with the rural nature will be permitted so as not to disturb the flood flow.

The Capital Development Authority- RAJUK is the public institution responsible for implementing the recommendations of the DMDP and it has the following legal tools to control the land use and growth of the city. They are: Dhaka Metropolitan Development Plan (DMDP) 1995, comprising of the Structure plan, Urban Area Plan and Detailed Area Plan; Town Improvement Act 1953; Building Construction Rules 1996; Private Residential Land Development Rules 2004; The Natural Water Body, Open Space, Park/Play Ground Preservation Rule, 2000; and recently approved *Mohanagar Imarat Nirman Bidhimala* 2006 (Building Construction Rules 2006). These laws and rules have several weaknesses that affect the control of unplanned growth in the flood flow zones and also fail to provide incentives for the urban poor to build preventive measures against the extreme weather events (see Table 6.1).

Map 6.2: DMDP Flood Flow Zone and Location of Housing Projects



Source: Alam (2014, p. 52)

Table 6.1: Weakness in Laws and Rules

Laws and Rules	Weakness
Town Improvement (TIA Act), 1953	The regulations are not sufficient in order to control land development in the flood-flow zones because the regulations do not include height restrictions, zonal plan, detailed area plan, public use of land and future provisions. Due to the lack of regulatory provisions, the implementation of land use control may be varied in different income groups. There is no such regulation for poor urban communities to improve their living conditions.
Dhaka Metropolitan Development Plan (1995-2015)	DMDP comprises 1. Structure Plan 2. Urban Area Plan 3. Detailed Area Plan (DAP) (as explained before in this chapter), but does not provide detailed guidelines on flood flow zones, agricultural land and water bodies as the DAP is still incomplete. As the lowest tier of DMDP, the Detailed Area Plan must conform to policies stated in the DMDP Structure and Urban Area Plans. But, the research identified some gross violation of DMDP policies in the proposed DAP in the context of flood flow zones. The review of DAP policies reveals that retention ponds and some portions of the main flood flow zones in the Structure Plan have been proposed for residential development. A second line of criticism highlights the failure of DAP to reflect the demographic, socio-economic and cultural aspirations of the city. There are no such proposals in the DAPs to improve the situation of one third of Dhaka's inhabitants - the urban poor living in informal settlements.
Mohanagar Imarat Nirman Bidhimala 2006 (Building Construction Rules 2006)	The National Building Code in Bangladesh does not have any regulation for the urban poor housing. In the Bangladeshi capital of Dhaka, the many families living in one-room dwellings suspended over water and with no outside space cannot hope to meet the Bangladesh National Building Code. The code defines a minimum housing size of about three times the average dwelling size in informal settlements in Dhaka city and does not allow for incremental upgrading.
The Natural Water Body, Open Space, Park/Play Ground Preservation Rule, 2000	No gazette notification of natural water bodies on the <i>mouza</i> ⁶⁸ map, while debate on water body definition continues, the private developers implement their projects in low-lying areas. Punishment for violation imposes a fine of US \$700 (approximately). In reality these fines and punishment bear little significance for dishonest developers.
Private Residential Land Development Rules 2004	Although the rule focused on social, physical and environmental standards for housing projects, no provision of punishment is imposed for unauthorized development in restricted areas.

Source: Interviews with the civil society actors from CUS, Bangladesh Institute of Planners and Urban Expert/Researcher, interviewed on 10/04/2012, 21/04/2012 & 7/05/2012); also adapted from Alam, 2014, p. 56).

These aforementioned laws/rules are not used fully by RAJUK to control the development in the flood flow zones (designated by the DMDP), though they argue they have insufficient legal support. Rather, RAJUK deviates from the advice of the DMDP in many cases, since they have continued to implement land development projects in the

⁶⁸ In Bangladesh, a *mouza* is a type of administrative district, corresponding to a specific land area within which there may be one or more settlements.

flood flow zones. Due to a lack of law enforcement and strong monitoring, private land developers at the same time are also violating the DMDP plans by developing housing projects in the flood flow zones. As a result, the low-lying areas, demarcated as retention ponds or identified as flood flow zones, have been filled up by land developers leaving insufficient space for the flood retention ponds. Islam (2009) has identified 36 housing projects by public and private land development companies located on the flood flow zones (as shown in Map 6.2) (See the list of projects in Appendix 6.2), which are demarcated for retention ponds. Land filling activities in those restricted areas (as shown in map 6.2) are going on even after the enactment of the Water Body Conservation Act 2000 (ibid.). Such a reckless conversion of flood flow zones into residential uses is a severe threat to flooding in Dhaka city. It is evident from two catastrophic floods in 1998 and 2004 that the poor discharge capacities of the existing drainage channel are responsible for the longer duration of flooding in the built-up areas and that this has aggravated the flood damage (Alam and Rabbani, 2007). Therefore, the Capital Development Authority in Dhaka city has failed to curb unplanned growth, which also makes embankment based flood control measures ineffective in Dhaka city. Integrated embankment and spatial planning in a city is only feasible by providing a sufficient quantity of water retention ponds and natural drainage facility by gravity (Bari & Efroymsen, 2009). Due to the indiscriminate urban development process in Greater Dhaka in the flood plains and agricultural lands, the lag time for surface run-off is shortened, peak flow is greatly increased, and the total run-off is compressed into a shorter time interval, creating favourable conditions for intense flooding (ibid.).

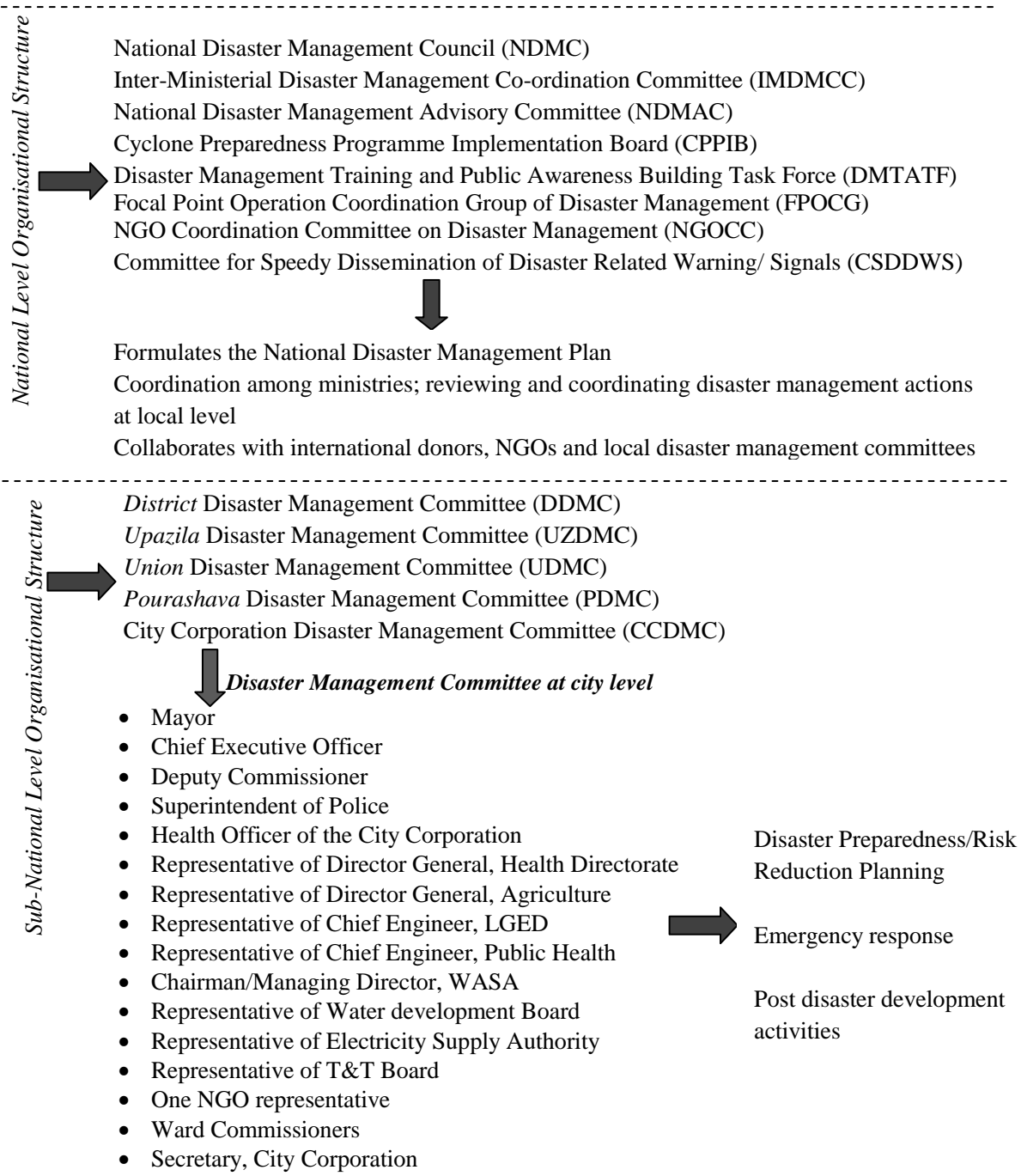
It was expected that after the preparation of the Detailed Area Plan (DAP), RAJUK would execute land use control rules appropriately at the field level to save the city and poor urban communities from frequent flooding. However, the Detailed area plan failed to take the expected action. In this context, one expert reveals, *“it is unfortunate to see the way the proposals of DAP contradicts the flood zone policies of DMDP. Most parts of the sub-flood flow zone have been designated as an ‘urban residential zone’ and ‘agriculture with rural homestead category’ in the proposed DAPs. Even in the main flood flow zones, proposals for the ‘urban residential zone’ and ‘agriculture with rural homestead’ categories are evident* (Civil society actor, Bangladesh Institute of Planners; interviewed on 21/04/2012). This flexibility in land use management regulations gives an opportunity for the private land developers to develop housing projects in the

vulnerable locations resulting in more intense and frequent waterlogging in the city. Considering the climate change scenario and the increased intensity of rainfall in a short duration, Dhaka has become more vulnerable to urban flooding.

Disaster Preparedness for Pro-Poor Asset Adaptation

Bangladesh has a two-tier disaster management system in operation, at the national and local levels (Figure 6.5). The Standing Order on Disasters (SOD) identifies major actors and institutions at the national and local level and guides them to undertake ex-ante disaster and ex-post-disaster management activities (Ahammad, 2011). There are eight committees at the national level, which can be called ‘policy level’ or ‘ministerial level’, institutions. The national level institutions mainly focus on four major activities: (i) formulating the National Disaster Management Plan; (ii) coordination among ministries; (iii) reviewing and coordinating disaster management actions at local level; and (iv) collaborating with international donors, NGOs and local disaster management committees. At the sub-national level, there are five committees that have responsibility for implementing the disaster management strategies of Bangladesh at the local level by mobilising local level service delivery organisations, civil society actors and local communities. The major disaster management strategy of Bangladesh currently follows the following steps: (i) disaster risk reduction activities among the responsible local level institutions and targeted communities; (ii) emergency response during the warning period and at the onset of disaster, and (iii) post-disaster development activities in the affected areas. In keeping with the national disaster management system, Dhaka has a ‘disaster management committee’. The Mayor of Dhaka City Corporation chairs the committee that coordinates the input of special purpose agencies such as RAJUK, D-WASA and central government institutions in Dhaka city such as the Health Department, the Bangladesh Water Development Board, the Meteorological Department, the defence authorities, the emergency authorities, ward representatives and NGOs. The disaster management committee usually sits during the pre-monsoon period to define roles and responsibilities regarding pre- and post-disaster management activities, and can also call emergency meetings. It is found that these urban government institutions, in practice, are only loosely coordinated regarding disaster risk reduction activities (Member of Disaster Management Committee; interviewed on 01/03/2012). The City Corporation, as a locally elected government agency, mainly addresses the aforementioned responsibilities of disaster management at the local level.

Figure 6.5: Two-tier Disaster Management System in Bangladesh



Source: Ahammad, 2011; GoB, 2010a & DMB, 2010

The disaster preparedness or risk reduction activities of the urban government agencies have the potential for asset adaptation if they integrate risk reduction planning with sustainable development planning such as development of climate/disaster proofing infrastructure, flood-proof housing, water supply and sanitation, and participation of the urban poor in the decision making process for example. Disaster preparedness/risk reduction among the urban poor living in informal settlements is constrained by the

poorly defined roles of urban government agencies and inadequate coordination between them. The peripheral settlements such as Kamrangirchar are also outside the reach of the urban government agencies. This is hardly unique to Dhaka city. A comparative study in 10 Asian cities highlighted how the undefined roles and responsibilities of urban government agencies obstructed disaster risk reduction planning and action in general and pro-poor climate change adaptation in particular (Tanner et al., 2009). It is Dhaka City Corporation as an elected body that mainly addresses its responsibilities for disaster preparedness, for instance, through building small scale infrastructures inside the informal settlements in order to avoid waterlogging.

The role of Dhaka City Corporation in integrating disaster risks into mainstream development activities is hindered by the shifting major service delivering responsibilities from DCC to the special purpose agencies such as RAJUK, D-WASA. Table 6.2 shows the level of responsibilities that DCC has for the delivery of services; and it reveals that Dhaka City Corporation does not have responsibility for the development and the maintenance of major services, which is directly related to pro-poor asset adaptation planning. While Dhaka City Corporation is best-placed to address asset adaptation of the urban poor, the central government of Bangladesh is reluctant to hand over power and resources to a democratically elected government especially in Dhaka, for fear of its capture by the opposition. This greatly constrains the powers, functions, jurisdictions and financial capacities at the municipal level (Banks, 2008). Despite this, the research found that Dhaka City Corporation has been performing some flood preparedness activities through involving different departments of Dhaka city corporation including the civil engineering department, the store and purchase department, the electrical and mechanical department, the urban planning department and the conservancy department, whilst also incorporating the ward level disaster management committees since 2010 (Box 4). One organisational respondent reveals that they started flood preparedness activities as a part of their responsibilities assigned in the Standing Order on Disasters (SOD), enacted by the central government in Bangladesh (Member of Disaster Management Committee; interviewed on 01/03/2012).

Table 6.2: Level of Responsibilities of Dhaka City Corporation

Category of Service	Asset Adaptation	Level of Responsibilities		
		Full	Partial	Not Responsible
Building control	Identifying vulnerable buildings and evacuating people from these buildings			●
Public safety	Enhancing fire-service and civil defence for disaster prevention and vulnerability reduction of the urban poor through training, defining roles and responsibilities for all of the stakeholders, and providing information and also necessary equipment			●
Streets	Building internal pavements inside slums, access roads and repair roads		●	
Education	Education for the children of the urban poor and building public awareness about disaster management		●	
Slum/Community development projects	Mobilising communities, small infrastructure development and provision of public housing		●	
Public health	Climate proofing hygienic sanitary latrines, provision of primary health care services for the urban poor		●	
Water supply and drainage services	Building new drains, storm water drains; repairing vulnerable drains; provision of safe drinking water, identifying new water sources (such as rainwater) to reduce dependency from groundwater			●
Urban planning	Provision of public housing, identifying safe places for housing and infrastructure; recognising flood flow zones and preventing development from flood flow zones			●
Solid waste management	Collection, dumping and recycling services; incorporation of poor urban communities into the management system, and adoption of a community based management system	●		

Source: Review of Dhaka City Corporation Ordinance (1983) & DCC Citizen Charter, 2012

Box 3: Flood Response Preparedness Measures of Dhaka City Corporation

- Stocking bamboo, tents, candle, and dry food;
- Stocking bricks/stones chip, cements, bitumen and other construction materials;
- Stocking lamps such as tube and incandescent, different sizes of electric wire, poles and other electrical accessories;
- Arranging all types of vehicles and equipment such as trucks, pay loader, bulldozers, excavator, cranes, lifters and mobile toilets etc;
- Collecting information related to hazardous areas and population and preparing a short term contingency plan for the evacuation and relief distribution;
- Mobilising and preparing the work of the conservancy staff ;
- Raising road levels above flood water level;
- Disseminating information related to hazards and the nearest safe shelter among the vulnerable people in the flood-flow areas;
- Collecting information related to vulnerable families and their relief needs; and
- Constructing a permanent pumping station at some strategic locations to pump out flood water

Source: Member of Disaster Management Committee; interviewed on 01/03/2012

These above mentioned preparedness responses are started before the monsoon (July to October) except the awareness raising and dissemination of hazard information, which is usually started during the monsoon. These pre-disaster activities of the ‘disaster management committee’ indicate a degree of responsiveness of local political actors towards the increasing risks of climate hazards. However, the organisational respondent also reveals that the stockpiling of goods and equipment are not enough to support all the vulnerable population who mostly live in the slums and that the purchase and collection of this equipment is often faced by serious financial constraints (Member of Disaster Management Committee; interviewed on 01/03/2012). The committee has limited budgets and also lacks the logistical support and skilled staff necessary to undertake asset-based actions for the urban poor. They have to rely on external funds to meet the infrastructural needs of the urban dwellers. One organisational respondent reveals: “*Dhaka City Corporation raises 30 to 40 percent of its revenue from its own sources [50 percent comes from holding taxes] and a further 60 to 70 percent is channelled to the corporation through central government and foreign aided projects, loans and a special grant from a line ministry*” (Estate Officer, DCC; interviewed on 22/02/2012). Table 6.3 shows that Dhaka City Corporation has planned to raise only

32.57 % of revenue by itself in the fiscal year 2011-12. The rest of the total budget (67.43 %) for the same year will come from Government grants and foreign aided projects (see Table 6.3). This financial dependency gives the central government further leverage to control the Corporation (IGS, 2012). As a result, most of the infrastructure investment supported by external funding raised by the city government goes to the wealthier areas. There is little interest shown by national governments or donors who fund infrastructure initiatives in Dhaka to address the urgent adaptation needs of those most at risk.

Table 6.3: Income of Dhaka City Corporation

Sources	Budget (2011-2012) (BDT in millions)	Percentage
Own Revenue	8562.5	32.25
Other	85	0.32
Government Grant	1000	3.77
Special Grant from Government	1000	3.77
Government and Foreign Aided Project	15902.50	59.90
Total	26550	100.00

Source: Dhaka City Corporation, Revenue Department, 2012

At an emergency period during any disaster, the service provided by the disaster management committee in Dhaka city mainly includes shelter, food, safe-drinking water/sanitation facilities and regular provision of health care. It mobilises resources, cash and kind, from central government relief funds, medical teams and medical equipment from the Ministry of Health, political parties and from some NGOs (such as Red Crescent), workers of private bodies, social elites, and civil groups (Member of Disaster Management Committee; interviewed on 01/03/2012). Ward level disaster management committees in collaboration with DCC officials identify and arrange buildings and structures for providing shelter for the flood victims within their jurisdiction. The regular relief distribution is managed by the ward-based committees and community volunteers. In answer to a question regarding problems faced by the relief and rehabilitation activities of local disaster management committee, the Ward Commissioner noted: *“ward-based disaster management committees have not usually had the opportunity to keep a stock of relief materials. Relief from the central government has come to the ward level on a regular basis during the flood time, but it was not adequate. Then, we had to depend on some reliefs that came to the shelters from NGOs, local elites and private organisations. We could not make any plans for the*

proper distribution of relief coming from outside as we had no idea about the quantities, sizes and types of such relief materials. Sometimes the number of certain kinds of relief items was less than the number of beneficiaries. The post-flood relief, the number of VGF cards usually sanctioned by the central government was not sufficient at all” (interviewed on 16/03/2012).

Climate Change Adaptation Network for Urban Areas

The climate change adaptation institutional network is in its early formation. Bangladesh has been moving incrementally towards the implementation of climate change strategies since 2009, involving the participation of ministries, departments, local government, civil society and others. It is envisaged that climate change adaptation strategies will be implemented through current central governance structures and institutional mechanisms. One example of this is central government water resource agencies adapting to changing precipitation regimes, and agriculture agencies adapting irrigation practices or crop characteristics in response to changing climate conditions. A ‘climate change cell’ was established in the Ministry of Environment and Forest (MOEF) in 2004 in order to mainstream climate change adaptation strategies⁶⁹ in Bangladesh. There is also a focal person in each ministry leading on climate change activities and mainstreaming climate change into sector-specific activities. This helps to build the institutional memory of, and capacity for, climate change in each ministry. All focal points are coordinated by the climate change cell, under the MOEF. The national government of Bangladesh materialises adaptation planning through the organisational structure of the national Comprehensive Disaster Management Programme (CDMP)⁷⁰, bringing together local communities, donor agencies, municipal and regional authorities and national ministries. Anchored in government structures, this programme aims to mainstream disaster risk reduction and climate change adaptation.

The programme’s focus on decentralised decision-making and local participation, as reflected in its methodology, presents a further opportunity to strengthen urban

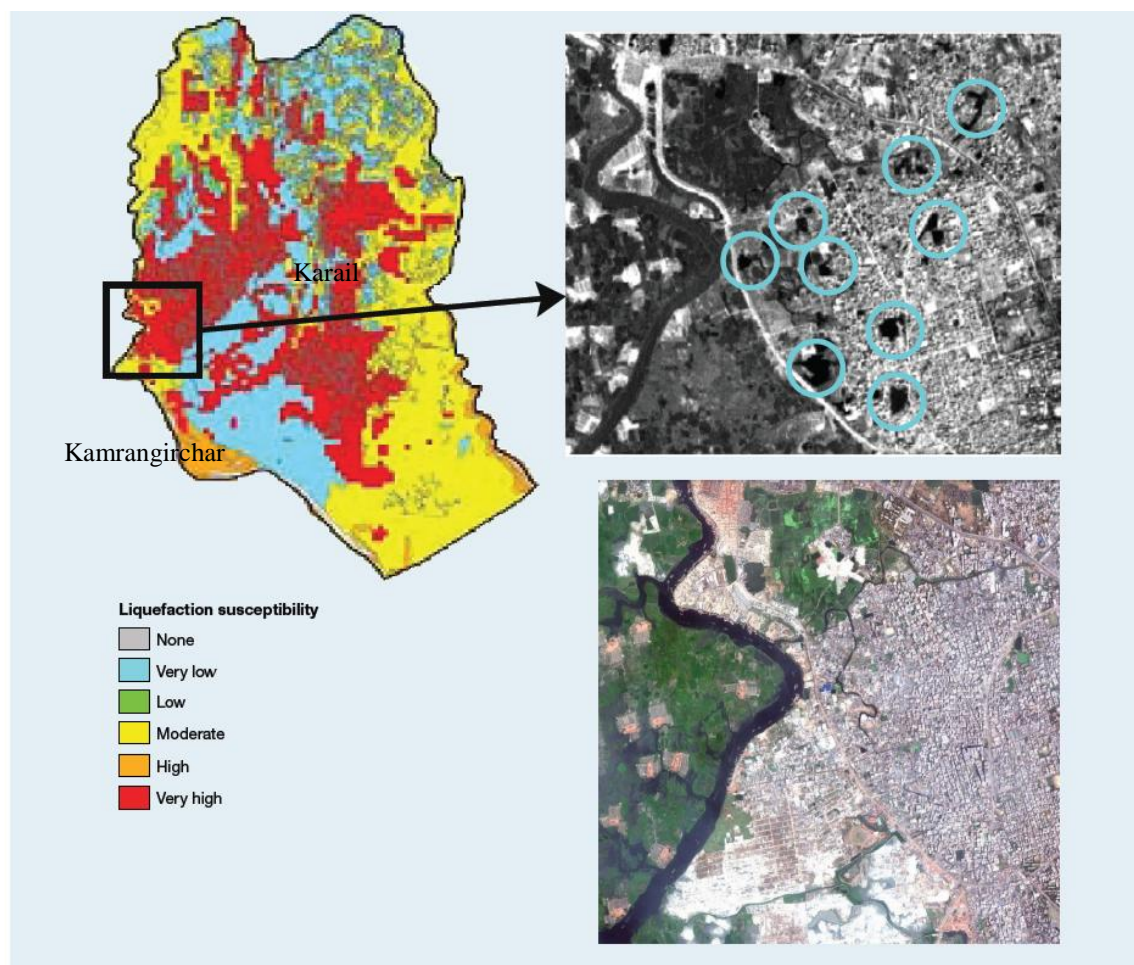
⁶⁹ Mainstreaming climate change can be defined as the process of integrating climate change considerations into the policy-making, budgeting and implementation processes at the national, sector and sub-national levels (Pervin, 2013).

⁷⁰ The Government programme, CDMP II (2010-14), aims for a horizontal and vertical coordination and mainstreaming of disaster risk reduction so as to reduce Bangladesh’s vulnerability to adverse natural and anthropogenic hazards and extreme events, including the devastating potential impacts of climate change (GoB, 2010b; GoB, 2011).

governance, including the role of urban poor (GoB, 2010b & GoB, 2011). The third outcome of the programme is to reduce urban risk through structural and non-structural means, raise awareness and pilot the urban community risk reduction methodologies targeting the extreme poor. Under this outcome, the CDMP programme has also developed seismic hazard and corresponding vulnerability maps for the critical structures as well as the building stock within the Dhaka City Corporations area along with, a contingency plan for the city (see Figure 6.6). The project reveals that large areas of Dhaka are highly susceptible to liquefaction during earthquakes, and many have been used as construction sites for buildings and infrastructure in recent decades⁷¹. Figure 6.6 shows the shrinking and disappearance of water bodies (circled) in one such area, West Dhaka, between 1996 and 2009. The figure 6.6 also reveals that both of the case study settlements are at high risk for liquefaction. In addition, the programme has also started piloting participatory vulnerability assessment at the community level in the poor urban settlements in three major cities by involving the local civil society organisations such as NGOs and CBOs in understanding the nature of risks and the characteristics of vulnerable households within the community, leading to the development of a community level action plan (ibid.). Within the pilots, the programme will develop community risk reduction strategies for poor urban communities. Further study is required in order to identify how risk evaluation of this project will help future disaster risk reduction and climate change adaptation planning in the urban context of Bangladesh. Additionally, further research is also needed to examine whether and how poor urban communities will be prioritised in risk reduction planning.

⁷¹ Destroying retention ponds and drains increases risks of seasonal flooding just as building in drained wetlands increases earthquake risk (UNISDR, 2011). Dhaka's wetlands, drained and filled with sand for housing development, are prime candidates for liquefaction (ibid.).

Figure 6.6: Areas of Dhaka Susceptible to Liquefaction and Change in Water and the Built Environment



Source: UNISDR (2011, p. 19)

6.4.2 The Role of Informal Institutions for Building Pro-Poor Asset Adaptation

Amidst the lack of urban formal institutional support as mentioned above, informal institutions (such as local political elites, community based organisations) emerge through which the urban poor are able to access housing and basic services. This research has found a range of informal institutions including externally connected political leaders, internally connected local elites, CBOs, local credit groups, and urban poor organisations providing supports for building autonomous adaptations in Karail. In addition to these informal institutions, formal political systems (ward commissioners), NGOs, aid organisations and legal aid civil society organisations also play an important role in building individual and communal adaptive practices. The informal institutions interact with public (e.g. Dhaka City Corporation, DWASA) and private agencies (e.g. NGOs, legal aid organisations) and attempt to influence the provision of assets to enable

adaptation for those in a vulnerable situation. This research has investigated the role of informal institutions in building or constraining the urban poor's adaptation practices in the case study settlements. The institutions have been mapped out by the level of interaction by the urban poor with these institutions in accessing assets and services for adaptation (see Table 6.4 and 6.5).

Commonalities in the Role of Informal Institutions in Both Settlements

The participatory institutional mapping of both of these settlements (see Table 6.4 & Table 6.5) found clientelistic relationships at multiple levels that provide varying degrees of support. While the poor and extreme poor households of both the settlements lack a formal set of entitlements, they try to manage uncertainty and improve access to employment, finance, physical and social support by maintaining patron-client relationships. In this context, Jahan et al. (2011) argue that the ability to build and sustain multi-level social networks acts as the main foundation for survival and improvement in the informal settlements of Dhaka city. The household interviews reveal that the urban poor do not just have one patron (Household interviews, both male and female respondents, 2012). It is found that the urban poor households seek their multiple needs at different levels from employers, landlords, local political leaders, local representatives, community leaders and moneylenders. The extreme poor households further seek to improve and extend their social contacts by being trustworthy, hard work and reliable, through which they seek to establish and maintain patron. This may offer future returns in terms of borrowing arrangements for cash or food. For example, a good working relationship with a garage owner can lead to short-term loans on reasonable terms (Rickshaw pullers of both the settlements, 2012). Those who work as maidservants consider their employer as one of the important social contracts for them (Homemaids in Karail and Kamrangirchar, 2012). In their sudden crisis, they sometimes give financial help and suggestions. However, the able-bodiedness of some household heads often constrain the ability of some of the poorest households to actively construct or benefit from social capital through association. It is found that garage owners are reluctant to offer employment to the elderly to pull rickshaws; employers and moneylenders often refuse to provide credit to households where breadwinners are sick or disabled (Interviews with elderly and disabled families in Karail and Kamrangirchar, 2012).

Savings schemes can be drawn on to help cope with a wide range of stresses or shocks, including those arising from extreme weather. The institutional mapping (as shown in Table 6.4 & Table 6.5) reveals that in both Karail and Kamrangirchar, NGOs and/or cooperatives operate formal credit⁷² and savings schemes that offer loans to the urban poor for building income generating activities and they also provide credit to help the urban poor to adapt to climate stresses. Additionally, these schemes also help people to employ different physical and economic recovery preparedness measures. In the formal credit arrangements, the urban poor have to participate in compulsory saving schemes for 6-12 months in order to get access to credit; and loan repayment can guarantee further access to loans for them (Proshika Savings Group President, interviewed on 04/05/2012). Banks (2012) argues that compulsory savings periods often limit the role of the formal loans as a source of emergency finance for the urban poor. However, the research found that, in both the case study settlements, the formal credit systems operated by NGOs and CBOs rarely select urban extreme poor households as the beneficiaries.

This was partly because of self-exclusion. During the field survey, the extreme poor households reported that they do not have ability to take on risk, which is key to becoming successful entrepreneurs (Female respondents, 2012). So, these households do not want microcredit initially and hence they do not want to join in the group because they feel that they would be unable to pay back the loan money and would therefore be stuck with debt for which they would have eventually be forced to sell off what little possessions they still have. In the case study settlements, the extremely poor households reported being very worried about the consequences of not being able to make weekly loan repayments and so do not join collective credit and saving schemes in their neighbourhood (ibid.).

This was partly due to social exclusion, since the members in the credit and savings schemes do not want to associate with the extreme poor households for both economic and social reasons (Proshika Savings Group President, interviewed on 04/05/2012). The

⁷² Formal loans from NGOs and cooperatives are characterised by fixed interest and repayment schedules; and interest is calculated on the amount borrowed and split across the finite term of the loan (Banks, 2012). Although intended for investment, these can also be used for consumption smoothing.

community members refer to the households who are in extreme poverty as the *beggar class* (i.e. persons with disabilities, physically or mentally ill or chronically sick people, and old people beyond working age) and also as *helpless poor households*. As explained in this chapter, the latter either have only one adult earning member, who is often a woman, or the adult members of these households are not in a position to use their existing human capital for various reasons such as childcare, sickness, etc. The community members consider that the capacity of these poor households to make regular savings and to invest loan money is very low (ibid.). Since the members of the group have to shoulder joint responsibility for repayment of the loan they prefer either the moderately poor (having more than one adult earning member - one of them often a man who has better economic mobility) or non-poor slum dwellers as members in their credit and savings group and, hence, in the process the extreme poor are excluded (ibid.). Sometimes, women of the extreme poor families fail to join in a group because the other members in the group feel they are high risks because their husbands are gamblers or drug users and would waste the money, or, they are not good money managers or, they would migrate out of the community (ibid.). Thus exclusion from financial services limit their capability to gain income and asset diversification and, therefore, the vulnerability of extreme poor households remain unchallenged.

The Informal Institutional Process particularly in Karail

In Karail, externally connected leaders have good networks with formal political system, public service delivering organisations and economic elites (as explored in table 6.4) that bring in information, resources and opportunities to this slum. A poor urban household's prospects for accessing these resources depend on being internally well connected. As Karail is on public land, the urban poor are living in these settlements under the persistent fear of eviction. The externally connected political leaders assign some *muscle-men* or intermediaries to collect the monthly rent to ensure their temporary tenure security. At the same time, these political leaders use the slum settlers as a large supply of votes during the elections. The extreme poor households consider themselves as vulnerable and powerless; as such they are not interested in attending the protests against the urban government where political leaders play the major roles (Interviews with extreme poor residents in Karail, 2012).

Table 6.4: The Role of Informal Institutions for Adaptation Practices in Karail

Institutions available to poor urban households	Access to Assets	Asset Adaptation
Internally connected leaders and economic elites within the settlement	Employment, financial assets and emergency credit	Household economic measures (e.g. regular employment, employment diversification). The emergency credit helps households to employ physical measures
Externally connected leaders build informal relation with public service delivering organisations	Access to water supply	Households can access water for their daily use within their housing compound, which saves time for income generation. But, water is insufficient for meeting daily needs. During monsoon, water often gets contaminated due to unhygienic pollution entering pipes at weak connection points. Moreover, poor households use ring wells to collect water from this unhygienic pipe system, which increases health risks. When flood strikes, households have to collect water from alternate source (tubewell) from further distance, at a higher price and with longer waiting time due to increased people using the same water source.
	Access to electricity	Access to electricity connection provides an opportunity for poor households to increase their power usage to reduce heat stress during summer. But, in Karail during hot weather, the increased use of informal power frequently causes electrical connections to short-circuit, resulting in fires (which can spread quickly in dense settlements).
Civil society organisations and community groups for tenure security	Tenure security	Household can deploy preventive and impact minimising physical measures to climate variability
NGOs and community groups	Accessing services (e.g. credit, health services, education & emergency relief)	Household can deploy various economic and socially oriented measures to reduce the impacts of climate stresses and shocks
Formal political systems through externally connected leaders	Access to emergency relief	When disaster strikes, households get access to formal support (e.g. relief and financial grants)
Elite neighbours near the Karail settlements	Employment, financial credit and emergency relief	It facilitates household economic measures; and emergency relief helps to build households' emergency preparedness
Locally formed groups (e.g. <i>Bazaar</i> (market) committee, regional committee, youth groups and women's groups)	Emergency services	Move vulnerable individuals, households to safer places, distribution of flood warning system and community collective actions for preparedness recovery

Note: This is based on the key informant interviews undertaken at Karail, involving three community leaders (interviewed on 10/04/2012, 02/05/2012 & 11/05/2012); the findings of key informants are validated by one focus group discussion (held at 04/06/2012). The group consisted of two house/room owners and five tenants. The participants were asked to identify the institutions that support them and to distinguish them in terms of whether they were located within or outside the settlement. In addition, they were also asked to identify how internal informal institutions interact with external informal and formal institutions and offer supports to poor urban households.

Due to the fact that this slum has developed through encroaching on government land and is therefore ‘illegal’ to the formal institutional actors, its inhabitants cannot access water and sanitation services directly from the public water and electricity supply authority, the Dhaka Water Supply and Sewerage Authority (DWASA). The need for water in the Karail *bustee* mostly is met by local water vendors under very different conditions. Local vendors are involved in the illegal tapping of water from the DWASA main line with help of corrupt government officials. Most of the local vendors, therefore, maintain good relationships with the externally connected political elites and, collectively employ security personnel who inform the leaders about the possible visit of an inspector and advise displacing the line for a short period, and informally negotiate with and make unofficial payments to DWASA officials. The local *bazar* (market) *somitte* (co-operatives), in which externally connected local leaders are active, are also involved in water vending. Despite the fact that DWASA did not have a mandate to supply water to the informal squatter settlement, the *somitte* arranged the connection with the help of the local ward commissioner. This ‘approved’ connection made it possible for several other influential members of the cooperative to run a number of illegal connections to this supply.

Local leaders also installed tube-wells illegally and supplied water to some room clusters in the Karail slum. Although the poor urban inhabitants get access to water supply through these aforementioned illegal connections, the supply is very expensive and limited. Hossain (2011) reveals that the price of water in Karail is about 10–15 times higher than the unit price of DWASA piped water. This creates a situation where the extreme poor are forced to limit their access to water to an average duration of an hour a day per room-cluster inhabited by eight to ten households. They sacrifice their minimum water needs for domestic use and bodily hygiene (Interviews with extreme poor households in Karail, 2012). This illegal connection also increases vulnerability of Karail inhabitants to climate variability due to the nature of its illegal connection, from a utility supply viewpoint, water is supplied by DWASA through a utility-managed piped water system. The utility-run piped systems have high resilience to increased rainfall and rainfall intensity, although piped water as a technology is considered to have low resilience (Faulkner, 2011). This illustrates that management is able to overcome low resilience of technology, hence management approach is more important than the technology itself in relation to piped water supply (ibid., p. 39). The Dushtha

Shasthya Kendra (DSK)⁷³ has a limited role supplying water to a few room clusters through community groups and in negotiation with DWASA staff. DSK particularly developed the capacity of these community based organisations (CBOs) to plan, prioritise, fund and implement their own development programme. As a result, the slum dwellers in these few clusters of Karail form their own CBO to apply for a water supply connection on a collective basis. The activities of the DSK have provided an opportunity for people living in these few clusters of Karail slum to gain access to a legal water supply. Although DWASA creates the provision for getting a legal water supply to the slum dwellers, there is no institutional structure in place to manage and coordinate the slum level service delivery function within DWASA. Hence, the coordination mechanism for the relevant stakeholders to ensure the efficient functioning of slum WSS facilities and low-income communities is absent in the head office of DWASA (CBSG, 2010).

The Coalition for the Urban Poor (CUP)⁷⁴, in collaboration with several human rights organisations such as *Ain-O-Salishi Kendra* (Law and Arbitration Centre), *Nijera Kari* (Do it Ourselves), *Manobik Sahajjya Sangstha* (Humane Assistance Organisation) and Bangladesh Legal Aid and Services Trust (BLAST) play an important role in maintaining the Karail *bustee* inhabitants' right to shelter. The CUP has been mobilising and educating the poor of the Karail *bustee* through human rights and housing rights advocacy programmes since the 1990s, and as a consequence of which the inhabitants are becoming more aware and knowledgeable. The human rights organisations have taken cases of illegal eviction, by various departments and law enforcement agencies, to the appropriate courts and defended these with relative success. In 1999, these organisations voluntarily rallied together to file a writ petition from which a High Court Order was issued. Their petition to the High Court was successful in obtaining a

⁷³ *Dustha Shasthya Kendra* (DSK) designed a community-based water supply and sanitation programme which is being replicated now in other donor funded water supply and sanitation projects in Dhaka city. Since 1991, DSK has been mediating between the slum dwellers, DWASA and DCC with a guarantee of reimbursement by the slum dwellers of both the capital and recurring expenditures of the extended services (Rahman, 2008). As a result, the DWASA provided water connections to selected slums and DCC allowed the necessary road cutting and the construction of water points on its land to set an example.

⁷⁴ The Coalition for the Urban Poor (CUP), a coalition of 49 NGOs working in Dhaka since 1989, is taking a stand against all slum evictions. It organises resistance from within the threatened community, provides legal aid, and consults with and seeks assistance from professionals and CBOs. CUP aims at stopping evictions, which do not provide feasible resettlement and assist upgrading in the future. The Coalition for Housing Rights Bangladesh (CHRB), a member of the Asian Coalition for Housing Rights, was formed in August, 1993.

temporary stay order. On the 2nd of August 2003, the High Court issued an injunction against any eviction attempt, providing a level of tenure security for Karail slum dwellers. This builds poor urban communities' confidence to participate actively in risk management activities.

The local committees of urban poor's federation⁷⁵ also active in Karail to organise people, maintain strong network with civil society organisations and formal political system in order to provide tenure security to the urban poor in this settlement. During the recent eviction in 2012, this research found that *NDBUS* had played an active role in organising the poor *busteabashee* (slum dwellers) to agitate and protest against the further eviction of Karail residents. Most of the residents have participated in a peaceful protest against slum eviction. The committee members of *NDBUS* in the Karail slum have recently started a major campaign to enable the community to purchase land for future resettlement. The research found that only landlords, and some moderate poor households living in the slums, have access to this committee. None of extreme poor households interviewed in Karail knew any of the members of *NDBUS*. Banks (2008) argues that *NDBUS* has limited influence because of its low coverage (i.e. *NDBUS* committees exist only in big inner city slums) and a lack of national government commitment. There appear to be no mechanisms through which this urban poor organisation can influence national policy.

During any disaster, social learning activities in Karail predominantly rely on private self-regulatory activities such as flood management by NGOs, and community-based organisations that support the extreme poor households and marginalised groups such as old, disabled, women and children with food, water, medicines, temporary shelters and relief during the floods. In the 1998 flood, the respondents reported that rich people from the surrounding neighbourhood came forward to help them, and NGOs provided health and sanitation and also health services for poor pregnant women who normally

⁷⁵ *Nagar Daridra Basteebashir Unnayan Sangstha* (*NDBUS*) became the legitimate slum dwellers' organisation authorised to represent slum dwellers and be active in lobbying the city government as well as central government on their behalf. It was created in 1999, originally designed by CUP, as a network of local committees in the low-income settlements within the jurisdiction of Dhaka City Corporation. The members of *NDBUS* view the institution as independent of NGO structures (recently it was registered with the Social Welfare Department of Bangladesh) and as such, represents a true collective and civic strength across the entire city. *NDBUS* currently operates in all of the 10 zones of Dhaka city, covering more than 40,000 residents in the informal settlements.

did not get attention from public relief operations. At an emergency, the poor urban residents in Karail also got assistance and emergency supports from the formal political system (e.g. ward commissioner).

The Informal Institutions in Kamrangirchar for Adaptation

As explained in Chapter four, the slum clusters are developed as private settlements; but these settlements lack the public institutional support to access the basic services because Kamrangirchar is situated outside of the Dhaka city municipal boundary. The presence of NGOs and community based organisations is comparatively lower because donors and NGOs have a preference for working in the larger squatter and slum settlements on housing and service issues. The participatory institutional mapping (as shown in Table 6.5) reveals that maintaining a social relationship with house owners is the only way to access services such as water and sanitation. The house owners build small rooms with temporary construction materials in their housing clusters. The extreme poor can enjoy a stable tenure security by the payment of monthly rent because of the legal registration system of these houses. Some slum clusters are developed in Kamrangirchar without any basic services and the poor people of these clusters depend on public tube-wells and sanitary latrines provided by the Department of Public Health and Engineering (DPHE). In Kamrangirchar, the slums are also developed in flood-flow zones (designated by the Dhaka Metropolitan Development Plan, as explained above in this chapter) without the permission of the Capital Development Authority. The inhabitants of these slum clusters live with a fear of eviction and so they maintain good networks with the externally connected political leaders or activists as they are well connected with the higher level political leaders and also the local Member of Parliament.

Table 6.5: The Role of Informal Institutions for Adaptation in Kamrangirchar

Institutions available to poor urban households	Access to Assets	Asset Adaptation
Strong relation with house owners	Tenure security, services, emergency food and credit	Households can take physical and economic measures to reduce the impacts of extreme climate events
Patrons outside the community (e.g. employer)	Employment, credit and food support	Households can take impact minimising non-hazard measures
NGOs' credit services outside the community	Access to financial assets	Household can diversify their income and employment; and access to emergency credit for preparedness recovery
NGO water supply and sanitation, environmental health services in some slum clusters	Accessing services	Human capital development; and community based actions to improve basic services

Note: This is based on a participatory methods including two key informant interviews (interviewed on 12/03/2012) and one focus group discussion (held at 01/04/2012) undertaken at Kamrangirchar, involving two non-poor house owners and five extreme poor tenants.

The involvement of the *Dustha Shasthya Kendra* (DSK) in water supply and sanitation has improved water supply and sanitation services in the slum clusters of this area. As the DWASA did not serve this area, the *DSK* developed an innovative 'Water Credit Programme' for delivering basic services to the slum dwellers, and it started in 2004. In order to implement and maintain the services, *DSK* established community development organisations consisting of between 9-12 members, mostly women (Programme Coordinator, *DSK*; interviewed on 27/05/2012). The community-based organisations were provided loans to households to build their community based services (tube-wells, hand pumps and hygienic sanitary latrines). The *DSK* also provided technical support to install the services. Households were charged a flat 10% 'administrative fee' which they were required to pay in addition to the principal loan. Each loan is repaid within a two year period. The *DSK* also focused on building the local organisational capacity through training, sharing information and learning by implementing the project (ibid.).

The poorest people had very little involvement in community decision-making, as illustrated in the following comments from the former programme coordinator of the Water Credit Programmes of *DSK*, "only people who can pay off the money are on the committees and extreme poor people come to meetings but stop coming when they hear about the requirements to pay. Sometimes they were reluctant to join because they believed that sooner or later they will be moving to other room clusters in the settlement

or another bustee” (interviewed on 27/05/2012). Similarly, the study by Hanchett et al. (2003) confirms the extreme poor’s lack of participation in the committees since they are occupied by their marginal incomes insufficient for their basic needs. If very poor people cannot pay for the use of programme facilities, they use any other available water source such as the free public standpipes (hydrants) provided by the DPHE, but these are usually placed at the edge of a slum so most of the people who use them must walk long distances and wait in long queues (ibid.).

6.5 Conclusion

This chapter has explained the urban extreme poor’s adaptation practices as well as the role of urban institutions and policies in supporting or constraining asset adaptation in the Bangladesh case study which has contributed to answer the third and the fourth research question of this research. From analysis of the coping and adaptive strategies that the urban extreme poor employ to climate variability and change, this chapter shows huge differences in its effectiveness; these include both forward looking solutions and short-lived and even harmful measures. Educating the younger generations has been a forward-looking strategy employed by households living in the urban slums of Dhaka city. Physical measures- the structural adjustments in urban extreme poor houses and their living conditions, can minimise the impacts of existing climate stress. Additionally, some physical measures such as repairing houses, changing construction materials and high storage facilities can build resistance to future climate shocks. Some economic (e.g. being engaged in two jobs simultaneously) and socially mediated measures (e.g. reciprocity with neighbours, house owners; participation in community network) can reduce socio-economic and livelihood challenges facing the extreme poor associated with climate variability and climate. However, some practices seem ineffective in both the short and long term and at all levels, including reducing consumption of food or other essential goods; taking loans and selling assets; purchasing inferior substitutes (e.g., foods); intensification of efforts by other household members – in most cases children; frequent movement etc. Thus the urban extreme poor’s adaptive practices are ad hoc and impact minimising, which can offer short term resilience to the extreme weather events. However, their ability to build long term productivity and asset adaptation is often constrained by urban institutions and policies.

This chapter has explored the role that national and local level policies and strategic options play, as well as formal and informal institutions, in mediating the asset adaptation of urban poor people. The analysis of the national level policies for housing and basic services reflects an enabling policy approach to facilitate access to assets for the urban poor to adapt to climate variability. This policy, however, has not been implemented effectively. There is hardly any practical and meaningful initiatives in local urban policy frameworks to provide a sufficient quantity of affordable housing for the poor urban group within the Greater Dhaka Metropolitan area. Bangladesh's national level adaptation strategies are focused on protecting livelihoods in ecologically fragile areas. It pays almost no attention to assessing the adaptation needs, resources and options of the vulnerable groups in urban areas.

City and municipal governments in Dhaka city meet many of their responsibilities for urban planning, housing and basic services and infrastructures only for particular sections of their population. Despite this, they have identified the city's climate change vulnerability to the extreme weather events through the urban development plan as well as national level programmes. The city government authorities in Dhaka city have taken the approach of mainstreaming climate-change adaptation and disaster-risk reduction into urban planning and management practices. The existing rules, laws and plans, however, fail to identify the adaptation needs of the urban poor; and the implementation process of these regulations often fail to control the physical development in risky areas and increase the vulnerability of the urban poor who live in these areas.

In the disaster preparedness strategy, the Standing Order on Disasters (SOD), the national government identifies key institutions and actors to work with the Disaster Management Committees to undertake disaster preparedness, emergency response and post disaster development activities and assigns clear roles and responsibilities to these institutions and actors at the city level. Although it stimulates the activities of disaster preparedness/risk reduction planning at the local level, there is little coordination among government agencies and little support from these agencies for community level actions. A critical issue in relation to disaster preparedness for the residents of the informal settlements is the fact that many of the services on which the urban poor depend for protecting or adapting assets to climate variability and change are not the responsibility of the formal urban local government in Dhaka city. Financial constraints

also are a major factor that limits the capacity of local government to execute disaster preparedness for the residents of the informal settlements. The post disaster relief and rehabilitation activities indicate that policy actors are not viewing the reconstruction phase as an opportunity to take into account the potential adverse effects of future climate change-induced flooding events. Therefore, the vulnerability of the extreme poor households and groups remain unchallenged.

Lacking a formal institutional support, clientelistic relationships play the dominant role in accessing tenure security and basic services for the slum dwellers in Dhaka city as the externally connected political elites carry out the negotiations with service providers and also the formal political actors to monopolise services. This informal institution does not ensure access to assets for the extreme poor households because they would have to purchase these on the market from the informal providers at higher prices than the actual price, and an over-reliance on expensive private sector providers often increases the vulnerability of very poor people. The civil society organisations are often involved in service delivery and in mobilising and educating the urban poor through human rights and housing rights advocacy programmes, and as a consequence of which the urban poor are becoming more aware and knowledgeable. However, the internally connected slum dwellers (land lords) mainly have a privileged position in the NGO-run development projects and they have control of the community based facilities, although these projects are participatory in nature.

Chapter 7 : The Role of Social Sector Approaches in Pro-Poor Asset Adaptation: Lessons Learned from the ‘UPPR’ and ‘DSK-Shiree’ Projects in the Urban Slums of Dhaka City

7.1 Introduction

The chapter aims to explore the role of social sector programmes or interventions to support the urban extreme poor households in protecting or adapting their assets against increased risk levels. The pro-poor asset adaptation framework (as explained in Chapter three) proposes that programmes or interventions should support the extreme poor through asset accumulation strategies which facilitate both individual and collective asset adaptation strategies. Reviewing the literature, the social sectors policy and the social sector programmes (e.g. social funds for community-based adaptation, social protection and asset transfer programmes) have witnessed a rapid rise up the development policy agenda of tackling poverty in developing countries (CPRC, 2008), together with improved evidence. These policies and programmes covers a range of initiatives that transfer income or assets to the poor, protect the vulnerable against livelihood risks, and enhance the social status and rights of the marginalised (Davies et al., 2009 & Oswald, 2009). The social sector approaches are useful for hedging climate exposure because of the uncertainty over climate scenarios (Barnett, 2001). They seek to build a general resilience that does not depend overly on detailed climate projections. What is missing, however, is a more rigorous and thorough discussion of what the impacts of the social sector programmes might be for the urban extreme poor in the context of climate change. This chapter addresses this question by developing an analytical framework (as explained in Chapter four), which explains how the social sector programme models can facilitate the asset adaptation of the urban extreme poor. More importantly, the chapter critically analyses the effectiveness of the social sector programmes (community-based approach for poverty reduction and the targeted asset transfer) in terms of resilience building of the urban extreme poor.

In this context, the chapter takes two programmes, the Urban Partnerships for Poverty Reduction (UPPR) Programme and the DSK-Shiree project⁷⁶, to evaluate their approaches to building the asset adaptation of the urban extreme poor in the two *bustees* of Dhaka city - Karail and Kamrangirchar. The chapter is divided into four sections. The first section explains the background of community based and asset transfer approaches in Bangladesh. The second section explains the strategies of providing access to assets for the extreme poor households in these two project types using the UPPR and DSK-Shiree projects as examples. The third section explores whether and how the asset accumulation strategies of these projects facilitate asset adaptation of the urban extreme poor. Lastly, the chapter applies the analytical framework (as explained in chapter four) to evaluate whether or not the outcomes of these two projects lead to the strengthening each of the three dimensions of resilience: ‘absorptive capacity’ (*coping capacity*), ‘adaptive resilience’ (*adaptive capacity*) and ‘transformation’ (*transformational capacity*). The analysis of these two social sector programmes, such as the UPPR and the DSK-Shiree projects, primarily uses data from the extreme poor household interviews. The findings of the household interviews are triangulated with the key informant surveys and the analysis of the academic and ‘grey’ literatures.

7.2 Background to the ‘Community-Based/Driven Approaches’ and ‘Asset Transfer’ Approach in Bangladesh

The community based/driven development approach (CBD/CDD) is one of the fastest growing mechanisms in the community development sector. It has been shown to have a competitive advantage for a wide variety of poverty alleviation projects namely housing micro-credit schemes, irrigation systems, water supply systems, and education programmes (Chebil and Haque, 2003). As poverty alleviation is predominantly focused on rural development programmes in Bangladesh, the most innovative community based approaches are found in the rural context. Despite this, in the field of pro-poor housing and basic services, there are some projects⁷⁷ run by civil society organisations which are participatory in nature and which have some positive implications for

⁷⁶ As explained in Chapter four, the Urban Partnerships for Poverty Reduction (UPPR) Programme follows the ‘community based/driven approach’ of poverty reduction and slum upgrading where the extreme poor households were supported by social protection (fixed cash transfer). On the other hand, the DSK-Shiree project focuses on the ‘asset transfer’ model to support the extreme poor households.

⁷⁷ Among these projects, the UNICEF-financed ‘Slum Upgrading Programme, the ‘Healthy City Project’ (supported by WHO), the ‘Urban Basic Services Delivery Project (UBSDP)’ supported by UNICEF and the ‘Local Partnership for Urban Poverty Alleviation Programme’ (LPUPAP) supported by UNDP and UNCHS are notable.

addressing the adaptation needs of the urban poor. However, as explained in Chapter six, the extreme poor households in Karail stayed outside the reach of the slum upgrading/improvement project. Learning from the SIP, the project implementers (the LGED and the UNDP) of the Urban Partnership for Poverty Reduction (UPPR) programme' community-based/driven approach chose to target the extreme poor households using a social protection element (such as a cash grant). This was based on the assumption that such promotional measures will build livelihoods and provide opportunities for recipients to participate and receive benefits from the community level development activities (Town Manager, the UPPR project, interviewed on 11/05/2012).

The Urban Partnerships for Poverty Reduction (UPPR) seeks to improve the livelihoods and living conditions of the urban poor and extremely poor and to promote partnerships between urban poor communities, local government, civil society and the private sector. It also seeks to support the urban poor and extreme poor families to increase their incomes and assets and participate in the creation of healthy and secure living environments, as well as to enhance the local government capacity for pro-poor development. The United Nations Development Programme (UNDP) acts as a facilitator and provides funds directly to Dhaka City Corporation to implement projects. The project has adopted a community based approach as communities are supported to form primary groups (e.g. mobilising women or adolescent girls within a housing cluster), savings and credit groups, common-interest associations, and community development committees (CDCs)⁷⁸. The CDCs are encouraged to implement different participatory methodologies in order to identify different poor groups (extreme poor, poor and non-poor) through participatory well-being assessments. Later, the CDCs prepare 'Community Action Plans (CAPs)' to explore the problems associated with the livelihoods and living conditions of these different groups and to identify different project components for addressing these problems. Once plans are reviewed and approved at a number of programme levels⁷⁹, communities obtain a budget, and can commission and oversee the proposed development projects. The problems and priority actions that the communities have identified in the CAPs in the Karail are illustrated in the following table (Table 7.1).

⁷⁸In Dhaka city, the project had formed 311 new CDCs covering 62018 households with a total population of 612225 (UPPR Project Monitoring Unit, 2012).

⁷⁹ These involve the Ward Commissioner along with a designated team within Dhaka City Corporation, and the Project Town board composed of DCC and UNDP staff

Table 7.1: Major Problems and Priority Actions of the CAPs in Karail

Major Areas to be Addressed	Priority	Who Suffer these Problems?	Priority Actions
Eviction threat and lack of access to legal basic services (e.g. water supply and electricity)	1	All of the residents	Legal accreditation of the CDCs from Dhaka City Corporation can be used in negotiations in case of forced eviction by land holding government agencies, and the communities can claim services from urban governments in Dhaka city
Waterlogging	2	All of the residents	Cleaning existing drains, building new drains, raising plinth of some houses and improving the quality of the access roads
Lack of business capital	3	Extreme poor households	Block grants to the extreme poor households
Higher drop outs of school children	4	Poor and extreme poor households	Education grants to those children who recently left school because of lack of education funding
Lack of day-care centres for the children of working women	5	Poor and extreme poor households	Development of community-based day-care centre
Lack of cooking and bathing places for the women and children	6	Poor and extreme poor households	Development of community-based kitchens and bathing places
Lack of sanitary latrines	7	Poor and extreme poor households	Building some community latrines
No community centres or recreational places for adolescents	8	All of the residents	Development of the community centres
Lack of dumping sites for solid wastes	9	All of the residents	Development of community-based solid waste management
Unemployment of the young males and females in the slum	10	Poor and extreme poor households	Provision of skill-based trainings to enable them to obtain employment

Source: Data collected from the Community Action Plans (CAPs) developed by the Community Development Committees (CDCs) in Karail (see Annex 7.1).

7.2.1 The ‘Asset Transfer’ Approach in Bangladesh

In 2002, BRAC - a development NGO was one of the first organisations to set up a programme specifically targeting the extreme poor. This followed a realisation that, while its microfinance programmes had been successful in helping many poor people, there was still a significant group of the poorest people who were still not in a position to take advantage of microfinance programmes (DFID, 2010). BRAC’s programme ‘*Challenging the Frontiers of Poverty Reduction (CFPR)*’ introduced a set of carefully sequenced interventions to transfer assets directly to the extreme poor and the programme has had positive impacts in terms of graduation, including asset

accumulation, food security, change in subjective poverty and awareness of legal rights (Béné et al., 2012; Hashemi and Umaira, 2011 & Matin et al., 2008). One of DFID's flagship programmes, '*Chars Livelihoods Programme (CLP)*' in Bangladesh targets extreme poverty on remote islands or *chars*, subject to regular flooding which destroys houses and livelihoods. It is based on BRAC's successful programme as it intends to support the extreme poor through productive assets such as livestock combined with basic services such as WATSAN, health services, education, government safety-nets and flood proofing infrastructures (Conroy et al., 2010 & Hodson, 2009). Both these programmes seek to contribute to the asset adaptation of extreme poor households through focusing on asset accumulation strategies.

This success encouraged the donor, DFID and the national government, to select the 'asset transfer' approach as the programmatic intervention to achieving the Millennium Development Goal (MDG) 1 of eradicating extreme poverty and hunger by 2015. The majority of the bilateral and multi-lateral donor agencies⁸⁰ and international non-government agencies (INGOs) now address extreme poverty through the 'asset transfer programme' approach. As a result, bilateral and multi-lateral donors in partnership with the Bangladeshi Government and civil society organisations have been implementing innovative asset transfer programmes such as 'CARE-SHOUHARDO', 'Economic Empowerment of the Poorest Programme (EEP)/Shiree (Stimulating Household Improvements Resulting in Economic Empowerment)', 'Income Generating for Vulnerable Group Development for the Ultra Poor (IGVGD)' and 'Sustainable Livelihoods for the Ultra Poor' in the geographically disadvantaged and climate vulnerable areas of Bangladesh. As a part of the national poverty reduction programme (Shiree), the DSK-Shiree project is being implemented by the civil society institution (Dushtha Shasthya Kendra (DSK) a development NGO) in the slum and squatter settlements of Dhaka city, which can be considered a targeted asset transfer project. The project has an explicit focus on assets, with the initial transfer of a productive asset seen as a prerequisite to further asset accumulation. The complementary services provided by this project such as cash stipends, provision of basic services, training, collective

⁸⁰ For example, AusAID has a clear focus on identifying populations living on less than US\$1 a day; and the German Government is also firmly committed to halving the proportion of people living in extreme poverty by the 2015 in Bangladesh. In addition, in line with the WFP, the World Vision in its 2009-2013 country strategy for Bangladesh also states its commitment to working with the 'poorest of the poor', whom it terms the ultra poor (Devine et al., 2009).

savings, enterprise development, information, market services, and social organisation can be viewed as necessary to protect the asset conferred and provide the foundations for the receiver to integrate into wider community processes as well as escape poverty.

7.3 Accessing Assets through the UPPR's CBD Approach and the DSK-Shiree Project's Asset Transfer Approach

The UPPRP's development objective has been to improve the physical environment and the socioeconomic conditions of the poor population in the slums and squatter settlements of Dhaka city, with a special interest in ensuring improvements for women and extreme poor groups. To achieve these goals, the project designed two major components to cover the 'socio-economic development funds' and the 'infrastructure and community works'. According to the CAPs of each Community Development Committee (CDC), the 'Socio-Economic funds (SEF)' are allocated for delivering several programmes at the community level: apprenticeships, business start-up grants, education grants, urban agriculture, social-development activities, solid waste management, health care grant, grant for reducing unemployment, and others supported by a 'Settlement Improvement Fund (SIF)' for the development of a healthy and secure living environment. Table 7.2 illustrates the approved budgets for the socio-economic fund, the number of targeted beneficiaries for the programmatic interventions and the number of beneficiaries supported by the fund up to March, 2012 in the CDCs of Dhaka city. Table 7.2 indicates the project had planned to disburse £352883.7 to increase the income and assets of the 8,556 urban poor and extreme poor beneficiaries under a number of programmatic interventions in the slums and squatter settlements of Dhaka city.

Table 7.2: Socio-Economic Funds of the UPPRP for the Urban Poor in Dhaka City

Programmatic Interventions	Approved Budgets for Socio-economic Development (in BDT)	Approved Budgets (in pounds)	Targeted Beneficiaries
Apprenticeship	2763478.9	23029.0	368
Block grant	12660250	105502.1	2595
Education grant	4957257.7	41310.5	745
Urban Agriculture	1627390	13561.6	668
Social Development	17001473.6	141678.9	1866
Solid waste management	244000	2033.3	1598
Health care services	875500	7295.8	84
Reducing unemployment	142954	1191.3	12
Others	2073738.3	17281.2	620
Total	42346042.47	352883.7	8556

Source: Data collected from the UPPR Project Monitoring Unit, 2012

During the author's field survey in 2012, the extreme poor households were supported by a block grant of BDT 5000 (£42) to develop micro-enterprises. These loans are directed in particular to micro-enterprises owned and operated by women. The 'apprenticeship programme' of the UPPRP provides opportunities for women and men to obtain skills that lead to eventual employment. Each apprentice receives a wage supplement totalling no more than BDT 2,000 per month and these income supports were given for four to six months. The author's field survey in Karail (2012) reveals that only a few extreme poor beneficiaries (2 beneficiaries out of 20) received the apprenticeship income support. In contrast, it was found that most of the young adults in the moderately poor beneficiary category were supported by this apprenticeship programme. Similar to apprenticeship grants, education support was also provided to the children of the moderate poor households rather than to the children of the extreme poor households who had either enrolled at the primary level or already dropped out from the primary level to engage in income generating activities.

The project designed an 'urban food production component' to be part of the social development programmatic intervention to increase the number of households engaged in food production, improve productivity and marketing, and add value to the products (UPPRP, 2009). However, this programmatic intervention was unsuccessful in most of the slum and squatter settlements in Dhaka city. According to the UPPR field staff,

urban agricultural activities such as vegetable or rice production, and poultry and livestock were not technically appropriate for the Dhaka city *bustees* because of the inadequate space for building a small farm; the unhealthy living condition; and the insecure living environment (i.e. higher risks of losing produced vegetables, poultry and livestock). Although the project planned to deliver some healthcare grants for old and chronically ill households, no beneficiary from the extreme poor in Karail received a health-care grant from this project. In Karail, the CDCs developed day care centres, and a centre for adolescent girls using the social development grants.

As explained above in this section, the project designed ‘Settlement Improvement Funds (SIFs)’ for infrastructure and community works in order to provide collective assets for the urban poor in the slums and squatter settlements in Dhaka city. Table 7.3 shows the types of physical assets and their approved budgets transferred by the UPPR project. Infrastructure and community works covered the introduction, expansion, repair and improvement of infrastructure and community works through small scale programmatic interventions costing up to £472931.6 (see Table 7.3). These might include latrines, sewers and storm drains; treatment plants; pedestrian and vehicular road systems including side-walks, market shading structures; public and road lights; multi-use centres, and pond excavation and pond stairs.

Figure 7.1 shows UPPR’s conception of household livelihood security. The programme interventions focused on personal empowerment by providing socio-economic grants and services (as explained above in this section) which are key to increasing income and assets. Additionally, it also focuses on the development of local community savings and credit schemes by facilitating savings groups mobilisation, which also influence personal empowerment (as shown in figure 7.1). The aim of social empowerment is to develop community resources. For this, mobilising and empowering urban poor is at the heart of the UPPR’s poverty reduction strategy. The UPPR’s household livelihood model focuses on capacity building of the community-based committees through transferring technical knowledge and information; involving committees in planning and managing their own infrastructure projects; and encouraging them to work with the urban local government. The programme interventions are founded on a base of participation and partnership, gender equity and information and learning systems, and

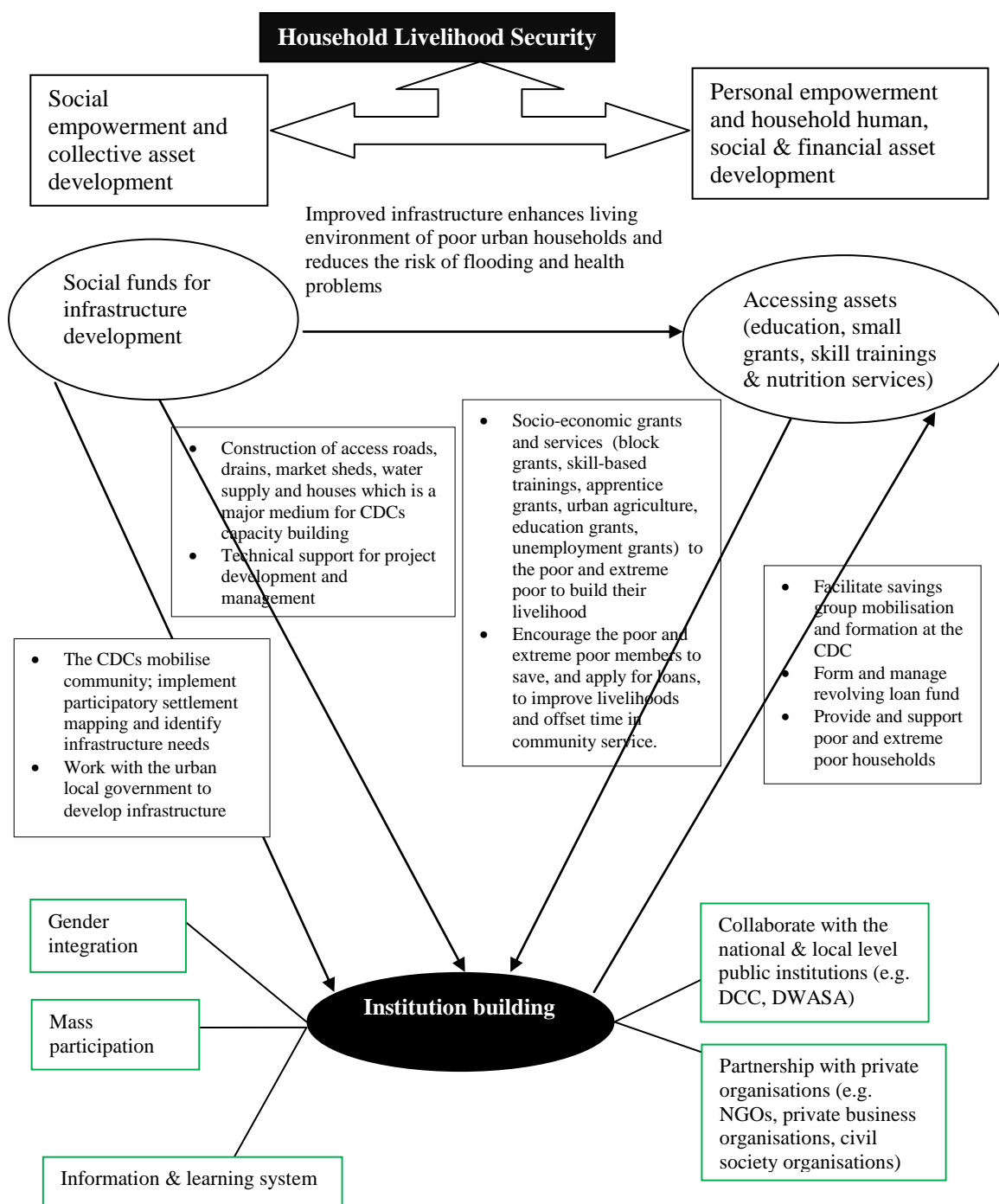
ideally lead to a virtuous cycle of livelihood improvement through personal and social empowerment.

Table 7.3: Infrastructure and Community Works by the UPPR Project in the Slums and Squatter Settlements of Dhaka City including Karail

Programmatic Interventions	Assets	Approved Budgets (in BDT)	Approved Budgets (in British Pounds)
Improved water supply and hygienic	New tube-wells (shared by about 20 households)	0	0
	Improved platforms for existing tube-wells	0	0
	Construction of water reservoirs	2956676	24638.97
	Bathrooms (only for women)	0	0
Improvement of sanitation	Construction of community latrines	6561608	54680.07
	Latrines with septic tank	1648170	13734.7
Improved physical access and environment	Construction of pavements	16885977	140716.5
	Construction of storm water drains	20158669	167988.9
	Drain covers	3672647	30605.39
	Street-light posts	498594	4154.95
Building Community physical spaces	Community multi-purpose centres	0	0
	Raised plinth side elevation of the houses which are frequently flooded in a heavy rainfall or a normal flood event	773345	6444.54
	Market shading structures	0	0
	Building community kitchens and cooking stoves	3596110	29967.58

Source: Data collected from the UPPR Project Monitoring Unit, 2012

Figure 7.1: UPPR Programme Conception of Household Livelihood Security



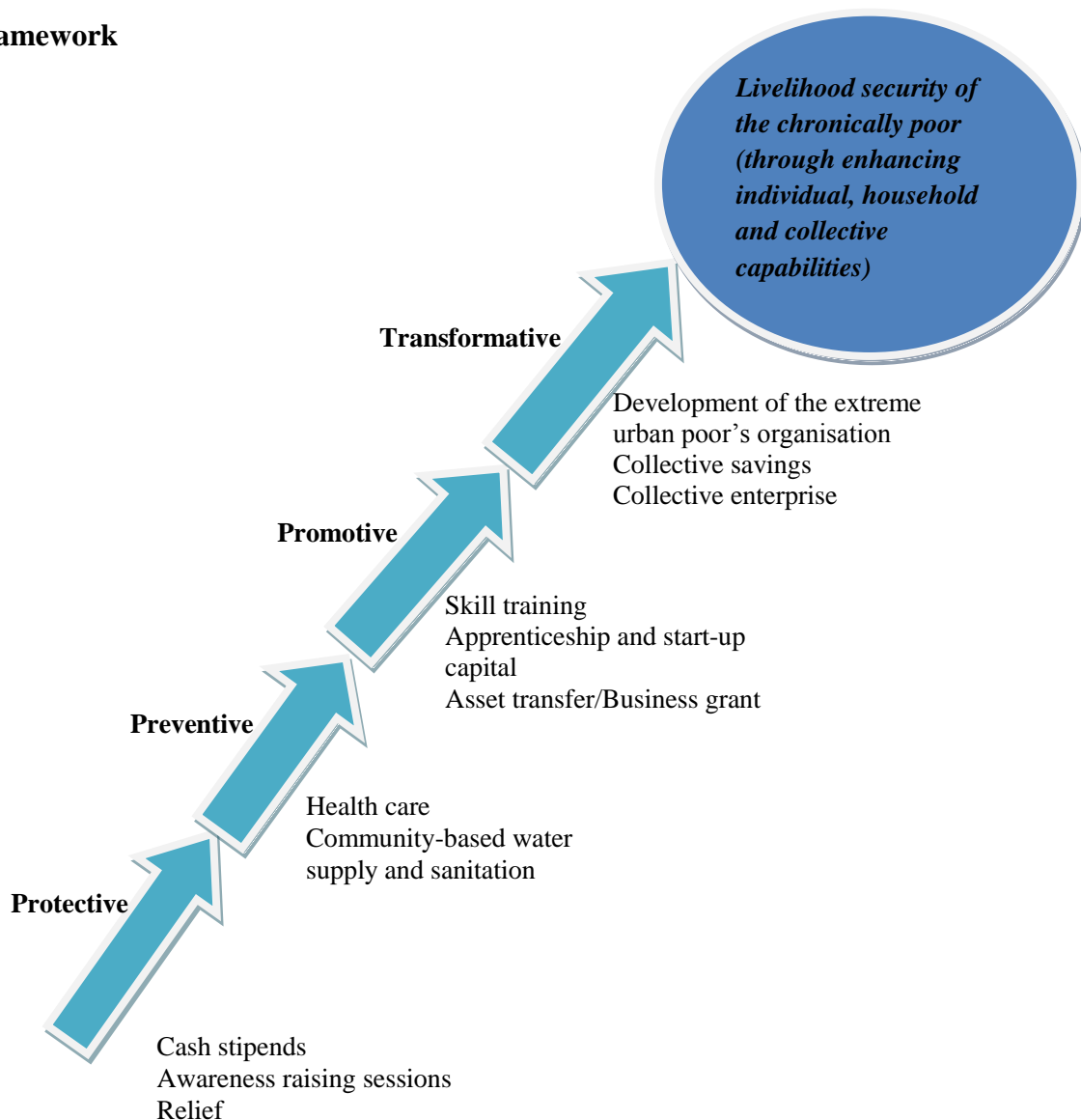
Source: adapted from Sanderson and Hedley (2002)

7.3.1 Accessing Multiple Assets through the DSK-Shiree Project's Asset Transfer Approach

As explained above, the DSK-Shiree project model can be considered as a good example of the 'asset transfer' programme in the urban context since it addresses all the components of the transformational social protection framework in one project (see Figure 7.1). The project is aimed at providing people with the resources or assets necessary to improve their living standards to a point at which they are no longer dependent upon external sources of assistance. It has budgeted BDT 28,222 (originally equivalent to 235 British pounds) per urban extreme poor household to be spent in protective, preventive, promotive and transformative project components in the Kamrangirchar area. In terms of protection, the project designed a cash stipend of 3,600 BDT (£30) per household that is expected to provide for the immediate consumption needs and protect livelihoods from shocks such as health related shocks as well as establishing new income opportunities before the asset transfer. In terms of the preventive measures, the extreme poor are offered free health care for the two-year duration of the project. The project also offers basic services for the extreme poor households in order to improve their livelihood. Having limited access to safe drinking water and sanitation is one of the major underlying causes of regular health problems for the urban poor in Dhaka city. The DSK-Shiree project, therefore, focuses on building safe drinking water and sanitation services to reduce the health vulnerabilities of the chronic poor households.

The project complements the protective and preventive elements with a strong promotive component through asset transfers or business grants, combined with skills training, collective savings with the community based organisations, and enterprise inputs. The approach is to help develop livelihood enterprises and promote market-based service provision tailored to those extreme poor households that are diversifying into different income generating activities. Its operational strategies include promotion of income generating activities, development of small and micro enterprises, value chain promotion and service market development. In this process, the project gives priority to training in order to develop the extreme poor beneficiaries' capacity to plan and manage their income generating activities. Later, the project transfers assets to the extreme poor households based on their individual business plan.

Figure 7.2: DSK-Shiree Project Model in Transformational Social Protection Framework



Source: author (2013)

7.4 Asset Adaptation through the DSK-Shiree and the UPPR Project

The field survey uncovered evidence of a range of household and community level asset-based actions in the case study settlements that can mitigate current and future vulnerability to the extreme events and climate variability. The household asset-based actions such as moving to safer houses, consumption smoothing, improving health seeking behaviour, livelihood-based adaptation practices, and accumulation of productive assets were found. These can help the extreme poor households manage existing as well as future vulnerability to hazards (Table 7.4). Community-based actions such as infrastructure development, credit and savings groups, and social enterprise

development, community governance structures and collaborating with public and private organisations for tenure security and services were also found in the case study settlements (Table 7.4). These asset-based actions can be categorised under three broad adaptation domains: physical measures to limit or avoid current or future hazards; socio-economic measures to reduce current and future vulnerability; and mobilisation and political action. The social funds of the UPPR project have created an opportunity for community organisations in Karail to develop infrastructures that actually stops or greatly reduces flooding – especially in this high-density settlement with little or no drainage infrastructure and space for new infrastructure. In Kamrangirchar, the DSK-Shiree project’s financial and technical supports in water supply and sanitation aided the facilitation of developing extreme poor’s preventive physical measures to avoid the risks of current and future hazards. A contrast emerged between the abilities of the urban extreme poor in Karail and Kamrangirchar to develop socio-economic adaptation, with the latter significantly outperforming the former. In Karail, through the UPPR project, community organisations can collaborate with the Dhaka City Corporation that contributes to creating strategic bridges between municipal authorities and local communities. This creates an avenue for poor urban communities in Karail to access basic services (e.g. tenure security and water supply) from the public service delivering organisations. In contrast, the extreme poor in Kamrangirchar are deprived of accessing basic services from municipal authorities⁸¹, although they have developed and strengthen their social capital through the formation of support groups.

⁸¹ As Kamrangirchar is outside of the Dhaka City Corporation administrative boundary (see Map 4.1), urban local government (i.e. Dhaka City Corporation) and special purpose agency (e.g. Dhaka Water Supply and Sewerage Authority) do not provide basic services including housing, water supply, roads, drainages in this area.

Table 7.4: Asset-Based Actions developed by the UPPR and the DSK-Shiree Projects in the Case Study Settlements

Asset-Based Actions	UPPR project's CBD approach in Karail	DSK-Shiree Project's Asset Transfer Approach in Kamrangirchar
Physical measures to limit or avoid current and future hazards	Participatory risk assessments and priority actions identification	(a) Construction of improved water points and (b) hygienic pit latrines (with septic tanks) that improves adaptive capacity to current vulnerability to hazards
	Construction of storm drains, drain covers and pavements that actually stops or reduces flooding and waterlogging	Raising plinth levels of the latrines to make infrastructure resilient to future flooding
	Supports for households and small enterprises to minimise the impacts of flooding by raising plinth levels	Some households move to safer houses within this area
	Construction of community sanitary latrines that can improve poor residents' hygienic practices	
Socio-economic adaptation	Some extreme poor households diversified into self-employment	Most of extreme poor households have successfully diversified into self-employment
	Participation in community savings-groups	Households can manage 3 meals per day; and they can also afford nutritious food for their family Households also improve health seeking behaviour
		Participation in the community savings groups and households can result in significant amounts of savings groups Accumulation of household productive assets
Mobilisation and political action	Community governance structure of the project enhances social network for the poor and vulnerable which may reduce institutional barriers that they face in accessing assets for adaptation	Helping the extreme poor to strengthen their social capital through formation of support groups and a community-based organisation in which they can share experiences, lessons learned and establish support networks for an even greater impact on risk management
	The CDCs got legal accreditation from Dhaka City Corporation that help them to negotiate formal public institutions to access tenure security as well as basic services	The extreme poor households can have access to formal public and private services through their collective business enterprise; and they can use it as a buffer to mitigate impacts of an adverse event
	The CDCs got opportunity to apply for legal water supply to DWASA	

Source: This is based on the discussions with two CDCs' leaders in Karail (interviewed on 10/04/2012 & 02/05/2012); and also two CBOs' representatives in Kamrangirchar (two interviews held at 13/03/2012); and the findings of key informants are complemented by the households' interviews.

7.4.1 Physical Measures to Avoid Current and Future Hazards through UPPR Project's CBD Approach

The community contracting approach of the UPPR project provides opportunities for the communities to take a leading role in slum development and disaster risk reduction processes. The CDCs are mainly responsible for both planning and implementing physical development activities within their communities with the help of town level project teams. The CDCs first applied participatory methodology to explore vulnerability to hazards; in each CDC of Karail, a group of 10-15 adult women formed a focus group and were used to assess the vulnerabilities at the community level. A matrix was drawn on a large piece of paper and participants were asked to list the problems within the community where they identified the threats of flooding and waterlogging as the main vulnerability to climate change in Karail (see Annex 7.1). The groups also identified the areas, houses and business enterprises with their CDCs that are most vulnerable to flooding and waterlogging. Then, they identified some priority actions to mitigate or avoid the threats of flooding and waterlogging. Later, the CDCs applied to the UPPR project for funds to implement their priority actions. The town level project teams of Dhaka city trained the CDCs to formulate proposals and cost estimates for the construction of physical infrastructures. The research found the CDCs have obtained and directly managed funds which resulted in the construction of pavements and drainage, urgently necessary to prevent frequent waterlogging (Figure 7.5 and Figure 7.6). To date, the CDCs have shown great skills in responding to the project's methodological requirements: CDC leaders have selected the local work force, both skilled and unskilled labour rather than relying on external contractors (Town Manager, the UPPR project, interviewed on 11/05/2012). This provides opportunities for the urban poor and the extreme poor households to obtain skills to manage and develop their own services and infrastructures whilst raising income through employment in skilled and unskilled labour.

Figure 7.3: Pavements in Karail Developed through the UPPR project



Source: Author's field survey (2012)

Figure 7.4: Storm Drains in Karail Developed through the UPPR project



Source: Author's field survey (2012)

7.4.2 Physical Measures to Avoid Current and Future Hazards through DSK-Shiree Project's Asset Transfer Approach

Since Kamrangirchar is outside the Dhaka City Corporation's administrative boundary, the urban poor settlements in Kamrangirchar area are deprived of accessing DCC basic services such as water supply and sanitation. The DSK-Shiree project in operation at Kamrangirchar aided the facilitation of reducing extreme poor respondents' physical adaptation deficit through development interventions. At the time of field survey, the CBOs of the DSK-Shiree project constructed 39 improved water points and 62 hygienic pit latrines (connected to a septic tank) (DSK, 2012a). Based on Vision 2030's findings, tubewells are most resilient to Dhaka's climatic impacts of increased rainfall and rainfall intensity (Faulkner, 2011). Pit latrines are however vulnerable to flooding due to possible environmental contamination and public health risks (ibid). To counteract this, each water point and pit latrine was raised from 2 to 3.5 feet from the ground to make the infrastructure resilient to flooding (see figure 7.5). The height to raise infrastructure was decided upon based on communities' estimate input of flood water levels from past experience.

However, it was not an easy task to install the water points and hygienic sanitary latrines for the extreme poor households because they are living in rental accommodation. The practice is that the house owners as well as all the tenants are commonly sharing the water supply and sanitation services in each slum cluster of Kamrangirchar area. Hence, the DSK-Shiree project aimed to develop community based sanitary latrines and safe water points in the slum clusters targeted to where the extreme poor households live. The project has developed these services using the extreme poor's organisation in order to enhance the extreme poor groups' negotiation skills with different actors at the community level and build the collective leadership capabilities and their confidence to claim the community facilities. In this process, the extreme poor's CBOs have used their skills to locate services in areas where the service needs are whilst negotiating with the house owners and tenants in the slum clusters for installing the services.

During the implementation stage, the project involved different stakeholders in the organisation of targeting extreme poor groups, house owners and also non-targeted tenants in the building⁸² and in managing⁸³ the community-based services in the long run (President, CBO of the DSK-Shiree Project, interviewed on 13/03/2012). As most of the tenants and house owners are not the direct beneficiaries of the DSK-Shiree project, the project adopts a cost recovery mechanism from the house owners and the tenants. They are responsible for paying the cost in instalments to the CBO fund. The recovered money can be used by the urban extreme poor's organisation to install more hardware in the project areas after the phasing out of the project (ibid.). This innovative service delivery model not only provides safe-drinking water and hygienic sanitation but also builds the organisational capacity of the extreme poor groups to technically and financially implement such types of infrastructure projects in the future.

Figure 7.5: Water Points and Sanitary Latrines in Kamrangirchar



Source: DSK (2012a)

⁸²The respective house owner, tenants, CBO leaders, field officer and project engineer all work together under the purchase committee. This purchase committee is also responsible for overseeing the development activities.

⁸³ After the installation of hardware, another WatSan committee was formed from the house owners, project beneficiaries, other tenants and CBO leaders. Every WatSan Management Committee sits together on a monthly basis to discuss the maintenance and other relevant issues. The field officers also attend the meeting where some awareness sessions are also conducted focusing on proper maintenance, health and hygiene promotional issues.

7.4.3 Socio-Economic Adaptation through DSK-Shiree Project's Asset Transfer Approach and UPPR project's CBD Approach

Socio-economic adaptation is understood as the changes people make to adapt their livelihoods to a new situation, in response to the shocks and stresses combined with increased climatic variability. The household level interventions of these two projects can enhance extreme poor's ability to develop asset adaptation that are effective in dealing with the extreme weather conditions and other stressors. This research identified a range of improved practices corresponding to three sub-categories: livelihoods-based practices, acquisition of productive assets, and support network. The interviews and observations of this research provided evidence that, while the residents in Karail underperform in terms of the first two sub-categories, they are on equal terms with the residents in Kamrangirchar in the third sub-category.

Livelihood-Based Practices through DSK-Shiree Project's Asset Transfer Approach in Kamrangirchar

The research found that the extreme poor households of Kamrangirchar have successfully diversified into self-employment in diverse sectors categorised as manufacturing (such as duster and shoe making); trading (scrap and salvage, cooking utensils business, grocery, vegetable and agro-product selling business, female clothes and cosmetics); skill-based services (tailoring) and self-employment in the transport sector (pulling own rickshaw). Table 7.5 shows the asset accumulation and adaptation strategies of the extreme poor households in Kamrangirchar. The asset transfer of the DSK-Shiree project has helped the household heads stop or reduce work in the more demanding and lower paid activities, such as domestic help and manual labour in the weather sensitive sectors of rickshaw pulling and construction (as explained in Chapter five), and switch to new productive activities such as trading, home-based businesses. In most cases, the extremely poor respondents reported more pronounced improvements in their income earning ability, asset holdings and savings. Most of the respondents reported that they can earn more than double their previous income after getting assets directly from the DSK-Shiree project. In household interviews, the extreme poor reveal that their small business enterprises and their stock and health are the most important assets for their livelihoods. In order to protect these assets from the extreme weather events, they also deploy a range of adaptive practices (see table 7.5). During summer, the rickshaw pullers maintain a strategy of taking a break of 2/3 hours in the afternoon

and also having home-made fresh food for lunch and dinner through which he saves his body and physical strength from extreme heat.

Small businesses have a diversity of adaptation strategies, generally modest and small scale. To be successful, the small agro-product businessmen became very familiar with the crop calendar of the country. For instance, two vegetable traders sell seasonal products, such as melons and lychees, mainly in summer; they sell vegetables in the morning and fruits in the afternoon. One fish trader sells fresh fish only in summer, but adds dried fish to the product list and reduces the amount of fresh fish in winter. As some agro-products such as vegetables and fishes are rotting fast during summer, they keep a limited stock of these products. The small businessmen also took a number of physical measures in order to protect their enterprises and their stocks from sudden and intense rains: keeping polythene sheets and cotton bags to protect from sudden rains and move up to safer places, making high plinths and arranging high storage facilities for their stock (see table 7.5). Home-based business units also follow similar type of physical measures; and households took rental accommodation at safer places within Kamrangirchar for building home-based manufacturing units. One tailoring shop owner reveals that dust, caused by strong wind, had important effects on her business. She and her two workers identified how flu or allergy related health problems made them unable to work; it also affected productive assets such as sewing machines which ceased to function if sand got inside them. In order to adapt to this situation, she installed a glass made door as a permanent solution to the problem.

The household interviews and observations indicate that the food consumption of the urban extreme poor households in Kamrangirchar has significantly increased with the increased income and assets of these households. The research found that the adverse coping strategies of surviving on only one or two meals a day; meals solely consisting of rice and vegetables; stale and rotten food given by the better-off households; and borrowing money or food items from the neighbours and relatives has been reduced to a larger extent. Most of the households interviewed by the researcher are able to eat and feed their children and other members of the family three full meals. Intake of most of the common food items such as rice, potato, vegetables (green leafy and others), lentils (*dal*), eggs, fish (both the dried and fresh), and chicken showed a remarkable improvement in terms of frequency (Both male and female respondents, 2012).

Table 7.5: Asset Accumulation and Adaptation Strategies in Kamrangirchar

Previous employment		Asset accumulation (Households' New Employment)	Asset Adaptation Strategies
Rickshaw puller	R ₁	Obtained access to higher income and savings by pulling own rickshaw; and his wife built a home-based trading business (women clothes)	<ul style="list-style-type: none"> • He took a break of 2/3 hours or less pulling time during afternoons to save human capital from extreme heat and intense rain • He moved to safer place in the Kamrangirchar • He sent his children to private schools • His wife can cook two times a day • Higher frequency of visits to formal healthcare centres when someone within the household becomes sick
Rickshaw puller	R ₂	Developed a trading business; his daughter got formal sector employment in the garment industry	<ul style="list-style-type: none"> • Among these eleven households, two households moved to safer place • Invested for children's education and skill development
Day labourers	D ₁	Developed a micro-enterprise (a grocery shop); and worked irregularly as a casual labour in the construction sector (i.e. 3/4 months in a year)	<ul style="list-style-type: none"> • Additional labour mobilisation; adult children in three families got skilled training and found employment in a garment industry, local tailoring shop and also in CBO's business enterprise
	D ₂	Switched from being a casual labourer to develop an agro-products trading business	<ul style="list-style-type: none"> • Made higher plinths for the shops and arranged higher storage facilities
Petty businesses	P ₁ , P ₂ , P ₃	All three households invested in their business to expand their businesses; two of them took place in the local market; and one bought a van to sell the products	<ul style="list-style-type: none"> • Maintained limited stock of perishable goods • The traders of agro products became very familiar with crop calendar in order to sell different products in different seasons • Stored the grocery and food items in the containers
Home-maids	M ₁ , M ₅	Three home-maids built micro-enterprises (2 agro-products; 1 cooking utensils trading & 2 grocery shop)	<ul style="list-style-type: none"> • Improved their daily consumption and also improve their regular health-seeking behaviour
Home-based enterprise	HE ₁	Duster manufacturing unit	<ul style="list-style-type: none"> • Invested for the children's education • Rented house at higher ground in the area for home-based manufacturing unit
Workers in small industries	SI ₁ , SI ₂	Two workers developed home-based enterprises (1 in home-based trading & 1 in small home-based shoe making unit)	<ul style="list-style-type: none"> • During rainy season, they protected goods or their products with plastic and arranged higher storages for their finished products as well as raw materials in their house
Home-maids	M ₆ , M ₇	Two home-maids developed successful home-based clothing businesses	<ul style="list-style-type: none"> • They can afford three full meals in a day and also visit formal healthcare services
Home-maid	M ₈	Developed a tailoring shop	<ul style="list-style-type: none"> • Invested part of her savings to buy a glass door to protect the sewing machines from dust, caused by strong wind • Increased power usage in the shop during summer to reduce heat
Home-maid	M ₉	Built a successful scrap and salvage business	<ul style="list-style-type: none"> • Moved to a safer place • During rainy season, the stock of scrap and salvage materials was moved from shop to her house which is relatively less vulnerable to flooding • Invest in her son's business
Begging	B ₁	Developed a home-based street peddling	<ul style="list-style-type: none"> • Used public street near her house as rent-free business streets

Note: (R₁=Rickshaw puller, 1st respondent.....D₂= Day labour, 2nd respondent.....M₁=Maid, 1st respondent.....HE₁=Home enterprise, 1st respondent..., SI₁= Working in Small industry, 1st respondent..B₁= Begging, 1st respondent.)

Source: Households Interviews in Kamrangirchar, 2012

The DSK-Shiree project model believes that quality of health is the most potential human asset, especially for the extremely poor, which has a very strong influence on their livelihoods. Before the DSK-Shiree project, the extremely poor households in Kamrangirchar have limited access to existing healthcare facilities and they were dependent on the services of untrained physicians (quacks) and local medical shops (pharmacy) due to informational, financial and social barriers (see Chapter 5). Through providing regular public health services, access to physicians, medication at 50% subsidised price and also major surgery at a subsidised rate in the DSK hospital, the project has increased the use of health services among the urban extreme poor households. The research found positive changes in the health seeking behaviour of the extreme poor people as most of the extreme poor are willing to take health-care from the different formal allopathic care providers (medical graduates and paramedics) during illness rather than depending on self-care or quacks. This happened, presumably, through interventions to overcome specific demand-side barriers (e.g. informational, financial and social barriers) that work to exclude the extreme poor from accessing healthcare in the slums and squatter settlements in Dhaka city.

Livelihood-Based Practices through UPPR Project's CBD Approach in Karail

In terms of livelihood diversification, the extreme poor households in Karail underperform because many of the extreme poor fail to develop successful micro-enterprises with the block grant of the UPPR project. As the size of the block grant is small, a significant portion of the extreme poor beneficiaries lose a part of the grant amount or the entire amount through spending on daily family necessities, repayment of loans and also medical bills for the health related problems of the family members before investing in the productive sectors (Field survey, 2012). One respondent explained, *“I am working as a maid and living with my daughter's family. As I am getting older, it is difficult for me to continue such a physical job. In order to change my occupation, I got a block grant of 2500 BDT (£21) in order to establish a tea-stall within Karail. Before starting the business, I have to spend the majority of the grant amount in order to meet the doctor's fees and the cost of medicines for my daughter's sudden illness. Later, I bought a wardrobe with the rest of the amount in order to avoid further erosion of the financial capital asset”* (Personal interview, interviewed on 26/05/2012). Despite this, the research found some widow and abandoned extreme poor women had moderate upward mobility through establishing their own income

generating activities with the UPPR block grant. The UPPR project's small grant was effective in building a livelihood and income for those extreme poor, who struggle to continue their current job or lose the job due to health related problems or pregnancy or take care of their small children. For instance, one housemaid reported that she was struggling to continue maid jobs in two houses in extreme heat; while she had to spend a whole day in the kitchen in her job, it was difficult for her to carry on two jobs in hot and humid conditions (A female head, interviewed on 05/06/2012). This also affected her income as she lost time carrying out her work due to health related problems. The project's grants offered her an opportunity to leave her job and build new self employment. Although her small business of vegetable vending does not provide a significant improvement in her income and assets, she can get relief from working in a hazardous situation and also she has enough time in the day for relaxing and meeting with neighbours and friends by taking up this trading business (ibid.). Another petty traders described, *"After my husband's death, I was struggling to feed my children because I had no job and I had only income from the rents of two extra rooms of my house which was not enough. At this time, I became a member of a primary group of the UPPR project and got a block grant of BDT 5000 from the project. With the grant, I set up a small grocery shop in my neighbourhood. Now I can earn 4000-5000 BDT (£33 to £42) per month from these two sources which has a positive impact on our daily food consumption, school enrolment of my children and productive asset building such as savings"* (Personal interview, interviewed on 23/05/2012).

The field survey of this research shows that 5 of our 20 respondent households have built a new livelihood for adult female members as well as adult children through using the project's grants. The economic diversifications of these five families are the adaptive practices that not only helps these families to be less affected in the case of hazards/disasters, it also enables these families to recover more quickly from hazard impacts. However, in Karail, the research found no evidence of significant change in consumption of the urban extreme poor households. Most of the households have to depend on various sources for consumption smoothing including collecting food from the employer or sometimes from nearby residential areas, hotels and restaurants by begging, and borrowing food or cash from the neighbours, their relatives and the house owners. The research found only a few are able to manage three meals a day for all of

the family members and meals usually consist of rice, vegetables, and lentils (*dal*), and they can manage milk, fish or chicken only once or twice a week.

Table 7.6: Asset Accumulation and Livelihood-Based Adaptation Strategies in Karail

Previous employment		Asset accumulation (Households' New Employment)	Adaptation strategies
Day labourers	4	Three out of 4 day labourers stay in their job One woman change her job and develop street peddling business; adult child of one family got skill training from the UPPR project	<ul style="list-style-type: none"> • Additional labour mobilisation for employment diversification • Apprentice grants help the adult child in one day labour family to get a formal employment with secure income • Use street as a rent-free space for business
Rickshaw pullers	2	Invest project's small grants in their street peddling business; it slightly increases their family income	<ul style="list-style-type: none"> • They are being engaged in two forms of employment; they pull rickshaws in the morning and in the evening they engage in street peddling.
Petty businesses	4	All of four petty businessmen stay in their businesses; (3 out of 4) had to spend the project's grants in order to meet household immediate needs (e.g. debt repayment & food)	<ul style="list-style-type: none"> • Use of family labour (i.e. female adult member and children help to run the business)
Maids	7	2 out of 7 maids develop small enterprises beside their primary occupation; one woman switch from maid to build agro-product business	<ul style="list-style-type: none"> • Use rent-free space for business
Garments labourer	2	One garment worker lost her job and build an income generating activity with the project's grant	<ul style="list-style-type: none"> • Arrange higher storage facilities in the house to store their stock • Home-based grocery shops
Begging	1	Use the grant to meet her household's requirements (e.g. food, medicines & house rent)	<ul style="list-style-type: none"> • No new livelihood-based adaptation strategy has been found

Source: Households Interviews in Karail, 2012

Accumulation of Household Physical Assets in Karail and Kamrangirchar

As the urban extreme poor households are resource constrained, the DSK-Shiree project has given some focus to this particular area. The research found the project had distributed several types of productive assets (such as rickshaws, vans, boats, carts, and sewing machines) to the extreme poor households. These assets enable them to generate more household income and provide the flexibility in working hours that can reduce the distressed sale of their labour in an adverse situation. The research found almost all of the extremely poor in Kamrangirchar accumulated some household productive assets/consumer durables such as a television, bicycles, mobile phones, household

furniture, van, rickshaws and fans after engagement in income-generating activities. In addition, it also found that some beneficiaries of the DSK-Shiree project (3 out of 20 households) had bought some agricultural land in their villages because they see rural land as a social insurance, which they can use as a buffer against shocks and/or a potential source of income through leasing the land.

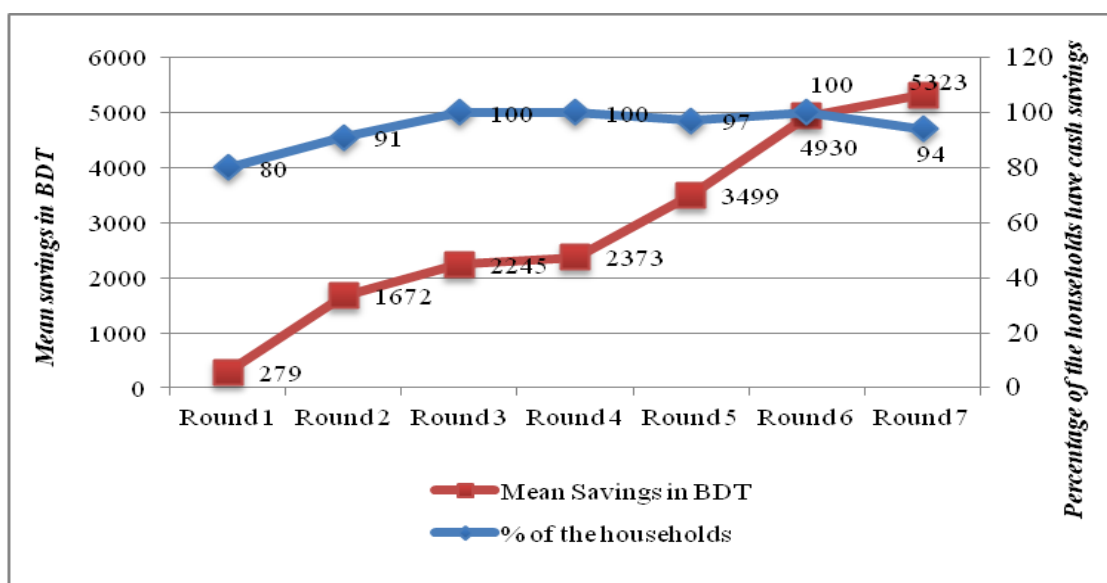
The research found no evidence of productive assets such as rickshaws, vans, and rural land for the extreme poor households in Karail. Only a few households (6 out of 20 households in Karail) have accumulated some household consumer durables such as mobile phones, fans, televisions and household furniture after launching income generating activities with the project's block grant. The differences in the ownership of household assets between Karail and Kamrangirchar are associated with low income and poverty levels. In Karail, many extreme poor respondents still struggle to meet daily food requirements of their family, whereas in Kamrangirchar, the extreme poor's new income generating activities build their financial capacity to increase their household possessions. One respondent in Karail remarked, *"for some time now I have wanted to buy a fan, because of this heat; but how to get the 1000 BDT (£8) that it costs, you have to work a lot and other days not eat; in addition to this, I have to pay additional 100 BDT (£1) every month for using a fan. It is likely that I have to reduce my food intake to an extent in every month that I could pay the bill of an additional power usage "* (Personal interview, interviewed on 26/05/2012).

Access to Savings Groups' for the Extreme Poor in Karail and Kamrangirchar

To reduce asset erosion and thereby facilitate poor people's access to institutional financial capital assets, both the projects developed savings groups. Savings Groups (SGs) in the projects refer to self-managed community-based groups that provide their members access to basic financial services. SGs can respond directly to the unmet financial service needs of the extremely poor households by providing: i) a secure place to save; ii) the opportunity to borrow in small amounts and on flexible terms; and iii) affordable basic insurance services. At the beginning of group formation in the DSK-Shiree project, the group members are encouraged to establish a flexible savings scheme with the group members to help to mitigate future shocks. If any group member is interested to save more than 10 BDT per week then that is also welcomed. In the first 6 months of the project period, some extreme poor households started saving a small

amount of 100 or 200 BDT per month with the saving groups; but the research discovered, after building new income generating activities, almost all of the extreme poor households were saving more than 1000 BDT in each month (Both male & female respondents in Kamrangirchar, 2012). Some extreme poor households are able to save with other community based credit and saving groups within their community. The CMS3 survey of the Shiree programme⁸⁴ revealed that the urban extreme poor had much higher savings and that this increase in savings is consistent throughout the seven rounds of surveys (Figure 7.6). In Karail, a significant portion of the extreme poor households are members of the credit and savings groups of the UPPR project although the savings amount is not very high (50 BDT per week) (Both male & female respondents in Karail, 2012). The following Figure 7.7 reveals that most of members of the credit and savings groups are from poor and extreme poor groups, but the participation of the extreme poor in the savings group is still lower than the poor.

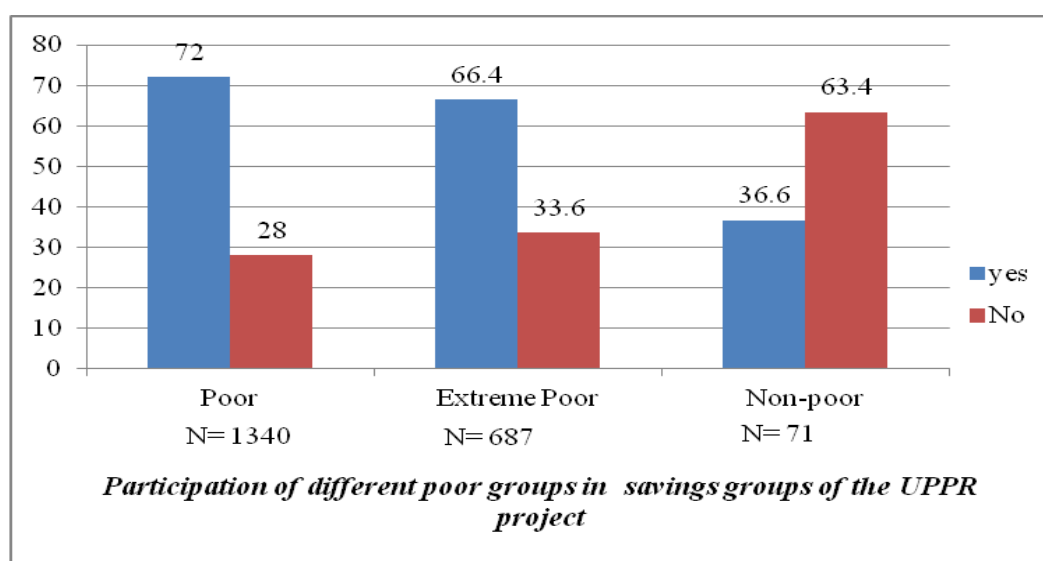
Figure 7.6: Mean Savings by the Extreme Poor Households in the DSK-Shiree Project



Source: Analysed from CMS3 database (Shiree, 2012)

⁸⁴ Shiree has been conducting a quantitative survey (known as CMS3) on a quarterly basis under the leadership of a group of experts from Cambridge University in the United Kingdom (UK) in order to coordinate the effective monitoring of the project. Accordingly, a baseline and another 7 quarterly monitoring surveys were conducted by the team during the project period.

Figure 7.7: Participation of Different Poverty Groups in the Savings Groups of the UPPR Project in Karail



Source: UPPR Project Monitoring Unit, 2012

Social Support Networks for the Extreme Poor in Karail and Kamrangirchar

The projects' participatory approaches create opportunities for improving the social capital of the urban extreme poor households. The DSK-Shiree has used a number of communication channels, such as interpersonal contact, consultations and face-to-face meetings, sharing values, training, monitoring and supervision, and establishing the links between poor households and the local service delivering organisations. The research found the extreme poor households in Kamrangirchar used these channels to create information flows through sharing their norms and values. This had mutual benefits for improving their knowledge, social interaction, social and human skills, social competencies, sharing attitude, and leadership ability (Women respondents in Kamrangirchar, 2012). It was found that, in the community level activities, the extreme poor households had a greater tendency to come to the meetings and share their views when they had increased their income and assets. One interviewee reveals, "*DSK-Shiree project has given me not only a business but also a new identity in the community. It also provides me with more mobility and I have greater communication within the community especially with the DSK-Shiree members within my CBO. But, before this project I knew only people who are living in my housing cluster and my garment factory where I was employed*" (interviewed on 27/05/2012). As all of the members come from a similar socio-economic background, they were willing to interact with each other, share their problems regarding their businesses and household affairs; and they also try

to work out solutions for the members in a collective way. As a result, the extreme poor households of the DSK-Shiree are able to build greater reciprocity. The research found they knew who lived where, had how many children, where they came from and if they had other relatives in the city; they knew who had received what kind of help, or whose businesses were doing well. This type of reciprocity has created an informal support network for the extreme poor households. As the extreme poor households have obtained a new identity with their involvement in the income generating activities, this gives them the opportunity to expand their social network within their community. The research found the extreme poor households are offered group membership of social and economic groups by the non-poor and the moderately poor groups.

The UPPR project also follows the participatory approach for community mobilisation through primary groups, savings groups and community development committees in Karail. Although the participation of the extreme poor beneficiaries is confined to only the primary groups, the informal social support network has been built up into local community group membership in Karail. Through the community structures, the extreme poor have opportunities to interact and build a reciprocal relationship with other beneficiaries and also the non-poor local leaders of the primary group. The research found such reciprocity among the beneficiaries of the project has facilitated an informal social support network for the urban extreme poor households. One extreme poor beneficiary of this project reveals *“with the grant, I wanted to start a small business of vegetable selling in Karail bazaar. But, it was difficult for me to get access to a space in the bazaar area. Then, the chairperson of my CDC helped me to access a space for selling vegetables in the market area as her husband had good relations with the market committees”* (interviewed on 6/03/2012). In addition to this, some extreme poor households in Karail (4 out of 20) also had access to free health care services of Dhaka City Corporation⁸⁵ through their social support network. The CDCs’ leaders of the UPPR project helped these extreme poor beneficiaries to have health cards of the ‘Urban Primary Health Care Centre’. To support the extreme poor households and the

⁸⁵ Dhaka City Corporation has been implementing an innovative public-private partnership project for providing health services to the urban poor since 1998 with the assistance of donors and the central government funding. Through ten Comprehensive Reproductive Health Care Centres (CRHCC) and sixty-three primary health care centres, the City Corporation provides health services to the urban poor and several NGOs are involved in health centre management, community mobilisation and also providing health services through satellite clinics (Urban Primary Health Care Project, Dhaka City Corporation, 2012).

marginalised groups, there are user fee exemption services available through the use of health cards. In the ‘Urban Primary Care Project’ of Dhaka City Corporation, the extreme poor households can receive all types of care free of charge through their cards.

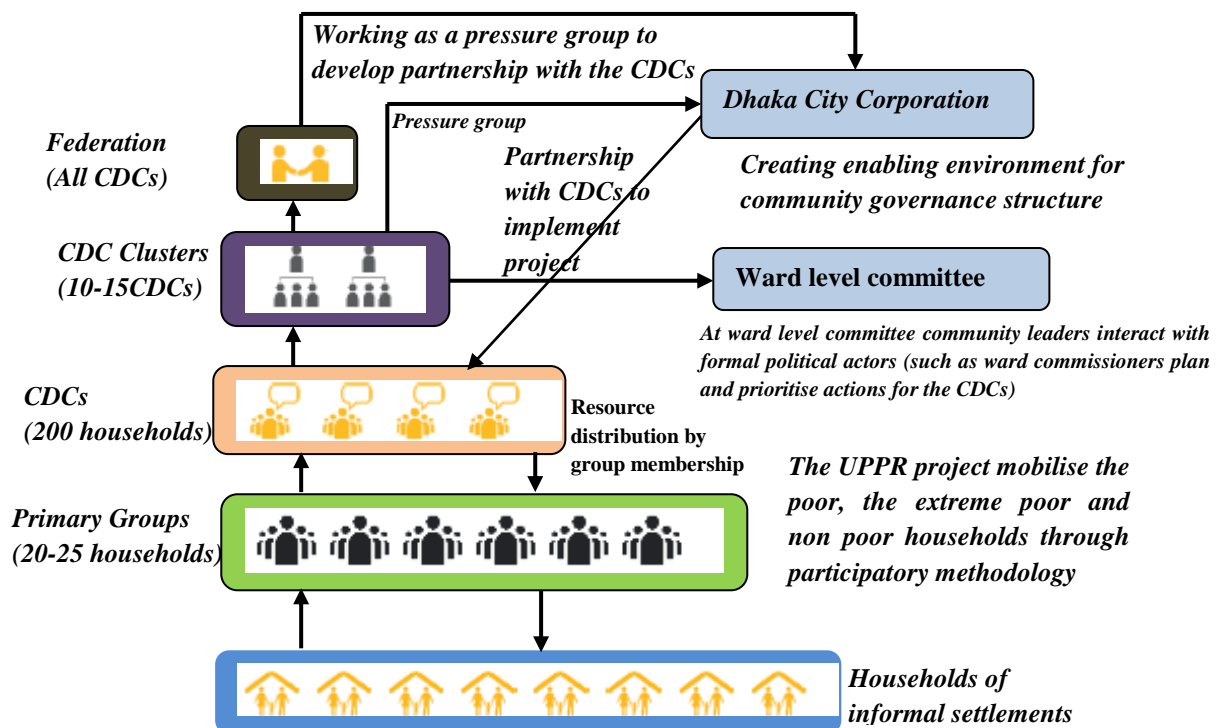
7.4.4 Community Mobilisation and Political Action through UPPR project’s CBD Approach

The focus of the UPPR project is to mobilise the entire community in Karail through group formation and building a social organisation that can collaborate with local government and the formal political system. The institutional structure for the urban poor to interact collectively with the urban municipal system was not in place so the project focuses on community mobilisation at several different layers (Figure 7.8). So, the communities of Karail were assisted to mobilise through forming primary groups of 20–25 households based on tenure security (people who are assured that they can live there for the next 5–10 years) (Town Manager, the UPPR project, interviewed on 11/05/2012). Each primary group is made up entirely of women members, who elect a leader, and all the group leaders and secretaries combine to form the community development committees (CDCs). As CDCs mature, they are guided to form CDC clusters. At the time of the fieldwork in Karail, two CDC clusters had been established, as part of the longer term aim of building a federation of the urban poor through mobilising the CDC clusters of the different informal settlements in Dhaka city.

Through this process, community leaders have an opportunity to meet and work with the formal political system and municipal officials to find out about the priority actions for the urban poor communities in Dhaka city. Therefore, the project contributes to creating strategic bridges between the Dhaka City Corporation and the local communities. Under the project, the city corporation in Dhaka city issue a certificate acknowledging the residence of UPPR households. One organisational respondent reveals that this official recognition, while not equivalent to formal tenure documents, is used in negotiations in the case of threats of forced eviction by land holding government agencies (Slum Development Officer, Dhaka City Corporation; interviewed on 16/02/2012). Dhaka City Corporation thus indirectly ensures that the residents of the informal settlements are treated respectfully and according to the procedures agreed by the Supreme Court decision of 1999 (ibid.). The legal accreditation of the CDCs by Dhaka City Corporation creates a workable link between special purpose agency, Dhaka

Water Supply and Sewerage Authority (D-WASA) and low-income communities in Karail through which they will access a legal water connection to the nearby D-WASA line. The D-WASA has changed its approach and decided to work with the CDCs in Karail for providing a legal water connection. Urban legal utility water supplies are potentially highly resilient to climate change if the utility is well-run, has human capital in the form of trained staff, and financial capital to invest in upgrading technology and new infrastructure (Faulkner, 2011). Thus, access to legal water supply from the D-WASA will improve the adaptive capacity of the urban extreme poor in Karail to avoid the effects of the extreme climate events.

Figure 7.8: Hierarchical order of Community-based Institutions in Karail developed by the UPPR Project



Source: Interviews with the Town Manger, UPPR project (interviewed on 11/05/2012); two representatives of the CDCs in Karail (interviewed on 10/04/2012 & 02/05/2012)

7.4.5 Social Organisation of Extreme Poor through the DSK-Shiree Project

The DSK-Shiree aims to help extreme poor households and groups develop and strengthen their social capital through the formation of support groups that will provide peer support, mentorship and guidance and improve levels of self-confidence. It sees the CBOs as a platform for the socially marginalised households where they are encouraged

to look beyond their immediate survival needs and recognise their collective identity, which is made practicable by weekly group savings. These are invested, at the group's discretion, in collective assets, to then be shared equally among the members in the CBO. In this process, the project encourages the extreme poor households to form groups; and the groups (each with 15-20 households) hold meetings to: (i) identify problems and solutions; (ii) analyse their own situation and its relationship to that of the poor in general; and (iii) learn about their collective entitlements. The groups are encouraged to form a larger community based organisation (CBO) with 4/5 other groups. The project uses a participatory facilitation process to develop the groups and CBOs comprising the representatives from the respective households and groups. Further, the project focuses on increasing the capacity of the CBO's managing and negotiating skills and collective leadership capabilities through social or collective learning. Through enhancing the collective agency of the extreme poor, the project aims to address the social inequity and exclusion issues this group faces and to raise their voice within and outside their community to uphold their human rights.

The DSK-Shiree project encouraged the urban extreme poor's organisations to establish collective enterprises through providing various services such as information, human capital development services, and technical supports. As a result, the extreme poor groups were able to develop a collective business enterprise through mobilising the groups' savings. In 2010, five community based organisations decided to build a collective enterprise with their CBOs' financial and human assets. Then, the CBOs prepared a business plan and the business plan was finalised with the help of the DSK-Shiree project staff. The CBOs decided to set up a medium-sized handloom manufacturing unit with a capital⁸⁶ of 2.5 million BDT (£20,833). A committee has been formed from the CBO management committee in order to oversee the activities of the collective enterprise. The CBOs first took a rental unit in the Kamrangirchar area and hired seven skilled workers who had prior experience of working in the handloom industries in order to start production of rugs and *paposh* (doormats) and they also helped 35 extreme poor beneficiaries to learn the techniques of making these products. The workers have completed a three months practice session of quick by making quality

⁸⁶ Collective savings of five CBOs

paposh. They also selected some extreme poor beneficiaries for marketing the products (CBO leader in Kamrangirchar, interviewed on 13/03/2012).

The author's field survey found that the collective business enterprise of the extreme poor groups made a good yearly profit of 0.5 million BDT (£4167) in the year of 2011-12 (CBO leader in Kamrangirchar, interviewed on 13/03/2012). This case suggests that this CBO business enterprise started with a medium sized business and through developing the understanding of beneficiaries was able to transform the business through applying the information gained and, thereby, have developed their collective knowledge regarding joint-business ventures. In this process they learnt to create a sustainable business and also make profits. Thus the DSK-Shiree project builds the collective agency of the extreme poor people through the joint business enterprise. As the extreme poor households have a high level of insecurity (i.e. greater risk of asset erosion) in the slums and squatter settlements of Dhaka city, the collective agency of the extreme poor households can avert them from asset erosion. It could also be effective in achieving further asset accumulation for the extreme poor households. The collective economic diversification is an effective forward looking non-hazard related adaptive practice that not only helps to reduce vulnerability of the extreme poor, but will also assist these poor households to recover more quickly from future hazard impacts.

Figure 7.9: Collective Business Enterprise in Kamrangirchar

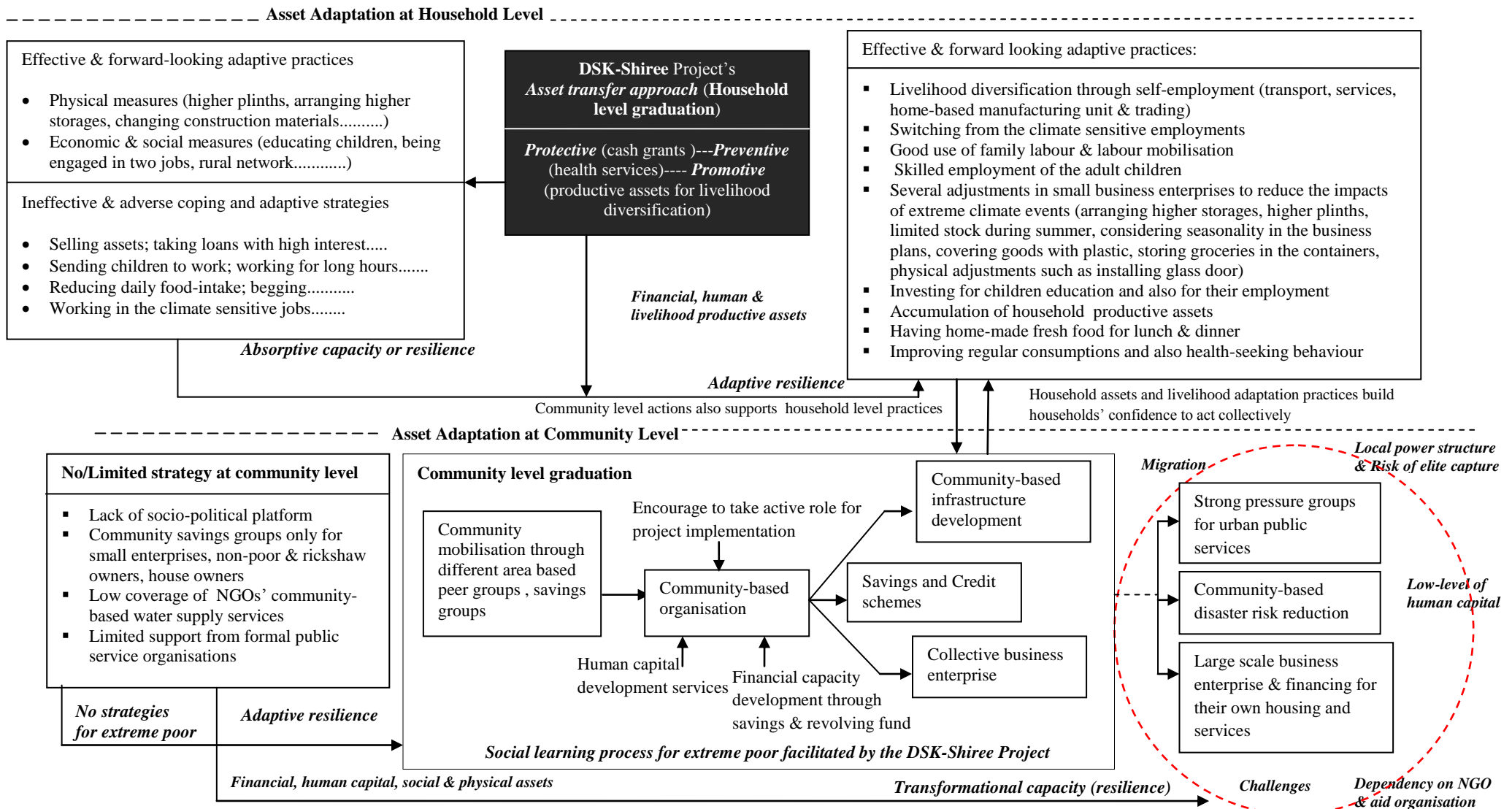


Source: Author's field survey (2012)

7.5 The Impacts of Social Sector Approaches in terms of Resilience Building

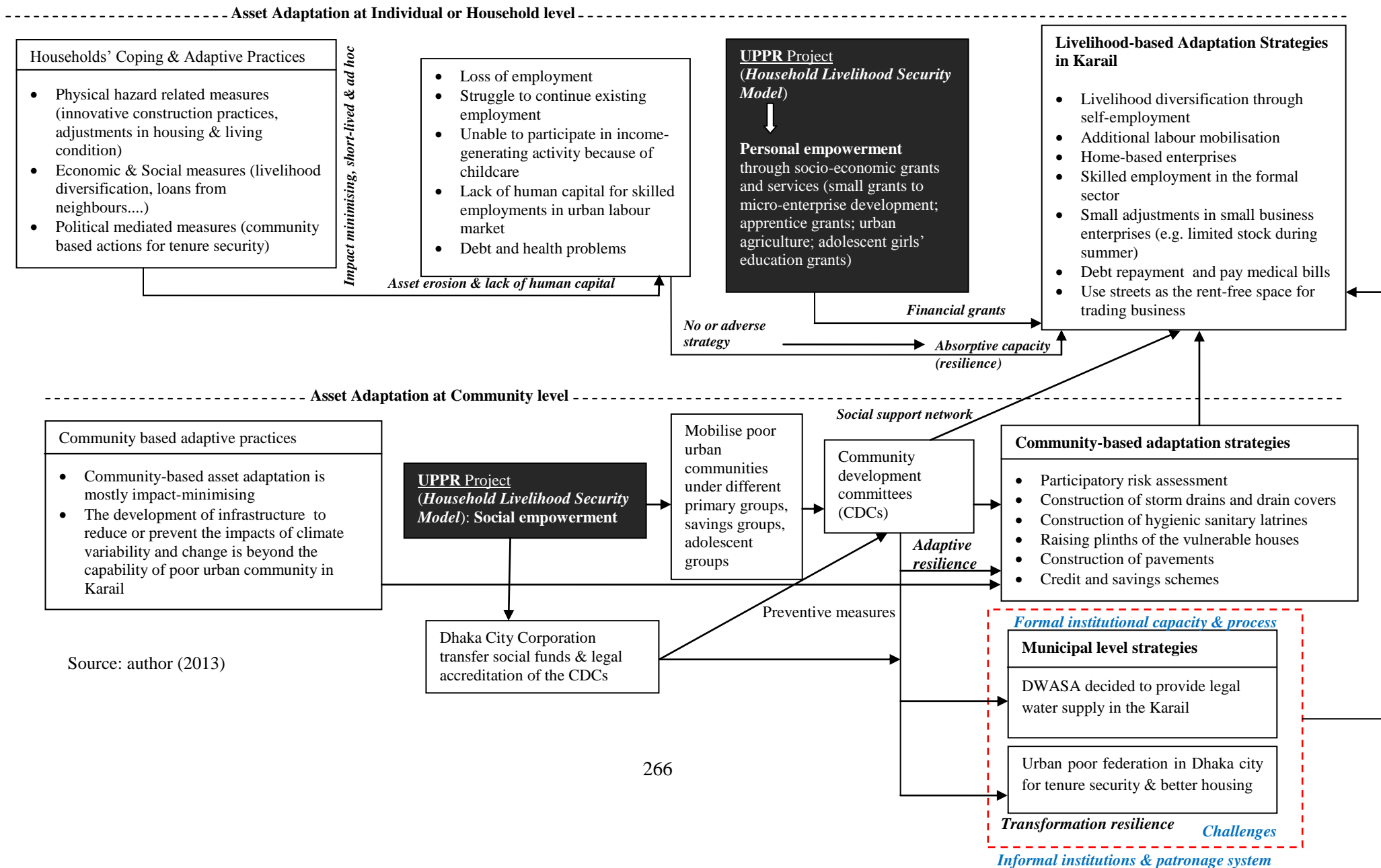
The impacts of social sector interventions in terms of resilience building so far has been missing in the literature. This section makes an attempt to explore the impacts of the DSK-Shiree and UPPR project by combining three dimensions of resilience as explained in chapter four: ‘buffer capacity’ (absorptive capacity), ‘adaptability’ and ‘transformability’. Applying this approach in the case of these projects, this section explores how and to what extent the projects help to strengthen the resilience of the extreme poor beneficiaries of the programme. The following figures (see figure 7.10 & figure 7.11) explore the impacts of the DSK-Shiree and UPPR project in terms of resilience building. The following figures reveal that both of these projects have a focus on building assets (financial, human, social and physical) that improve the capacity of poor urban individuals, households and communities to absorb existing shocks and more gradual climate impacts in the longer term. They can switch from short-lived, ad hoc and impact minimising coping and adaptive strategies to preventive measures to avoid hazards and also forward-looking measures for vulnerability reduction. As explained in chapter six, the extreme poor individuals and households in Karail and Kamrangirchar have already coped with the extreme events and climate variability by employing different physical, economic and social measures, but most of them are short-lived, ad hoc and impact-minimising (see figure 7.10 & figure 7.11). In worst case scenario, they are forced to adopt extreme or adverse coping or survival strategies. In the absence of savings, access to credit, or insurance they often sell their assets and labour in advance, sending children to work or reduce consumption on which their recovery depends.

Figure 7.10: The Impacts of DSK-Shiree Project in terms of Resilience Building



Source: author (2013)

Figure 7.11: The Impacts of UPPR Project in terms of Resilience Building

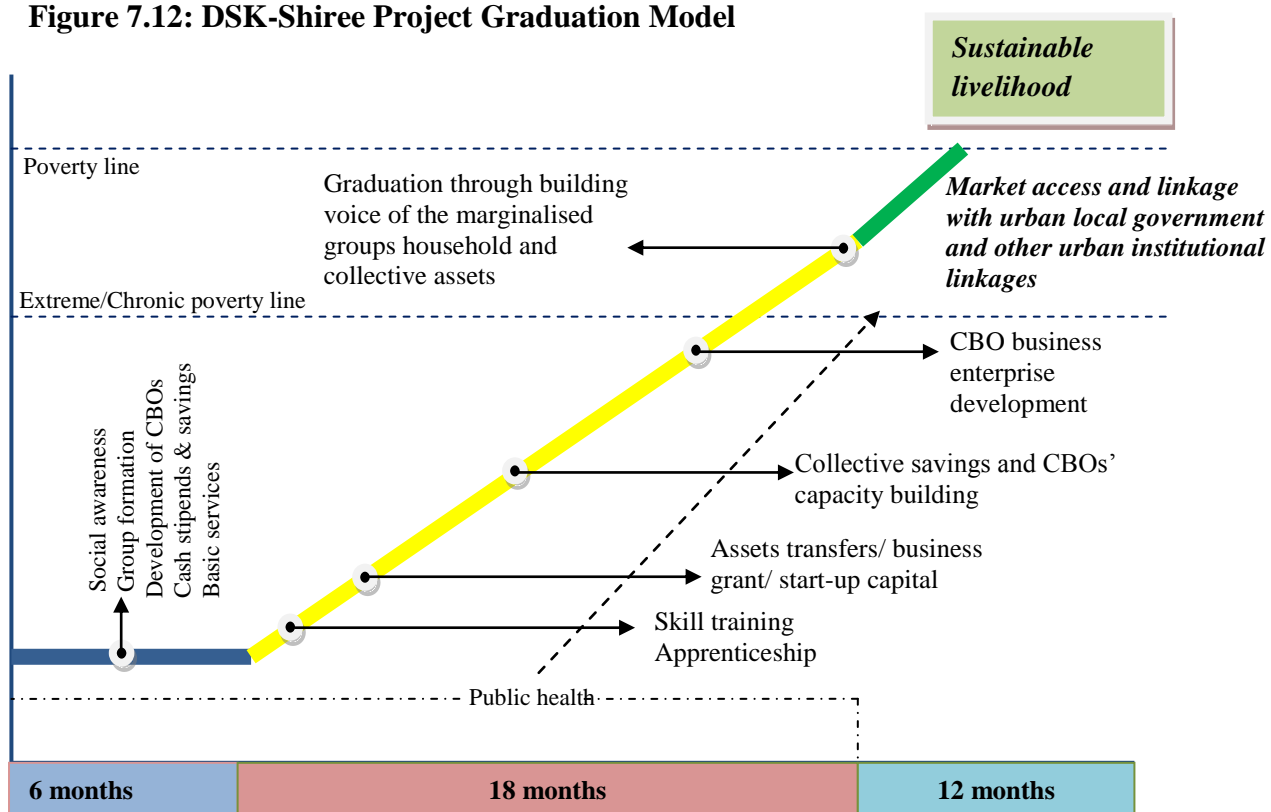


Source: author (2013)

7.5.1 The Impacts of DSK-Shiree Project's Asset Transfer Approach in terms of Resilience Building

The DSK-Shiree project intended to address asset-based poverty traps of extreme poor households in Kamrangirchar. This project has focused that the extreme poor households' asset accumulation processes are intimately interconnected. Hence they require an integrated approach. The DSK-Shiree project aims to provide a critical push, through direct asset transfer and a range of other supports, to enable the extreme poor to cross the threshold to more sustainable livelihoods. Thus, the project offers a 'graduation' model, one that provides achievable objectives for graduating out of extreme poverty. Figure 7.12 below graphically illustrates the carefully sequenced interventions of the graduation model.

Figure 7.12: DSK-Shiree Project Graduation Model



Source: adapted from Hashemi and Umaira, 2011

Household's absorptive and adaptive capacity through the DSK-Shiree Project

The project defined graduation on the basis of several indicators and identified someone as a 'graduate' if he/she met a majority of the indicators listed below:

- Has three full meals a day and never faces chronic food deficit
- Reduces dependency on one asset such as labour capital

- Has multiple sources of income
- Has access to hygienic sanitary latrine and safe drinking water
- Has cash savings
- School going aged children go to school

In order to attain these indicators, the DSK intends to raise income and assets to the extent that they can purchase what is needed for both short term and long-term survival and advancement. Thus the project focuses on the interconnectedness of assets. In the DSK-Shiree project, cash transfers are offered to give the extreme poor recipients the security necessary to invest time and effort in the ‘promotional’ components. This allows for a breathing space for households to meet their consumption needs and plan for their future economic activities. The introduction of the stipend helped extreme poor develop capacity to absorb or buffer their existing stresses including loss of employment; health vulnerabilities, indebtedness. The research found extreme poor households used these cash stipends in a variety of ways including consumption smoothing, treatment of household member’s illness, and also investing part of the cash allowance in productive sectors. This suggests that while the ‘protective’ component is insufficient to build ‘adaptive resilience’ on its own, it can be a pre-requisite for the preventative and promotional components to be effective. The promotional components such as business grants, asset transfers, human capital development services, the apprenticeships helped extreme poor households in Kamrangirchar to develop a range of forward-looking non-hazard related adaptive practices that contributes to greater resilience to existing and future vulnerability. As shown in figure 7.10, the non-hazard related adaptive practices are: home-based enterprises; investing for children’s education and also for their employment and income; additional labour mobilisation and enabling adult children in these families to obtain skilled employment; improvement in daily food intake; health-seeking behaviour improvement (e.g. visit qualified doctors for treatment rather going to quacks); accumulation of household productive assets. In addition to these practices, they have also deployed some behaviour and physical adjustments in order to reduce or prevent the impacts of the extreme weather events such as extreme heat and intense rains on their important assets such as health, business enterprises and their stock, including limited stock during summer; covering products with plastic; involving in business of seasonal products; building higher plinths and

arranging higher storages for their stock; installing glass door. These adaptive measures contribute greater resilience to these poor households' important assets. In the DSK-Shiree project, protective and preventive measures are offered to give beneficiaries the security necessary to invest time and effort in the 'promotional' components. The project outcomes suggest that accumulation in periods of stability (ensured by absorptive capacity) is crucial to build up adaptive capacity.

The DSK-Shiree Project's Interventions towards Transformational Changes

The DSK-Shiree project also invests heavily in collective agency for the extreme poor groups by building a new sense of identity focused on dignity, self-respect, equity, and a sense of solidarity through group formation and organisational capacity building. In order to build the organisational capacity of the community based organisations, the project places a high priority on classroom based training about organisational responsibilities, negotiation skills, conflict resolution, record keeping and monitoring skills. The project believes that building collective capabilities and leadership was not a process that could be developed by training; rather it should be developed through group activities, including managing savings groups, involving them in the process of building and managing small infrastructures within the community, planning for business and collective enterprise, involving poor people with different existing associations, and linking with different institutional networks (such as public and private service delivering organisations) (ibid.). As a part of the financial sustainability of the CBOs, a system of revolving capital has been established⁸⁷. In order to build their confidence to undertake collective business, the project arranged training and workshops, which were followed by exposure visits to get knowledge on how rural extreme poor federations build a successful collective enterprise. The project also helped the CBOs to form a co-operative through formal registration with the District Co-operative Department, Dhaka. All of which has built up the CBOs' capacity to manage savings groups, infrastructure development and collective business enterprises. Figure 7.13 illustrates the social learning of the extreme poor people facilitated by the

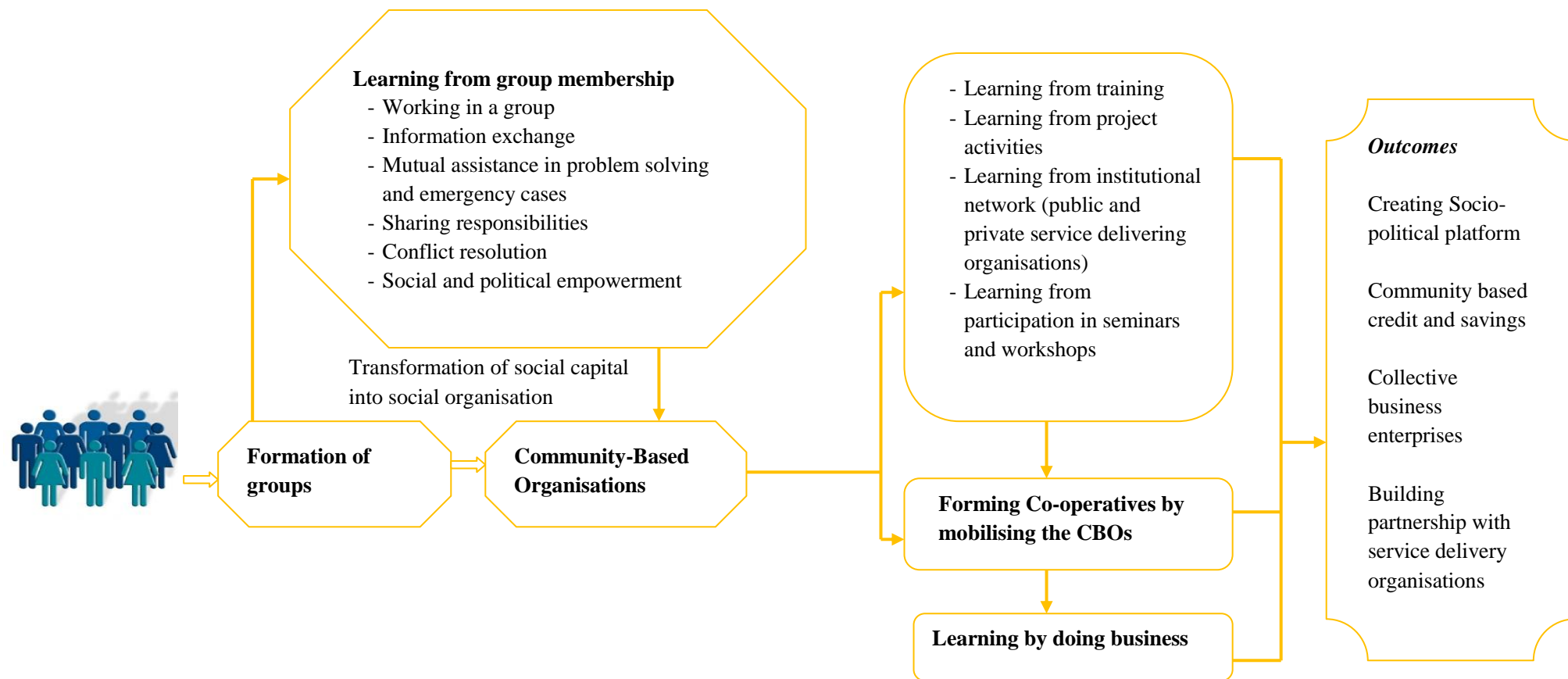
⁸⁷ Revolving funds is one of the unique strategies of the project. Fund recovery is applicable for start up capital along with a 10% service charge, sales of medicines on 50% subsidized cost, cost of sanitary latrines and water points along with service charges from 0% to 10% based on the economic status of the house owners (Author's field survey, 2012).

DSK-Shiree project. The social learning activities have some positive implications in transformational adaptation or transformability.

The research found that the extreme poor's organisations have showed great skills in building community based water supply and sanitation services in different housing clusters of Kamrangirchar. They identified the places where the community based facilities can be installed; they were involved in the negotiation with house owners and tenants; they helped to monitor the construction of facilities; and actively participated in the formation of future management committees for these services (CBO leader in Kamrangirchar, interviewed on 13/03/2012). This community-based adaptation in water supply and sanitation addresses the underlying political marginalisation of the communities in Kamrangirchar that excludes them from the service delivering process of city and municipal authorities in Dhaka city. By strengthening water and sanitation infrastructure to extreme weather events, extreme poor beneficiaries' physical assets are strengthened by reducing exposure and susceptibility of water and sanitation facilities to water supply contamination potentially leading to public health issues. Access to improved infrastructure is set to enhance respondents' asset-portfolios and hence adaptive capacity, as assets give capability to be and act in order to reduce risk and to cope with and adapt to increased risk levels (Moser and Satterthwaite, 2008, p.7). In addition to this, the project's savings and credit schemes do contribute to greater resilience and reduced climate risks. The practice of saving regularly has both instrumental benefits (the ability of savers to access funds when necessary) and organisational benefits (the relationships of trust built up within small savings groups that allow their members to work on collective solutions to larger problems). Small-scale loans managed by the community-based organisations and repaid over short time periods provide much needed capital for livelihood activities, or responses to shocks and stresses. The creation of community organisations in this project might be the basis by which the extreme poor groups can come together to identify and acquire residential land on sites that are less at risk of flooding. The extreme poor groups may use their community organisations as a socio-political platform in order to raise voice and negotiate political actions for accessing services and infrastructures from city and municipal authorities in Dhaka city. Therefore, sustainability of community organisations is essential to achieve transformational changes that reduce vulnerability.

However, this research found some challenges that may reduce community organisations' capacity to achieve transformational changes.

Figure 7.13: Social Learning of the Urban Extreme Poor People facilitated by the DSK-Shiree Project



Source: This is based on the discussions with two CBOs’ representatives in Kamrangirchar (two interviews held at 13/03/2012); and the findings of key informants are complemented by the households’ interviews, 2012.

Challenges that may Limit Transformational Change in Kamrangirchar

While significant numbers of the extreme poor households can successfully graduate in terms of income and assets and also build asset adaptation, a few failed to do that. The primary reasons for failure are rooted in such factors as ill health, and old age. For example, the research found that one old respondent was doing well for a while with the consumption stipend but then became vulnerable (interviewed on 19/05/2012). Although he built a small micro enterprise from the project, it was difficult for him to do this business, collect products and keep in touch with his CBO and DSK without more regular allowances and support (ibid.). Although the DSK-Shiree project has developed multiple avenues to reduce the vulnerability and build the asset adaptation of the extreme poor, their wellbeing in the informal settlements is always vulnerable. As a result, they frequently experience erosion of their assets. The shocks and threats including fire hazards, health shocks, robbery and extortion, and eviction that the extreme poor face are mainly caused by their poor living environment (housing), lack of basic services and infrastructures and lack of safety and security services.

However, the right to housing and basic services is not well incorporated into the project. It pursues a 'service delivery' paradigm, where the provision of services (such as training, cash grants) is separated from engagement in the broader polity (urban local government, and local political actors). In reference to this, this project becomes a provider of services to the extreme poor groups rather than 'facilitators' of collective action and empowerment. As discussed before, the patron-client networks that the poor tend to use to gain a degree of livelihood security often exclude the extreme poor. However, the project has a limited focus on influencing community attitudes and behaviour in favour of marginalised groups. Migration⁸⁸ is a continuous event in the urban context of Dhaka city which has a negative influence on the operation of community organisations in Kamrangirchar. One organisational respondent reveals that extreme poor's migration (urban to rural or within Dhaka city) affects members' active participation, group cohesion and also group savings activities; and newly migrant families in the community put stresses on the maintenance of community-based

⁸⁸ Up to March 2012, a total 1,514 households have migrated from the primarily selected 11,729 targeted households. Out of 1,514 migrated households, 695 have migrated before receiving any assets and 372 have migrated after receiving the assets (DSK, 2012a).

facilities (CBO leader in Kamrangirchar, interviewed on 13/03/2012). In the fieldwork, it was observed that community organisations were largely dependent on the project personnel of DSK-Shiree project to make collective decisions as well as performing community based activities. This creates major concern on the extreme poor's capacity to run community organisations when DSK-Shiree project's support could be withdrawn due to project expiration. Therefore, factors such as lack of leadership quality, exposure to asset erosion, tendency for frequent migration, limited services from the NGO after the project end may affect the social assets of the extreme poor groups and hamper their collective agency in the future.

7.5.2 The Impacts of the UPPR Project in terms of Resilience Building

The UPPR project mainly focuses on infrastructure and community works and provides small financial assistance to the extreme poor households. It is expected that with this financial assistance the extreme poor can build new income-generating activity which will help them to take part in community based activities. The project design itself did not have an adequate focus on the key challenge of tackling the social, economic and institutional constraints which reproduce a non-enabling environment for the extreme poor people. Without tackling these issues, it is unlikely that infrastructure and community works can provide an opportunity for longer-term graduation. The very idea of using any short-term transfer as a springboard for sustainable change in livelihoods of the extreme poor will most likely fail. Despite this, small grants of this project provides opportunities for those extreme poor individuals, who lose employment; unable to continue existing job and fail to develop employment due to childcare, to develop income and employment. This action eventually builds 'absorptive capacity' of these vulnerable households. This project also includes these households into community-based savings and credit schemes which have positive implications in building their 'adaptive resilience'. In contrast to NGOs' micro-credit/finance interventions, community members initially focus on mobilising local financial resources by collecting savings from group members. In turn, savings and credit groups which lend from their capital to provide credit to members for microenterprise activities, are key to income and assets of the extreme poor households. In the fieldwork, this research found that credit groups of the UPPR project only engaged in

mobilising funds and did not start providing loans to the members; therefore, it is not possible to determine the impacts of loans on the income and assets of the extreme poor.

As explained in chapter 6, strong social network plays a critical role in the households' and communities' coping and adaptive strategies in Karail; but the development of infrastructure which reduces climate change impacts is beyond the capability of poor urban communities in this area. Social funds and community driven development supports of the UPPR project allow poor people and community to become actively involved in community based infrastructures such as storm drains and covers, pavements and improving physical structures that actually stop or greatly reduces flooding (see figure 7.11). Communities' human assets (health) are supported, as is the case with drainage provision that aims to reduce environmental pollution and resultant disease. This action to reduce vulnerability to climate risk by asserting communities' rights to infrastructures that have been suppressed within DCC's existing governance system, has positive implications for long term resilience of poor urban communities in Karail. In order to address deficiencies in current service provision and thereby reduce respondents' adaptation deficit, the UPPR project supported community organisations with local institutional collaboration as a means of promoting an initial basis for partnership. As a result, local communities in Karail have got opportunities to work with the urban local government to implement community-based infrastructure project. Recently, in 2013, D-WASA has also decided to work with community organisations in Karail by providing legal water supply to the households living in this area. This collaboration is essential if climate change adaptation is to move beyond a technical domain towards recognition of the essential importance of its social dimensions (Moser and Satterthwaite, 2008, p. 33). The institutional collaboration between DCC and local communities in Karail seems to be effective in addressing the underlying political marginalisation of poor urban communities in Karail. However, current financial capacity, laws and rules of the city and municipal government organisations are not strong enough to facilitate to pro-poor service provision in future. No national government agency, department or ministry has been allocated responsibility or funding for poor urban communities living in the slums, which limit urban local governments and governmental agencies and departments' ability to run programmes for the urban poor in Dhaka city (A civil society actor, CUS; interviewed on 10/04/2012). Banks et al.

(2011b) identify two factors that limit the interaction between urban local government and low-income urban residents in Dhaka city. *Firstly*, almost all national social assistance programmes are not extended to the urban poor; *secondly*, where goods or entitlements are distributed in urban areas – such as food rations during emergency flooding, or blankets during cold winters – urban local government do not engage directly with communities.

The structural inequalities that underlie the informal governance structures are one of the major challenges to transform poor and extreme poor' absorptive and adaptive resilience into transformative resilience (i.e. ability or capacity to change by preventing the underlying socio-political marginalisation) in Karail. The community development committees (CDCs) were created under the UPPR programme in Karail to represent the urban poor and the extreme poor households, who hold little power and have no confidence in community meetings (Ahammad, 2011). The author's fieldwork revealed, there were signs that the female Community Development Committees (CDC) created with the intention of gender empowerment were little more than proxies for pre-existing community structures. The committee members were composed of the wives of the existing leadership⁸⁹, who were therefore able to maintain control over the resources provided for community development projects. The CDC-based structure of the UPPR project is a delivery chain mechanism, rather than acting to develop and nurture community organisations (Roy et al., 2012b). It is a mixture of aid attached to a savings plan with a minimum level of household/collective contribution (ibid.). The CDC members are mostly selected, and the author's field survey found evidence of inappropriate selection (e.g. a young educated female) was selected for mentor a destitute person receiving a business development grant. It also found that the extreme poor households have to sacrifice 10% of their block grant for the services of the young

⁸⁹ A city-wide network representing the urban poor, *Bustee Basheer Odhikar Surikha Committee* (BOSC, discussed in Banks, 2008) had originally received institutional support from its founder, Coalition for the Urban Poor (CUP). While the committee had wanted to register formally with the government to become a self-sustaining organisation, it then registered formally as *Nagar Daridra Basteebashir Unnayan Sangstha* (NDBUS, Urban Slum People's Development Agency). So that this same committee could act as a delivery mechanism for their programme, a local NGO had also encouraged them to formally register a mirror organisation – *Nagar Busteebasheer Unnayan Shangstad* (NBAS) – with the same people in the same leadership positions. It is also the wives of these leaders who comprise the CDCs organised by UPPR, ensuring that they have de facto control over this organisation too (Banks, 2012, pp. 57-58).

educated female in their businesses. Therefore, the voices of different interest groups and their perceptions regarding poverty and the possible options for asset adaptation for the extreme poor are not well incorporated into the project.

7.6 Conclusion

This chapter has answered the fifth research question of how social sector approaches facilitate asset adaptation or resilience strategies for the urban extreme poor living in the slums of Dhaka city. The findings of this chapter contribute to the conceptual framework of pro-poor asset adaptation for the extreme poor (as explained in Chapter three) by analysing the role of social policies or approaches for asset adaptation options and processes in the Bangladesh context.

The research has examined evidence from two social sector projects: the UPPR project (social funds for community driven/based approach) and the DSK-Shiree project (direct asset transfers by combining protective, preventive, promotive and transformative social protection measures), which are being implemented in the case study settlements of Karail and Kamrangirchar respectively. The chapter has explored how variations in the focus on the extreme poor between these two projects have led to differing levels of outcome.

The UPPR project focuses on a participatory approach for mobilising communities using different structures and seeks to identify the problems faced by different groups of the poor and prioritises actions to reduce these problems. Although the project used a democratic process to identify the community leaders, in reality, the existing leadership, local elites and their supporters hold the committee positions. Therefore, the UPPR project can be viewed as a project distributing patronage, not as a project providing an enabling environment for the graduation of the extreme poor. The CDCs within the project appear to consider the extreme poor only as demonstrations of charity and public largesse, and so the promotional measures suffer from tokenism marked by a modest transfer of resources; as a consequence the UPPR project has less impact on household level extreme poor's asset adaptation strategies. Despite this, the project has developed a number of collective physical adaptation strategies for the slum dwellers in Karail which have helped improve drainage systems and have reduced waterlogging risks in

the slum. The savings and credit scheme of the UPPR project can be drawn on to help poor and extreme poor adapt to shocks and stresses including those arising from climate variability. These community-based adaptation strategies do contribute to adaptive resilience of extreme poor individuals and households.

The UPPR project intends to bring transformative changes such as access to legal services or tenure security through building strategic partnership between the city and municipal government and local communities. However, sustainability or long term supports from city and municipal governments in Dhaka city may be constrained by several institutional barriers including inadequate laws and rules, financial capacity, a lack of incentive for the urban poor, fragmented approach to service delivery (e.g. confusion between agencies (DCC, DWASA, RAJUK), especially in regard to sanitation). The UPPR project used community mobilisation to identify and implement their own development priorities but these actions have had less consequential benefits for the extreme poor households. As structural inequalities underlie the community structures of the informal settlements in Dhaka city, the community committees within the UPPR project reinforce, rather than break, these pre-existing structural inequalities. Overall, the local elites appear to have more power and resources, while the poorest remain as dependent as previously on the local elites for getting access to resources provided by the UPPR project.

The DSK-Shiree sees the extreme poor caught in a below subsistence trap from which it is difficult for them to break and so they require multiple entry points, all of which need to work together. Therefore, the project intervention integrates multiple components, including asset grants for income generation, skills training, a time-bound monthly stipend for subsistence, social development and building social organisation, and health support. The findings suggest positive impacts in graduation, including asset accumulation, income, consumption, access to services and social awareness. The asset accumulation of the extreme poor facilitates adaptation strategies to household, small business and community level including livelihood diversification; consumption smoothing; improving health seeking behaviour; physical and adjustments in small business (such as limited stock, involving in seasonal business, high storages for the stock); physical accumulation of assets and climate proof infrastructures.

The DSK-Shiree project also focuses on the transformation of social capital into the social organisation of the extreme poor households. The project first improves the position of the extreme poor households through protective, preventive and promotive measures so that they are keen to participate in community development activities. Therefore, the transformative changes of this DSK-Shiree project are that there is a strong trend of participation of the poor, especially women, in the activities of community development organisations, and, through knowledge of their rights, they can protect themselves against external threats. Consequently, the social organisation of the extreme poor has already facilitated a number of forward-looking community-based adaptation strategies such as saving groups, community based water supply and sanitation. Sustainability of community organisations can also address better housing needs, basic services and future economic diversification for extreme poor groups in future- all of which greatly contribute to long-term resilience for the urban extreme poor. However, the project does not pay attention to how to bridge social networks with other inhabitants or local elites and has a limited focus on the effective engagement of urban government agencies. In addition, the extreme poor groups' dependency on the NGO is still very high and so it is difficult to argue that they have graduated to undertake their own development activities.

Chapter 8 : Conclusion and Recommendations

8.1 Introduction

This research has explored urban extreme poverty, climate change vulnerability and asset adaptation in the context of Bangladesh drawing on international theories, and practices. To answer the first research question (*How poverty dynamics are linked with vulnerability?*) this research has assessed urban extreme poverty from the lens of asset based approaches; the adverse incorporation/social exclusion approach (AISE); and also from vulnerability approach. In the Bangladeshi context, urban extreme poverty is shaped by low asset holdings, structural factors related to the labour market, repeated health shocks combined with exploitation and exclusion, life-cycle factors, and household composition. In the Bangladesh context, this research found a relationship between vulnerability to market, low asset holdings and health shocks. Considering this relationship, this research has explored the main drivers of climate change vulnerability for the urban extreme poor, which contribute to answer the second research question (*What are the main drivers of climate change vulnerability for the urban extreme poor and how are these shaped by external and internal characteristics?*)

This research has critically reviewed the literature on climate change adaptation to explore individual coping and adaptive practices that poor urban individuals, households and communities employ in order to prevent or reduce the impacts of the extreme weather events. The classification of pro-poor coping and adaptation strategies has been used to explore the urban extreme poor's coping and adaptive practices to the extreme events and climate variability in Bangladesh. An analysis of autonomous adaptation in the Bangladesh context contributes to answer the third research question of this research (*What adaptation practices are extreme poor people developing to tackle the livelihood challenges associated with climate variability?*). This research also reviews theories related to institutional processes of adaptation in order to understand how formal and informal institutions and policies block or limit the extreme poor households' access to assets for adaptation. Examining this theoretical perspective in

the Bangladesh context contributes to answer the fourth research question (*What role do urban institutions and policies play in supporting or constraining the asset building process for the urban extreme poor?*). Social policy and social protection may offer valuable lessons for pro-poor adaptation, but are not yet widely appreciated in climate change policy literatures. The social approaches can assist the poor urban communities manage climate change and climate volatility and support them as active agents in creating resilience through different household and community level interventions. In the Bangladesh context, this research has thus explored the effectiveness of the social sector programmes (social funds for community based adaptation and asset transfer approach) in building the asset adaptation of the extreme poor which addresses the fifth research question of this research (*How do social sector approaches facilitate asset adaptation of the extreme poor?*). Therefore, this final chapter brings the main findings together to explain the gaps in the pro-poor asset adaptation strategies and process in the Bangladesh context. Finally, the chapter provides pro-poor policy recommendations at the micro (individual or household), the meso (community) and the macro levels (city or municipal level) on how to scale up pro-poor asset adaptation for the extreme poor. At the end, the chapter clarifies the contribution to wider knowledge construction and the scope for the future research is also addressed.

8.2 Urban Extreme Poverty and Climate Change Vulnerability

Extreme poverty is considered as deep or severe poverty in poverty analysis circles and is often measured by money-metric poverty lines. However, this research argues that ‘extreme poverty’ needs to be conceptualised and defined by three dimensions of poverty: poverty breadth, depth and also duration. This research argues that urban extreme poverty is severe as well as multi-dimensional and rooted in multiple causes; and extreme poverty is often chronic, oppressing people throughout their whole life and being passed from one generation to the next. This understanding of the extreme poor helps us to explore heterogeneity among the poorest groups and also to identify the links between multiple forms of deprivation and vulnerability. The Bangladesh case study confirms these theoretical assumptions by exploring heterogeneous groups of extreme poor and their multiple and overlapping forms of deprivation which cause vulnerability and the erosion of assets. Analysing the links between the multidimensionality of poverty and vulnerability both theoretically and in the

Bangladesh context contributes to the first research question as mentioned in this chapter. Examining the relationship between poverty dynamics and vulnerability, this research explores the main drivers of climate change vulnerability for the extreme poor which is the second research question of this research. The next section brings together the findings of the literature review (Chapter two) and the Bangladeshi case study (Chapter five) to provide answers to the first and second research questions.

8.2.1 How Poverty Dynamics are Linked with Vulnerability?

This research reviews extreme poverty from asset based approaches to understand the multiple dimensions of extreme poverty. According to asset-based approaches, the stock of productive, financial, physical, natural, social and human assets that households and individuals control largely determines their structural position in a society (Barret et al., 2005; Siegel, 2005 & Siegel and Alwang, 1999). The extreme poor are those who have low asset bases and low asset productivity since the financial returns from their human assets are too low to achieve basic security. A lack of assets and inability to accumulate asset portfolios cause vulnerability to shocks and stress; thus, extreme poor households have to face diversified shocks and stresses. This observation is important for understanding the links between vulnerability and the asset deprivations of the extreme poor households and groups. But, the poorest groups are also vulnerable because they face an adverse structural context. Therefore, this research has also examined extreme poverty from a social exclusion/adverse incorporation framework, which helps the researcher to understand the causes of these disadvantages, exclusion and discrimination. This adverse incorporation/social exclusion approach helps us to explore the social, economic and political processes through which extreme poor households and groups wholly or partially are excluded from access to resources, opportunities, information, and connections. As a result, they have higher levels of shocks and stresses because their coping and adapting capacity is greatly constrained by social, economic and political processes.

The Bangladesh case studies clearly show that the poorest constitute a heterogeneous group and also that there are links between poverty dynamics and vulnerability. As the poor and poorest people tend to be mainly dependent on their labour power for survival, the distinctive feature of the extreme poor households is that they lack both quality and

quantity of labour capital assets. In the Bangladesh context, male heads or adult male earning members in poor households engage in labour intensive activities such as rickshaw pulling, day labour, and petty trading (mainly street peddling) but the returns of their labour and/or human assets often fail to meet the daily food and non-food requirements of their households. In this context, the mobilisation of additional income earners is, therefore, a common strategy among the poor households. However, these male headed households become the extreme transitory poor when they fail to mobilise additional labour. These male headed households slide to extreme chronic poverty and sometimes destitution due to episodes of ill-health of the main bread-winners. Life-cycle factors, such as the old age of male earning members, lead to increased dependency and burdens of care within the household which decreases the ability of the household to build social networks. This research reveals that extreme chronic poverty, especially in Bangladesh, has a distinctly gendered face; most of extreme chronic poor households tend to be headed by women, having been widowed, divorced or abandoned. The extreme poverty of female headed households is shaped by the erosion of financial and human assets due to episodes of ill-health of the breadwinners, structural barriers related to the labour market, a high number of dependents and also exclusion from the safety nets of their extended families. The analysis of case studies in the Bangladesh context reveals a relationship between vulnerability to market, low asset holdings and health shocks. The analysis of life-histories suggests that poorer households tend to have higher frequencies of health-related crises. The interviews revealed patterns in treatment where help was often initially sought from traditional healers (*kobiraj*) or local medical stores; then when the treatment did not respond people went to medically qualified doctors in private clinics and government hospitals with costs of medicines and diagnostic tests increasing as the illness deteriorated. Due to lack of households' financial assets and access to formal credit services, they often sell their productive assets and also took loans with high interest from informal sources, leading to asset-based poverty traps. Thus, ill-health, especially of the breadwinner, is commonly associated with a downward spiral into deep and chronic poverty, as assets become depleted to meet additional medical bills and basic household needs.

8.2.2 The Drivers of Climate Change Vulnerability for the Urban Extreme Poor

The analytical framework used in the study is based on the approach developed by the IPCC (Wilbanks et al., 2007), which looks at the risks posed by natural hazards and defines vulnerability as a function of a system's exposure, sensitivity, and adaptive capacity. Following this framework, vulnerability is identified in terms of three elements: (i) system exposure to crises, stresses and shocks; (ii) system capacity (or lack of capacity) to cope; and (iii) consequences and attendant risks of slow (or poor) system recovery. This perspective suggests that climate change vulnerability for poor urban households and communities is exacerbated by the adverse conditions that determined by both external (geographical/location and physical) and internal (social, economic, political) factors, which increase the susceptibility of a household or community to the impact of hazards. Examining the relationship between poverty dynamics and vulnerability, this research argues that low asset holdings, combined with exclusion from opportunities to earn better income, access services, and for voice place the urban extreme poor households and groups into an adverse vulnerable situation through which they are externally defenceless (i.e. exposure to shocks and stresses) and also internally defenceless (i.e. poor coping and adapting capacity to shocks). Therefore, the vulnerability of the urban extreme poor is shaped by geographical, physical, social, economic and also political drivers.

The analysis of the Bangladesh context reveals that the impacts of climate change are neither the only, nor the primary challenges the urban extreme poor face, but will compound and exacerbate the risks and challenges they already face. Table 8.1 shows the drivers of climate change vulnerability for urban extreme poor in the case study settlements. Increased heat and rainfall are the two changes that poor urban communities in Dhaka perceive to be the greatest risk to their livelihoods and living conditions. Table 8.1 reveals that climate change impacts are likely to affect the poorest urban residents, whose vulnerabilities are shaped by physical, social, economic, political and legal factors; but climate change impacts are not necessarily distributed evenly between the two settlements examined in this research.

Table 8.1: The Drivers Underlying Vulnerabilities of Karail and Kamrangirchar

Common for both settlements	Specific to Karail	Specific to Kamrangirchar
<i>Physical components of vulnerability</i>		
<ul style="list-style-type: none"> • Hot and humid conditions cause faster deterioration of food • Higher temperatures and reduced precipitation are expected to cause supply shortages due to the slower replenishment rates of groundwater aquifers and reduced surface water • The high density, narrow lanes and highly concentrated land uses- all increase the heat exposure of the poor urban populations; these factors also increase the exposure of the urban poor to flooding • Overstressed sanitary facilities • High risk of fire-hazards due to high density, narrow lanes and poor quality of construction materials used in housing • Temporary structures with poor attention to protection against rainfall, heat stress and cold waves 	<ul style="list-style-type: none"> • The lack of proper drainage can lead to water logging • Extension of dwellings on lower ground within the slum and also on subsidence/ erosion-prone areas (i.e. over the lake) • Construction of latrines over the lake, often with uncovered pits, causing raw sewage leakage that increases the risk of water-borne diseases 	<ul style="list-style-type: none"> • The area has lower relative elevation compared to the inner city area, which increases the risk of inundation and waterlogging • Haphazard land development projects on flood flow zones increases the problem of drainage congestion especially during the rainy season • Rows of houses, or ‘hanging shelters’, are built on stilts with no basic services at all • Poor location and construction of latrines, often with uncovered pits, causing raw sewage leakage • Frequent rainfall can increase drainage challenges, disruption of transportation services, and destruction or damage to roads due to poor maintenance of roads and drainage • Landlords often install only shallow tube well, thus forcing dwellers to source drinking water from public deep tube wells located far away from slum clusters in Kamrangirchar
<i>Social, economic, political and legal components of vulnerability</i>		
<ul style="list-style-type: none"> ▪ Urban jobs requiring different skills from rural agricultural jobs ▪ More money is needed in urban areas for basic needs than in rural areas ▪ Food price increases and falling nutrition levels and spread of disease ▪ Weather sensitivity of labour markets and disruptions in income due to seasonality effects ▪ Having to pay rent on top of other costs ▪ Lack of saving and access to credit ▪ Women are disproportionately vulnerable to extreme climate events due to social norms and family responsibility ▪ Job syndicates do not usually welcome newcomers; and migrants need to build trust to enter into job syndicates 	<ul style="list-style-type: none"> ▪ Limited scope of home-based enterprises for poor tenants ▪ Lack of tenure security ▪ Political exclusion and maintaining patron-client relationships 	<ul style="list-style-type: none"> ▪ Lack of socio-political platforms ▪ Absence of a minimum standard for the low-income rental units ▪ Landlords build huts and rent out houses to poor households without basic services or providing limited services

Source: the findings of chapter five are summarised in this table

The case analysis reveals high levels of physical vulnerability in Dhaka's low income settlements, which vary in nature and extent, both within and across the settlements. Analysis reveals that the extreme poor households in Kamrangirchar have higher levels of physical vulnerabilities, compared to the residents in the Karail slum. The distinction in spatial and location characteristics between these two settlements affects the poorest urban residents in Kamrangirchar disproportionately. In both of these settlements, the extreme poor have high levels of socio-economic vulnerabilities and their socio-economic vulnerabilities of the extreme poor households are related to the extreme poor's limited income opportunities and low income, social norms and family responsibility, the syndicate culture in the urban labour market, urban commodity prices and increased food prices. The analysis reveals that the poorest households are more concerned about their socio-economic vulnerability than anything else because survival concerns are the first priority. The analysis also suggests that in Dhaka's low-income settlements, variations in tenure arrangements can lead to differing levels of politico-legal vulnerability. As Karail was developed on public land, the extreme poor live with a constant threat of eviction as do other inhabitants of the slum. However, it was found that this slum has strong external political networks that help to reduce the risk of asset erosion for the poorest households. Although Kamrangirchar has a lower threat of eviction because of its legal registration, the land owner provides shelter for poor people without considering basic living standards and services, and the poor people do not have any socio-political platform to negotiate with formal actors to get access to these assets which exacerbates the physical vulnerabilities, especially for the extreme poor households.

8.3 Asset Adaptation for the Urban Extreme Poor

Moser et al. (2010) highlight the importance of shifting from an asset accumulation to an asset adaptation framework in order to better understand the opportunities the urban poor have to build long term resilience to the impact of climate change. Considering this, the study has developed a conceptual framework of pro-poor asset adaptation that identifies the process of building asset adaptation for the urban extreme poor. Reviewing urban climate change adaptation literature, it is found that poor urban communities do their best to adapt to perceived climate change, even in the absence of facilitating government policy and sometimes despite policy or regulatory constraints.

The poor urban households employ a wide range of hazard-related preventive and impact minimising coping and adaptive strategies in order to avoid hazards and reduce the impacts of extreme climate events. In addition to these practices, they also undertake a range of economic, social and political mediated measures for vulnerability reduction. Likewise vulnerability, coping and adaptation practices may vary according to poverty categories. Considering urban extreme poor's low asset holdings (and their returns), it is reasonable to assert that their coping and adaptive strategies are only impact minimising, short lived and ad hoc. They face institutional barriers that limit their ability to adapt. For example, restricted land rights due to institutional constraints make it difficult for extreme poor women to access credit (Vernon, 2008). As a result, they may be forced to adopt extreme coping or survival strategies (e.g. sale of productive assets, working for long hours). Therefore, social sector approaches (e.g. social protection, asset transfer, livelihood resilience programmes) will need to be deployed to help households replace unproductive, asset degrading coping strategies with ex ante mechanisms that anticipate, plan, and act against the negative impacts of risks. At the household level, there is a need to combine protective, preventive and promotive measures in order to facilitate the accumulation of assets by the extreme poor households. Clearly their asset accumulation is a key determinant of their adaptive capacity both to reduce risk and adapt to their vulnerabilities.

Local social networks sometimes substitute for state-led actions, as when communities take different impact minimising and preventing measures to reduce the impacts of climate variability or when informal transfers are used to help households survive shocks in the absence of government and market-based social protection instruments (Heltberg et al., 2010). Such community-driven/based adaptation often is driven by necessity, but they need funds and external supports for building infrastructure which contributes to greater resilience and reduces risks. In the absence of robust support, the scale and covariate nature of many of the risks associated with climate change could overwhelm community coping mechanisms (ibid.). Social funds and community driven programme supports will need to be employed to remove financial and institutional barriers for effective community driven adaptation. External support should recognise the strengths of communities and seek to exploit those strengths for effective adaptation. Community driven adaptation must include the extreme poor and marginalised so that

they can exploit community based opportunities (such as saving and credit schemes) for effective households' coping and adaptation strategies. In addition to social policy and social protection for households and communities, macro level interventions from city and municipal governments are essential for long term resilience of the urban extreme poor. They can establish the infrastructure and institutions (change rules and laws to provide land to the urban poor for housing) that prevent weather events from becoming disasters. These theoretical assumptions have been analysed in the Bangladesh context in order to identify asset adaptation strategies and the process of building these strategies for the urban extreme poor. Therefore, this section explains the individual coping and adaptation strategies in the case study settlements and also describes the role of urban institutions and policies in these practices which is the third and fourth research question of this research. In addition, it discusses the role of social sector approaches in building asset adaptation of the urban extreme poor in Bangladesh, which addresses the fourth research question. Later, this section compares these findings with the conceptual framework of pro-poor asset adaptation for the urban extreme poor households and groups in order to explain the gaps in the pro-poor asset adaptation approach in Bangladesh.

8.3.1 The Urban Extreme Poor's Coping and Adaptation Practices in Bangladesh

Similar to poor and non-poor urban slum residents in Dhaka city, the urban extreme poor also employ a range measures to reduce the impacts of extreme events and climate variability. The analysis of extremely poor's coping and adaptation strategies presented in chapter six suggests huge differences in their effectiveness: most of the practices are impact-minimising and short lived and even harmful measures; only few measures are forward-looking solutions (e.g. sending children to study). Interviews with extreme poor households in both of the case study settlements (Karail and Kamrangirchar) focused on their experiences of climate variability, hazards and coping strategies. These households took action in response to flooding and water clogging and in response to rainfall that was anticipated (e.g. the regular monsoon rains) and unexpected. In Kamrangirchar, most of the households moved to safer locations during flooding. This was not an option for most residents in Karail though, as it meant losing assets, disrupting livelihoods and losing the right to stay and live in that location. In Karail, the residents took some responses to minimise the impacts of flooding such as putting children and elderly on

the furniture; bailing water out of houses; sharing services; and stopping water from coming into homes. Along with these preparedness responses, households in the case study settlements also have some regular practices in order to minimise the impacts of flooding as well as extreme heat (e.g. raising plinth heights, arranging higher storage facilities, increasing furniture height, using of false ceiling or canopies, planting creepers in courtyards to cover roofs etc.). While these ad hoc adaptation may save lives and assets in the short term, their unregulated nature creates the possibility for maladaptation—where a shift in vulnerability from one group to another may deliver a short-term gain, at the cost of creating long-term, higher vulnerability such as impacts on future generations (Baker, 2012).

In the absence of savings, access to credit and insurance, extremely poor households had to choose between distress sales of productive assets and destruction of human assets (for example, malnutrition and removing children from school) at the time of recovery of climate variability. Such decisions have long-term poverty implications, leading these households into asset-based poverty traps. During crisis the extreme poor households undertake many adjustments to reduce the impact of crisis. The common mechanisms that were found to cope with crisis are: reduced consumption of food or other essential goods; purchasing inferior food substitutes; and intensification of efforts by other household members – in most cases children. Thus, such coping strategies have severe repercussions on the household's health and nutrition, as well as the working ability of those dependent on physical labour (Banks, 2012 & Goudet et al., 2011). The involvement of young children in the urban work force has been noted as a household strategy among extremely poor households. It is found that more working boys and girls come from female-headed households. Such coping strategies can undermine children's long-term wellbeing and health. According to Goto et al. (2011) this coping strategy of the extremely poor has severe implications in their long term well being, not merely by blocking a possible route out of extreme poverty through access to skilled jobs with high remuneration, but also by depriving children of insurance against accidents which then impairs their ability to perform heavy manual labour. Being engaged in two jobs simultaneously is one of the effective economic strategies for urban extreme poor households through which household heads can reduce or overcome the extreme weather effects and agency-related obstacles that limit the hours and days an individual

can work, such as work irregularity due to illness, old age, or physical weakness due to extreme heat. Only few extreme poor households in the case study settlements have access to rural network in the form of extended family networks through which they reduce the impacts of the extreme events and also take forward looking solution like sending children to parents for education.

8.3.2 The Role of Urban Policies and Institutions for Adaptation Practices

In Bangladesh, asset adaptation for the urban poor can be supported by a number of national and local policy frameworks, however all of them fail to address asset adaptation of the urban poor and poorest. The national housing policy and strategic options focus on strategies for improving access to assets and for enhancing their consolidation and preventing erosion (such as tenure security and housing for evicted households); but they do not provide enough legislative support to the urban poor. While local urban development plan (e.g. Detailed Area Plan) addresses adaptation needs of the urban poor through proposals for slum/low cost housing development, nowhere are such plans spelled out in detail, nor is sufficient land provided for them. It is apparent that housing proposals for the urban poor in the local development plan are not meant to be implemented, instead setting out a plan to relocate the majority of the 4.2 to 4.5 million slum dwellers to surrounding areas outside the central part of Dhaka City, with little access to work and other facilities. The National Climate change strategy in Bangladesh appears to privilege costly projects for adaptation rather than building on and expanding current initiatives and existing community adaptations. Although a number of the national programmes may have some relevance to urban areas, they make no explicit reference to the urban poor and the poorest.

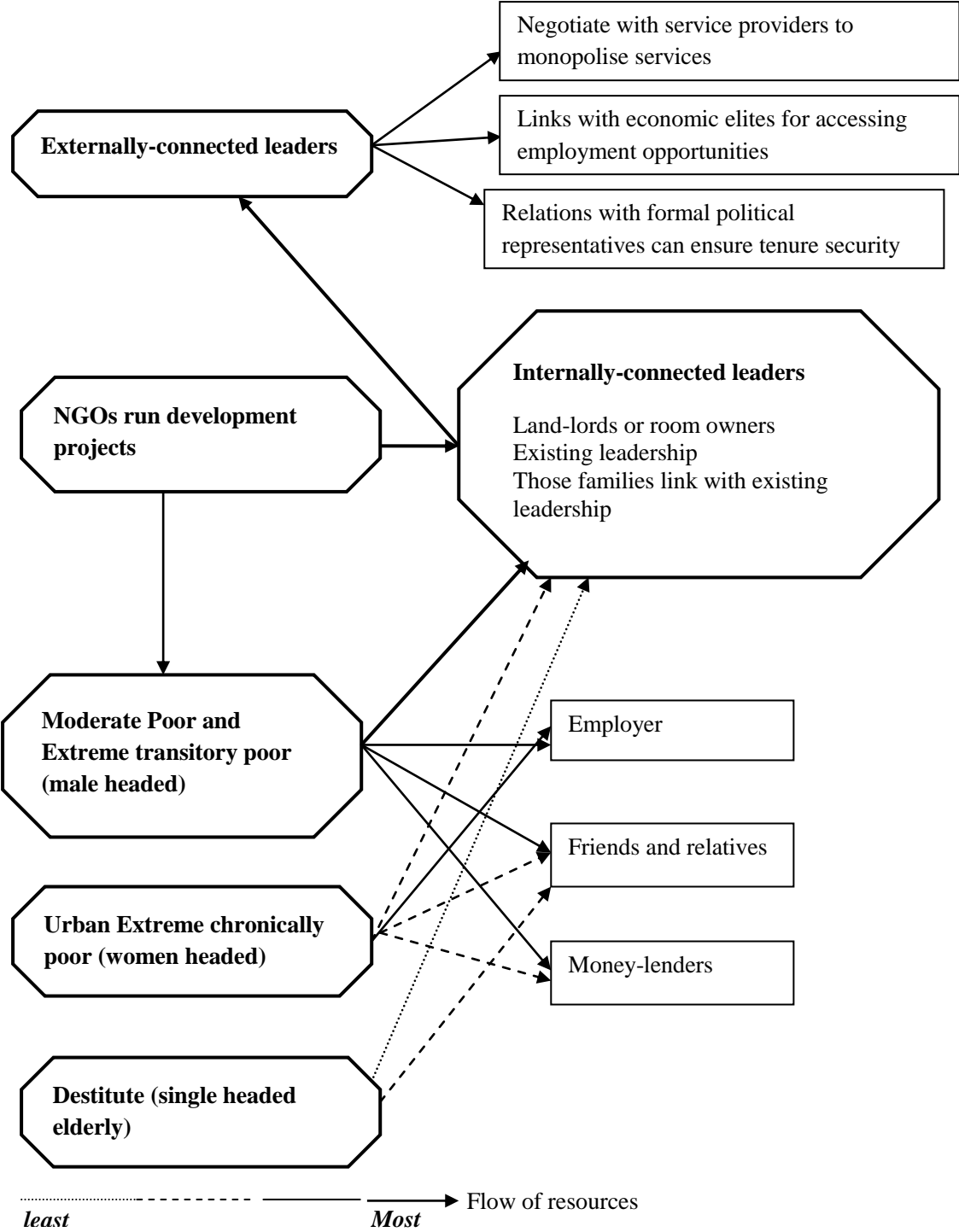
Although there are clearly shortcomings in the approach taken by city and municipal governments in Dhaka city in relation to the urban extreme poor, recent risk reduction activities of formal institutions can help the urban poor for adapting to a changing climate. The capital development agency RAJUK, the government agency responsible for implementing the plan as well as enforcing zoning regulations and issuing building construction permits, has failed to curb unplanned development in the floodplains. As a result, low-lying areas demarcated as flood flow zones have been completely developed by land developers, increasing the flood risk of the city by making the embankments

ineffective against the control of flood risks. The existing rules and laws have no incentives for pro-poor asset adaptation, for instance, The Building Construction Rules do not provide any guidelines for pro-poor urban housing. Despite a disaster management committee working in the city on disaster risk reduction, there is little coordination among government agencies and little support from these agencies for community level actions. The national government in Bangladesh aims to implement climate change adaptation and disaster risk reduction through on-going sustainable development interventions. To further, the central government (Ministry of Food and Disaster Management) has developed a comprehensive disaster management programme that aims for horizontal and vertical coordination and institutionalisation of disaster risk reduction and climate change adaptation. In the urban context, this programme developed earthquake risk assessment and also identified structural and non structural measures. In the fieldwork, this research found that this programme also conducted risk assessment piloting in the urban slums of Dhaka in order to prepare a pro-poor risk reduction plan, including extreme and marginalised groups. As this risk reduction plan has not yet been implemented in the field, further study is required to identify whether and how the risk reduction plan will be implemented at local level for pro-poor asset adaptation.

Lacking a formal set of entitlements, slum and squatter settlements have become integrated into local and municipal governance processes informally, at the cost of rising inequality. The findings reveal that claims, rights and entitlements to services and opportunities for the urban poor and the poorest are negotiated through informal channels. Figure 8.1 illustrates the informal process of resource distribution in slum and squatter settlements of Dhaka city. Externally connected leaders have multiple networks or connections to acquire information, resources and opportunities for the slums and squatter settlements. The poor and poorest household's prospects for accessing these resources depend on their being internally well connected to these leaders (Figure 8.1). Meanwhile, the extreme poor at the bottom of the hierarchy may work hard to establish and consolidate patron-client relationships, but lack the connections necessary to move their benefits beyond survival. It is found that access to patron resources varies according to the poverty category. Only able-bodied male headed extreme poor households (extreme transitory poor) can maintain a good reciprocity with the internally

connected leaders; but women headed households (i.e. extreme chronically poor) fail to maintain regular connections due to their livelihood obligations and family responsibilities, and the destitute poor are largely excluded from these clientelist-based forms of resource distribution in the urban slums (Figure 8.1). The NGOs that run development projects have particular initiatives for improving water and sanitation, health, microfinance (as well as providing educational facilities), which may, to some extent, improve the environment in informal settlements. Unfortunately, it is only the internally connected leaders who participate in the NGO-run development projects and represent the community. Thus maintaining patron–client relationships is a high priority, through which the urban poor in Dhaka city try to improve access to basic services.

Figure 8.1: Informal Process of Accessing Assets in the Slum and Squatter Settlements of Dhaka City



Source: adapted and modified from Banks, N. (2012)

8.3.3 The Role of Social Sector Approaches for Pro-Poor Asset Adaptation

The Bangladesh case studies confirm the efficacy of the social sector approaches in building asset adaptation strategies and processes for the extreme poor households and groups. Table 8.2 shows how social sector approaches facilitate asset adaptation or resilience strategies for the urban extreme poor in Karail and Kamrangirchar. The case studies reveal that the DSK-Shiree project's asset transfer approach was more effective in building self-help strategies, compared to the UPPR project. The asset transfer project (i.e. the DSK-Shiree project) takes a wider approach to social protection, recognising that social protection must address both the economic risks associated with poverty, but also the adverse structural context that faces extremely poor households in the urban context. Therefore, the DSK-Shiree focuses on providing multiple assets and also the interconnectedness of these assets. The analyses suggest that protective and preventive instruments are offered to give the extreme poor households the security necessary to invest time and effort in the 'promotional' components (e.g. turning the small microenterprise asset transferred into a viable income-generator). It is also found that asset accumulation strategies of this project positively facilitate asset adaptations for the extreme poor households. Economic diversification through self-employment, additional labour mobilisation and skill employment is an effective practice that not only helps extreme poor households to be less affected in the case of future hazards/disasters, it also enables them to recover more quickly from hazard impacts.

Extreme poor residents in Kamrangirchar are able to deploy hazard avoidance measures such as moving to a safer house and location for their small enterprises. They also employ some additional preventive measures for small businesses (e.g. raising plinths, arranging higher storage facilities, limited stock, business of seasonal items) to avoid the negative effects of hazards. Small enterprises based on people's houses are important for households who have small children, perhaps because they allow income-earning to be combined with looking after their children. Women of these families also have enough time to cook and serve family members fresh food which contributes greater resilience to extreme temperature. Improvements in income also help extreme poor households in Kamrangirchar to spend on additional power usage during summer. The importance of formal education for children was identified in Kamrangirchar, where it was revealed that educational levels of children have a positive effect on

extreme poor’ risk-reducing strategies through formal employment in the future; awareness and understanding of current risk levels and access to, and provision of, information on risk reduction.

Table 8.2: The Role of Social Sector Approaches for Pro-Poor Asset Adaptation

Level of Interventions	Karail	Kamrangirchar
Household level asset-based adaptations through the UPPR and DSK-Shiree project	<ul style="list-style-type: none"> ▪ Self-employments for some extreme poor individuals who were unemployed and wanted to change job ▪ Additional labour mobilisation for few extreme poor households ▪ Informal support networks ▪ Use of streets as rent free business yards 	<ul style="list-style-type: none"> ▪ Economic diversification through self-employment ▪ Skilled employments for adult children ▪ Additional labour mobilisation for household economic diversification ▪ Adjustments in small business enterprises (e.g. limited stock, physical adjustments, covering stock with plastics, arranging higher storages for the stocks) ▪ Move to safer places ▪ Accumulation of physical assets ▪ Sending small children to school ▪ Home-based enterprises ▪ Improvements in food intake and health seeking behaviour
Community based adaptation through the UPPR and DSK-Shiree project	<ul style="list-style-type: none"> ▪ Community mobilisation and representative community organisation ▪ Building community infrastructure to prevent or avoid threats ▪ Community-based savings and credit schemes 	<ul style="list-style-type: none"> ▪ Social organisation and capacity building ▪ Development of climate proof community-based water supply and sanitation services ▪ Collective savings and business enterprises
Formal institutional responses through the UPPR and DSK-Shiree project	<ul style="list-style-type: none"> ▪ Dhaka City Corporation work with the CDCs in Karail to provide infrastructure and services ▪ D-WASA decided to provide legal water supply in the slum 	<ul style="list-style-type: none"> ▪ No support from city and municipal organisations

Source: Summarised from the findings of chapter seven

Multiple asset transfers at the household level give extremely poor people not only the confidence to engage in community activities but also a voice in community-based actions. The project understood that building collective agency can ensure the sustainability of the extreme poor households’ assets and thus the project provided information, financial instruments, training, and legal support to build the collective agency of the extremely poor. The project also leveraged collective agency into

economic power through building collective business enterprises. It was considered to be a holistic approach, which could open many windows to coordinate and accommodate many social networks through partnerships. In this process, the project facilitates a social learning process through which new practices and ideas of doing collective business can be established (Pelling, 2011). As a result, collective asset accumulation positively facilitated community based adaptation for the extreme poor households such as climate proof infrastructure, collective savings and collective business enterprises. In order to address deficiencies in current service provision in Kamrangirchar and thereby reduce poor communities' adaptation deficit, the DSK-Shiree project supported respondents with an innovative water and sanitation credit model combined with building community-based management. More importantly, the process of collective saving builds trust among members of savings groups enabling them to make collective responses to immediate threats and to develop strategies for future actions that strengthen livelihoods and builds resilience (UN-HABITAT, 2011). The project mainly focuses on building the extreme poor's own socio-political platform from where they can negotiate with political actors for securing their rights. It needs further research to see how and to what extent the marginalised groups put pressure on political actors to establish their rights. There are several successful examples where the marginalised groups have brought transformative changes through effective negotiation and building partnerships with political actors (CPRC, 2008; Mitlin and Muller, 2004 & Satterthwaite et al., 2011). Examples of these include national federations of slum/shack/homeless people and the local NGOs that work with them have formed Slum/Shack Dwellers International (SDI), the Asian Domestic Workers Network, and the Latin American Waste Picker Network (ibid.). Altogether these combined and complementary measures of this project ensure that the outcomes lead to the strengthening of each of the three dimensions of resilience (absorptive, adaptive and transformative) and not simply to the adaptive and transformative capacity of these households. The transformative resilience of the extreme poor depends on mainly the sustainability of their community organisation which may be affected due to factors such as lack of human capital; poor leadership and dependency on the NGO; migration and households' asset erosion.

The Urban Partnership for Poverty Reduction (UPPR) project targets the extreme poor households through a social protection component (i.e. small block grant) to enable these households to build a new livelihood as well as to create an enabling environment to ensure their participation in the infrastructure and community work. However, the project has a lower impact on the household level asset adaptation of these households because it fails to pay attention to their on-going shocks and stresses *and* provides no provision for fixed transfers for the long duration (such as social pension). So, extreme poor residents in Karail have at best been able to only slightly diversify their jobs (e.g. from housemaids to petty traders). The UPPR project supports community mobilisation by establishing community groups and backing their own development priorities and assists in the creation of strategic linkages between the slum dwellers and local government. Community mobilisation and social funds of the UPPR project enhance the capacity of the community organisations in Karail to develop community-based infrastructures (drainage network and pavements) that actually stops or greatly reduces flooding and waterclogging. In addition, poor urban households' human assets (health) are supported, as is the case with drainage provision and latrines that aim to reduce environmental pollution and resultant disease. Development of collective savings groups was an effective forward-looking adaptation strategy for the extreme poor households. Collective savings at the community level act to provide a source of funds that can be used for pre-event preparation and post-event response, as well as for longer-term support of livelihood activities. Through this UPPR project, some changes within the local government structure have occurred such as disbursing funds, and providing legal accreditation for the CDCs to tackle eviction threats and having legal basic services, for instance water supply and electricity. Community-based adaptation strategies of this project have contributed to achieving transformational resilience, but existing informal and formal institutional process in Dhaka can affect transformational resilience of poor urban communities and reduce vulnerability.

In this programme, community development committees have not ensured the equal representation of the diverse stakeholders. The various groups of families are not always represented by someone who really holds their interests at heart. As the project implementers focus on women's involvement in the UPPR project, the wives of the existing leadership hold the key positions on the community development committees.

As a result, the local elites are able to control the project's resources, while the poorest remain dependent on the local elites for access to any project resources. The research found that the City Corporation is only involved with the CDCs as part of the project and does not have any long term vision to include the slums and squatter settlements of Dhaka city in its planning and programme interventions. In addition, the City Corporation does not provide any political space for the CDCs to participate in the municipal decision making process.

Identifying Gaps of Pro-Poor Asset Adaptation in Bangladesh

The pro-poor asset adaptation conceptual framework (as developed by the author in chapter three) and an analysis of autonomous and planned asset-based adaptation in Bangladesh context provide some important insights: (i) The extreme poor have already coped with extreme weather events through deploying different physical and adjustments in human behaviour (e.g. reducing consumption), but strategies they use to cope with the extreme events, are short lived, ad hoc and impact minimising, and even adverse leading to asset-based poverty traps. Therefore, the extreme poor households need a set of integrated interventions that must work together for some time to build their asset portfolios which can be a key determinant in adapting to extreme events and climate variability; (ii) external supports needs to be available at the neighbourhood level in order to improve the capacity of community organisations to develop community level infrastructures that prevent or avoid adverse effects of the extreme climate events; and (iii) households' assets need to be structurally protected. Without this, positive changes can quickly be reversed if households face a sudden shock and hence, meso (access to credit and savings groups, community-based service delivery, disaster risk reduction, etc.) and macro level interventions (such as floodplain management, infrastructure development, provision of basic services) are important to protect household assets from erosion. The findings of the case study settlements in Dhaka city found that protective and promotive components of asset transfer programme have a positive impact on building the asset based strategies of the urban extreme poor households. It also reveals that cash transfer can do more than just allow people to cope with shocks especially if the amounts transferred are large enough. In this context, Hulme and Moore (2008) argue that the poorest people cannot benefit from a single 'magic bullet' (microcredit, bed nets, women's groups). Rather they need a

carefully sequenced set of supports that provides livelihood security; confidence building and skill development; an asset transfer; and support for and institutionalisation of their improved position within the local economy and society (ibid.). Although there have been important steps forward in Bangladesh in scaling up the ‘asset transfer’ approach through national extreme poverty programme (SHIREE), coverage of this ‘asset transfer’ programmatic intervention is still low within the urban context of this country. Attention must be paid to targeting extreme poor groups in urban programmes and supporting them through a combination of protective and promotive measures.

Where there are representative community-based organisations, the possibilities of building resilience to climate change are much greater (UN-HABITAT, 2011). In many countries, there are now national federations of slum and shack dwellers that have community-based savings groups as their foundation (CPRC, 2008; Dodman et al., 2009 & UN-HABITAT, 2011). Community-managed savings groups constitute a widespread mechanism employed by the urban poor in the slums of Dhaka city (Jabeen et al., 2012). Local governments and aid agencies can support such savings schemes by backing their development into larger networks of savers — thereby helping to further spread their risks — and engaging in the co-production of housing, services and infrastructure. The savings patterns among the inhabitants in both of the case study settlements (Karail and Kamrangirchar) exemplify such an opportunity. While municipal governments are best-placed to address the adaptation needs of the urban poor, central government is reluctant to hand over power and resources to a democratically elected government, for fear of its capture by the opposition. This greatly constrains the powers, functions, and financial capacities at the municipal level. Without change in the formal governance structures, it is difficult for the urban poor to get access to a formal set of entitlements (such as housing, basic services, and social protection). There are some measures such as strengthening urban local government and improving the accountability and representativeness of the formal governance structures (macro level interventions) that are necessary to ensure the inclusion of the urban poor, vulnerable and marginalised to gain access to information, resources and opportunities.

8.4 How to Scale-Up Pro-Poor Asset Adaptation in Bangladesh?

The section proposes a set of pro-poor asset adaptation strategies for the extreme poor households and groups and these strategies have been divided into different levels: micro (household level), meso (community level) and macro (municipal/city level). Extreme poverty is an extreme stage of economic, social and political deprivation that results from the continuous erosion of human capital, financial and household physical capital as well as the social capital of the poor resulting from unforeseen events. At the micro-level, it is necessary to look at the issues faced by the extreme poor separately and with special attention. In this context, it requires the application of significant additional resources to further expand the asset transfer approaches that are already working successfully in the regions of Bangladesh to those facing the highest incidence of extreme poverty. Meso-level interventions, especially social funds and community driven supports should be connected with micro-level interventions in order to facilitate social organisation to ensure that for vulnerable and marginalised people mobilisation becomes a vehicle for breaking, rather than reinforcing, existing structural inequalities. A strong community-based organisation can negotiate and build pressure on the formal governance structures to ensure access to a formal set of entitlements such as housing (in form of tenure security), and infrastructure. Household and community level adaptation strategies are constrained, however, by a lack of secure tenure and household capacity, with most communities having neither the physical, nor the financial capacity to undertake large infrastructure projects. Thus macro level interventions including infrastructure works, basic services, and tenure security can protect households and communities from asset erosion and also generate opportunities to further asset accumulation.

8.4.1 Micro level Pro-Poor Asset Adaptation Strategies

The research found that the asset adaptation strategies of the extreme poor households and groups cannot be possible with ad-hoc measures such as a small cash grant; one must look for direct asset transfers. At the heart of the asset transfer approach lies the belief that assets (and asset transfers) are central to increasing the adaptive capacity of households to climate change. Over the last 10 years hundreds of asset transfer projects have been implemented by both government and NGOs, with donor support. Now is the time to build on this experience and significantly scale up the most successful asset

transfer approaches that have shown proven impact in allowing people to build their assets and livelihood. These asset transfer programmatic interventions typically involve asset transfers that provide the poor with the capital needed to establish new income generating activities. When combined with training support, some protective and/or preventive measures and community mobilisation these interventions have the ability to transform the lives of extreme poor families. The programme element should be tailored to the needs of heterogeneous groups of extreme poor. For example, elderly or chronically ill people need more regular assistances such as social pension and the widow, divorced women headed households need multiple assets and also require protection from discrimination and marginalisation. Key to the success of the national programme in both urban and rural areas would be correct targeting, comprehensive monitoring and evaluation and active participation of all stakeholders including local government and local elites. As an estimate, based on \$500⁹⁰ per extreme poor family, it would require \$3 billion to achieve the objective of supporting 6 million households⁹¹ (Shiree, 2013b). With Bangladesh GDP at \$116 billion (2012) and rising, this represents considerably less than 0.5% of GDP per year over 6 years, and this action becomes increasingly affordable as GDP grows (ibid.). In this process, government and different aid donors can play an important role by financing the projects. In addition to donors and the government, corporate sponsors, NGOs, faith-based organisations and private individuals could and should be enabled to be major direct contributors. This programme should be implemented by national agencies including GOs, NGOs and the private sector. The aim should be to employ the implementing partners best able to meet the needs of the diverse extreme poor client groups, drawing on their specific experience and expertise.

⁹⁰ Based on an estimate of the cost per household of current large scale asset transfer programmes such as Economic Empowerment of the Poorest (Shiree), BRAC–CFPR: Challenging the Frontiers of Poverty Reduction, Chars Livelihood Programme (CLP), Food Security for the Ultra Poor (FSUP), REOPA and CARE-Souhardo project (Shiree, 2013b).

⁹¹ Government statistics show 17.6% of the population was below the lower poverty line (considered as extreme poverty line) in 2010 and hence, in 2010 this represented over 26 million people or about 6 million families (ibid.).

8.4.2 Meso-level Pro-Poor Asset Adaptation Strategies

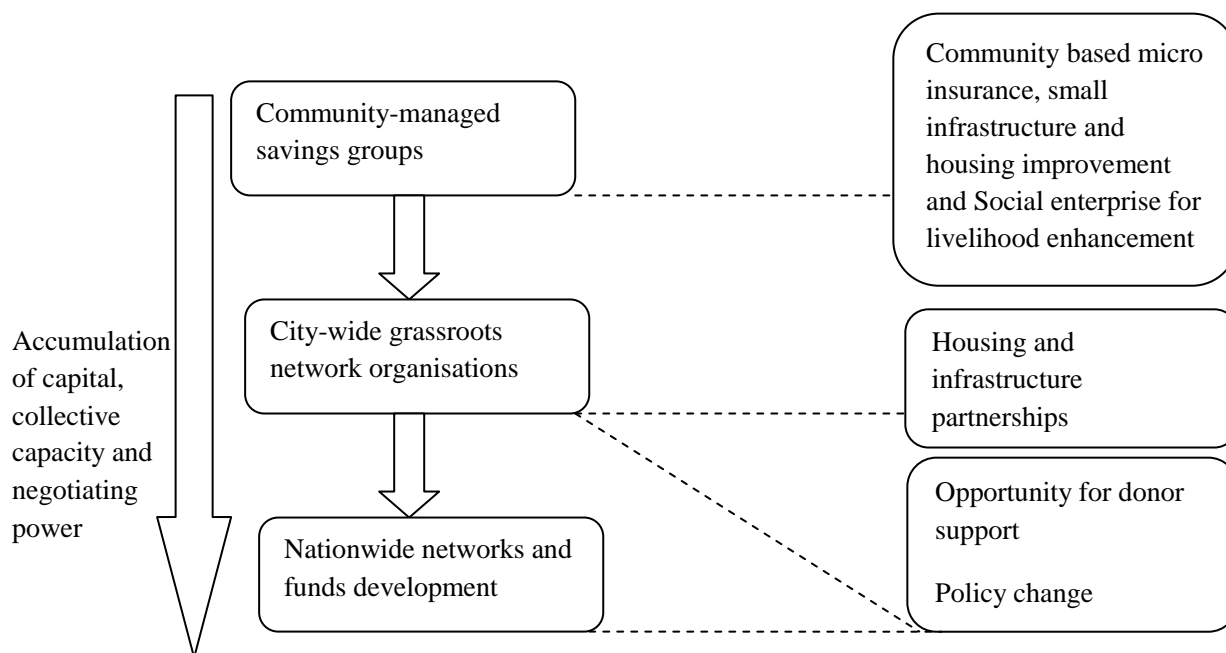
In the urban environment, building the household asset adaptation of the extreme poor households through micro-level interventions is insufficient to bring about resilience on its own. The research found that climate vulnerability is exacerbated by the location and housing condition of the urban poor and their limited access to basic infrastructure and services in Dhaka city. This is because the formal governance systems have excluded the urban poor from access to basic services and infrastructures. In addition to micro level interventions, the community driven/based approaches need to be adopted for mobilising and empowering the extreme poor groups with collective assets and capabilities, and also to transform their relationships with other poor groups and public institutions. The research reveals that community based development projects in the slums and squatter settlements of Dhaka city were found to address the needs of basic services and infrastructures and improved the quality of life of slum dwellers to some extent, but these development projects failed to challenge pre-existing inequalities arising from informal governance systems. The small circle of the informal leaders and house owners control resources, opportunities, public and civil society networks and distribute resources and opportunities for self-profit or to reward supporters. Challenging the informal governance systems that reinforce the social order requires strong collective organisation of the poor and extreme poor and better integration into formal governance processes. In order to achieve real change, an active civil society needs to function for a considerable time, one in which low-income urban households can gain strength in numbers and negotiate with local authorities and service providers against a set of formal entitlements. While there have been important steps forward in Bangladesh in community mobilisation and community-led service provision, attention must be paid to community-based organisations to ensure that grassroots mobilisation becomes a vehicle for breaking, rather than reinforcing, existing social order and inequalities (Banks, 2012). Therefore, community-managed savings groups in urban slums of Dhaka city can be taken in order to strengthen their capacity for grassroots mobilisation.

As was found in the case study settlements, community-managed savings groups constitute a widespread mechanism used by the urban poor and extreme poor to spread risk and accumulate assets. Civil society organisations can support such saving schemes

to aid the development of cooperative or collective business enterprise beyond their projects. Also, these civil society organisations can play an active role in the development of collective insurance for low-income groups, which are typically unable to access the private insurance market because they face very high risks and have a very low insurance premium payment capacity. In the last decade, there has been increasing interest in the notion of building strong community based organisations (federations) or network organisations through organising small community-based savings groups within the city or region and through which urban poor communities can secure resources such as housing, basic infrastructures and services (Banks, 2011; Dodman et al., 2009 & Mitlin and Satterthwaite, 2007). Thus, the donors and civil society organisations are trying to develop ‘collective risk transfer’ instruments through community managed savings groups, such as the recent example regarding the reconstruction and disaster mitigation programme in the Philippines case⁹². In this case, community based savings groups facilitated the process and also provided funds and manpower, whereas urban local government gave land, technical and legal support. Therefore, the civil society organisations, donors and also urban local government need to work with community managed savings groups and also provide support to form a community based organisation or grassroots network organisation.

⁹² In the Philippines, following the devastation caused by *Typhoon Frank* in 2008, a partnership between a grass-roots organization, the Philippines Homeless People’s Federation (PHPF), and local governments has worked to secure land tenure, build or improve homes, and increasingly to design and implement strategies to reduce risk (Baker, 2012; Dodman et al., 2009; PHPF, 2010).

Figure 8.2: From Savings Groups to the Community Based Organisation



Source: Adapted and modified from Archer, D. (2012)

8.4.3 Macro-level Pro-Poor Asset Adaptation Strategies

The urban poor and the poorest do not get adequate attention from either the central government or the city government (Dhaka City Corporation), or the city development authority (RAJUK). These people live in the city under tremendous pressure and those living on government land as squatters are in constant threat of eviction. The central government has not been able to draw up any comprehensive programme for their rehabilitation or to give them long term tenure security. The city development authority (RAJUK) hardly makes any provision of land or housing for them. The findings of this research reveal that the public authorities in Dhaka city face a number of constraints in order to address the adaptation needs of the urban poor. These include the lack of political commitment from urban government agencies for tackling urban poverty; the lack of autonomy of urban local government; the unclear mandate and service responsibilities of the urban local government; their weak finances and financial autonomy; and the proliferation of service agencies with poor coordination and control. These problems cannot be resolved by tinkering at the margins; it is essential to call for a major rethinking and wholesale change in urban governance and its enabling environment. In this case, it is essential to build collaboration between the key agencies

or institutions affecting urban development and poverty reduction. Central government should focus on RAJUK and DCC, as part of a comprehensive effort by Ministry of Local Government and Rural Development (MLGRD) to strengthen local government and agencies influencing Dhaka's development. In general, with clear roles and responsibilities, agencies should be given authority, but made accountable for implementation. In addition to key public institutions, strengthening the voice and the ability of citizens (especially different categories of the urban poor) to reveal their preferences and hold their governments to account, will be essential in sustaining the reform of Dhaka city. In addition, poor urban communities' participation in urban development planning, financial management and service delivery is also important. Therefore, poor people's participation needs to be legitimatised within the governance structure of the major urban government institutions (RAJUK and Dhaka City Corporation) as incorporated in the Pourashava Act of 2009⁹³. Following the Pourashava Act of 2009, Dhaka city governance structure needs to incorporate citizen participation by establishing a *City Level Coordination Committee* and *Ward Level Coordination Committees*. City and Ward level Committees should have sufficient representation from the community based organisations of the urban poor (representatives from the savings groups) to ensure that vulnerable groups participate in the decision-making processes of the City Corporation. Improvements in institutional responses for disaster preparedness in Dhaka city demands financial strengthening of the Dhaka City Corporation. This can be achieved through both central government support and easy legal provision for the city corporation to implement small scale infrastructure with their own initiatives. However, adequate transparency arrangements are pre-conditions for such projects.

The systematic reform of public services and social protection transfers are necessary to prioritise the needs of the urban poor and the poorest. Central and city government should take initiatives to implement the national housing policies and basic services to

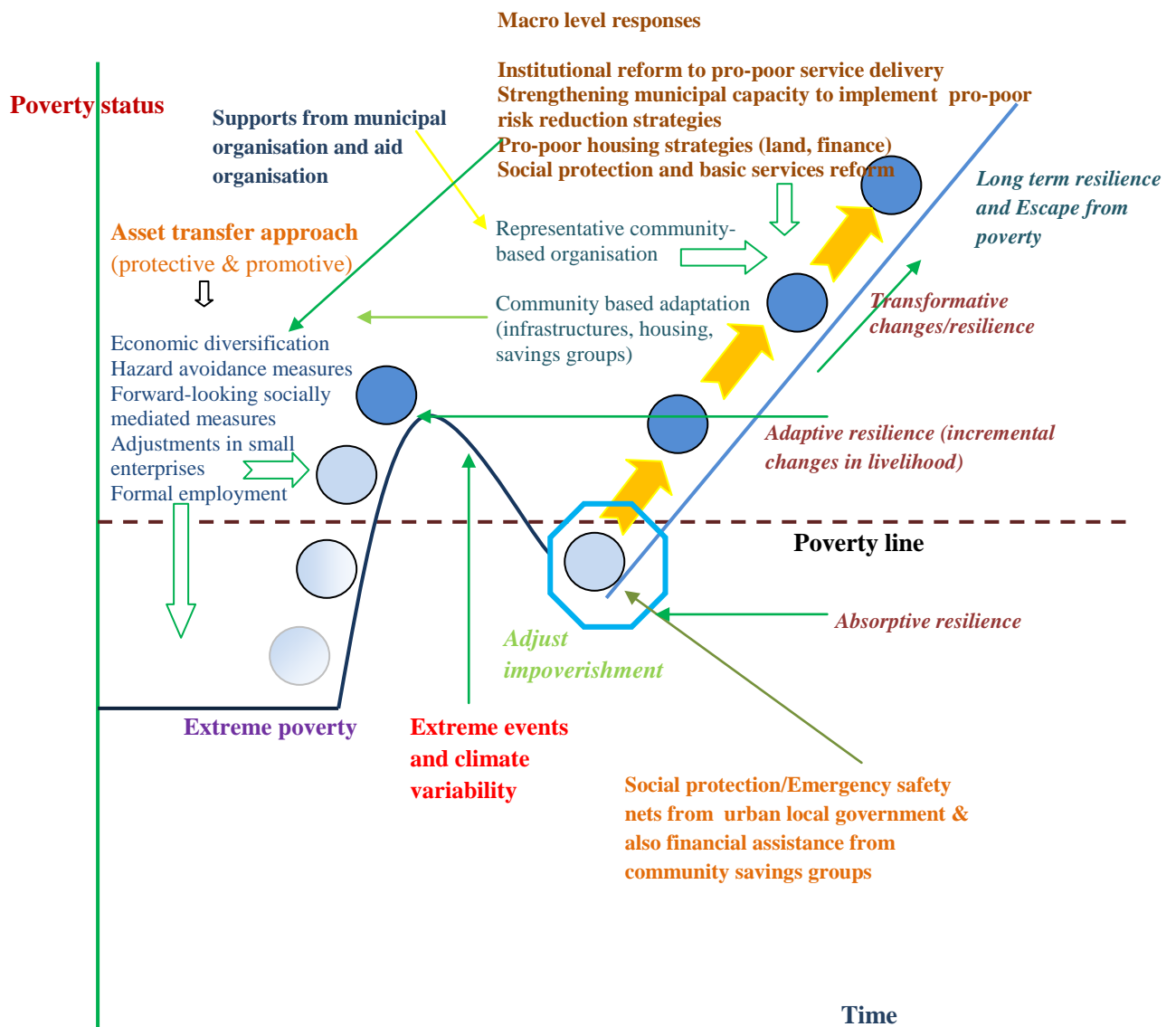
⁹³ There has been some change in the structure of Pourashavas as incorporated in the Pourashava Act of 2009. Of particular significance is the formation of Ward Committees each composed of 10 members of which 40% have to be women. The committee would be chaired by the Councillor of the Ward. This has enhanced the greater participation of citizens in municipal management. In addition, a practice of instituting a Town Level Coordination Committee (TLCC), with civil society representatives, have also been introduced in the Pourashava (Islam, 2012, p. 7).

ensure shelter and other services for the poor and poorest. The National Housing Policy provides an enabling framework for addressing land and housing markets in Dhaka, and enforcing basic property rights. Enabling land tenure security would allow fair access and entitlement to a key asset that would build adaptive capacity by allowing respondents to better respond to evolving environmental circumstances (Levine et al., 2011). The implementation of national policies for housing and basic services, as with an urban poverty reduction strategy, will require an adequate institutional framework with clear leadership, as well as roles and responsibilities. To improve the housing conditions for the urban poor and the poorest, it will require reforms on many levels. This should include: i) developing mechanisms for better accountability for land use decisions and better coordination of services in the city, ii) strengthening public institutions to implement land and housing policies and foster coordination between agencies; iii) initiating pilot shelter projects in poor areas in partnership with NGOs; and iv) addressing specific legal and regulatory issues that apply to land use management.

Infrastructure improvements will equally be needed to address the major deficiencies in providing access to housing and basic services to the poor living in slum and squatter settlements. Such improvements will require an enabling institutional framework, as well as substantial capital investment. To ensure a comprehensive and coordinated approach, DCC should work in close coordination with key agencies such as DWASA, Dhaka Electricity Supply Authority (DESA), Titas, Ministry of Communications, Ministry of Education, Ministry of Health and Family Welfare, and Ministry of Social Welfare. As Dhaka city is the most vulnerable to climate change, public infrastructure development activities can explore co-beneficial development and adaptation initiatives such as investing in proper and safe infrastructure which improves drainage; advancing poor people's rights to adequate and disaster-safe housing; increasing tenure for people living in informal settlements; increasing access to (and disaster proofing) critical services such as health, water and sanitation; and implementing urban planning and management policies which would prevent the development of slums (Hasan et al., 2005). In this respect, the lessons of the Comprehensive Disaster Management Programme (CDMP) (as explained in chapter six) must be incorporated in the planning and development process which can help to build climate/disaster proofing programmes. In addition, public social protection or safety net programmes should be

extended to the urban extreme poor. These are regular transfers in cash or in kind (e.g. subsidised rice) that can provide a stable and predictable contribution to the income of the poorest and most marginalised sections of the community at different phases in the lifecycle. Figure 8.3 illustrates the impacts of combined micro, meso and macro level strategies on how the extreme poor live.

Figure 8.3: Impact of Combined Micro, Meso and Macro level Asset Adaptation Strategies on an Extreme Poor



Source: adapted from CPRC (2014)

8.5 Key Findings and Contribution of the Research

Research into poverty worldwide has begun to focus increasingly during the last decade on the existence and persistence of urban poverty, but it is often described in terms of spatial areas or types of housing rather than recognising urban poverty as the dynamic and differentiated nature of poverty. The research findings have implications for a theoretical understanding of urban extreme poverty and its dynamics. The poverty line is commonly used to define and conceptualise extreme poverty in poverty literature. This research challenges this one dimensional focus, and argues that the poorest experience several forms of disadvantage at the same time: these combinations keep them in poverty and block off opportunities for escape, sometimes across generations by analysing poverty breadth, depth and duration. This research adds to the wider literature regarding the global South by identifying a conceptual framework for poverty traps and their linkage to vulnerability. Households are poor because they have limited quantity and quality of assets and once they get caught up in the asset poverty trap they become more vulnerable, and their responses to shocks can lead to lower quantities and qualities of assets. In addition, poor people are positioned in society and their access to resources and social power relations within which they exist is important in the understanding of how the social exclusion or discrimination trap renders vulnerability. In the Bangladeshi context, this research has explored the processes through which poverty traps are experienced and their linkages with vulnerability using information derived from the set of life histories and individual cases. The analysis of the case studies also suggests that people in declining life trajectories are more likely to lack key assets and capabilities, and are also more likely to be exposed to the more damaging forms of crisis. Their exclusion from services, resources and networks also increases their vulnerability.

Another important contribution of this research to the existing urban poverty literature is the identification of heterogeneous groups amongst the poorest. This research argues that the instance of able-bodied male-headed extreme poor households can be considered as the extreme transitory poor; they have better income, assets and networks in comparison to other poorest groups. The extreme chronically poor have a distinctly gendered face; many of the households tend to be headed by women, having been widowed or abandoned. When extreme poor households fail to mobilise any labour capital due to life-cycle factors and/or dependency ratios, they become destitute.

Scholars involved in urban poverty research can follow these findings to conceptualise the heterogeneity of the urban poorest groups. Climate change vulnerability is explained in terms of a lack of assets in the existing literature which shows a limited recognition of the differentiated view of vulnerability. To address this gap, this research explains how vulnerability is a condition stemming from both low asset-holdings and relations of adverse incorporation/social exclusion (AISE). This research found the urban extreme poor have a high level of climate change vulnerability because their coping capacity is constrained by physical, social, economic, political and legal factors.

This research contributes to existing asset adaptation frameworks, by offering greater understanding of the asset adaptation strategies and processes of the extreme poor households and groups. Existing asset adaptation argues that the poor urban communities are coping with extreme weather events through a range of measures and formal and informal context within which actors operate can provide an enabling environment for protecting or adapting assets without considering the adverse structural context, limiting the urban extreme poor's access to adaptation assets, which comes from these formal and informal institutions and policies. This research addresses this gap by analysing individual adaptive responses and their limitations using the case of Dhaka city in Bangladesh. The urban poor and the poorest do not have access to formal institutional support and given the deficiencies of the formal institutional process, institutions and processes of informal governance have emerged within the slums and squatter settlements of Dhaka city. This research found that the structural inequalities that underlie the informal systems of governance mean assets are distributed unevenly within the slums and squatter settlements of Dhaka city. This results in a system through which the powerful get more powerful, while the extreme poor are trapped within adverse terms of recognition that limits their access to the right kind of assets for adaptation.

This research has explored the theoretical debates of the social policy and social protection and the effectiveness of such approaches to address asset adaptation for the urban extreme poor. This research argues that programmatic interventions need to incorporate asset accumulation strategies in order to create an enabling environment for the urban extreme poor to accumulate assets. The asset transfer approach provides not

only improved access to assets for the urban extreme poor but also recognises the linkages between these assets. This research also found that asset accumulation at the household level can facilitate the asset adaptation strategies of the extreme poor households. This research supports the theoretical assumption about the link between climate change adaptation and the erosion of the assets of the poor (Moser, 2010). Thus household asset adaptation must be connected with meso (community level) and macro (municipal/city level) asset adaptation strategies in order to consolidate household assets and prevent asset erosion. Attention needs to be paid to developing effective community-based groups by organising both the urban poor and the urban extreme poor so that through their organisation they can break the existing social order and inequalities; for which civil society organisations can play a vital role in this grassroots mobilisation. Thus adaptation theorists can use this study to gain an understanding about urban extreme poverty, vulnerability and asset adaptation for theorising about pro-poor urban adaptation to climate change.

8.6 Areas for Further Research

The present study has extensively explored the issues of vulnerability and pro-poor asset adaptation from an urban extreme poverty perspective. It is based on sound theoretical and empirical research, which is a breakthrough in urban climate change adaptation research in Bangladesh. But more research is needed for exploring the issues of urban extreme poverty and urban climate change adaptation. The extension and broadening of this research would validate its findings and theoretical framework. The extreme and chronic poverty literature argues for the importance of, and opportunity provided by, combining qualitative and quantitative methods, and their corresponding disciplinary perspectives, in analysing chronic or persistent poverty. However, this research heavily relies on qualitative methods for explaining urban extreme poverty, vulnerability and asset adaptation. Although some descriptive quantitative analyses from available secondary sources have supplemented the qualitative analyses, this is insufficient to track the vulnerabilities and coping strategies of different groups of the extreme poor over the years. Thus future research needs to collect panel survey data for, at least, the last 3-5 years in the slums and squatter settlements in order to track the extreme poor households' vulnerability and their coping strategies. The quantitative approach is of value in understanding the extent of access to some key assets by the

different urban extreme poor groups and the returns over the years. If an appropriate methodology for identifying the extreme and chronic poor can be developed, a quantitative approach also offers the opportunity of understanding the extent and patterns of urban extreme and chronic poverty.

The research conducted household level analysis to explore how the asset adaptation process can address the vulnerabilities of the extreme poor households to contribute to the literature on pro-poor urban adaptation in Bangladesh, but the findings and analysis open up the opportunities for further research. This research has already identified how targeted asset transfer programmes have the potential to build up the asset adaptation process for the extreme poor households and it is important to scale up success in the wider context. For scaling up the asset transfer programme in the wider context, the commitment of the international community and donor agencies is important. It is essential to undertake further research on developing pro-poor adaptation for adoption in future international agreements, particularly to ensure pro-poor adaptation financing. In this research, the right to adaptation for the extreme poor or the vulnerable groups should be incorporated in agreements to inform the international policy circles; thus, adaptation may be evaluated through a human rights lens.

This research has explained that extreme chronic poverty has a distinctly gendered face in the Bangladesh context, but it needs further exploration. A future study is needed to undertake an analysis of the gender dimensions of climate change and the role of institutions in reducing gender gaps. This study has already revealed that vulnerability to climate change and climate variability is gendered, because women are disproportionately vulnerable to natural hazards due to social norms, entrenched gender inequality and reproductive responsibilities, all of which constrain women's mobility and survival options. These aforementioned three factors need further exploration. This requires methods that provide a critical lens to assess and analyse these gender related issues and hence feminist methodologies which incorporate both quantitative and qualitative research methods have the ability to assess detailed micro-level processes as well as macro-level analyses concerning these issues.

8.7 Concluding Remarks

The research has contributed to the existing climate change adaptation research regarding pro-poor urban adaptation to climate change by analysing vulnerability and asset adaptation in the lens of urban extreme poverty. This research contributes to existing theoretical debates on assets and adaptation by providing an analysis of the differentiated nature of poverty and vulnerability and greater understanding of how the extreme poor can accumulate assets and build their own strategies to reduce their vulnerabilities. This research has identified the effective programmatic interventions of social sector approaches to support extreme poor households' asset adaptation and resilience strategies. As the urban extreme poor face an adverse structural context, attention must be paid to establishing strong collective organisations of the urban poor and the extreme poor to ensure that grassroots mobilisation becomes a vehicle for breaking, rather than reinforcing, existing social order and inequalities. Civil society organisations can play an important role for mediating grassroots mobilisation by providing information, resources and legal support. One key aspect of the needed change in approach is change in urban local government relations with the urban poor and the poorest living in informal settlements and working in the informal economy. There has to be recognition within city and municipal agencies in Dhaka city that those living in informal settlements and working in the informal economy are legitimate (and important) parts of the city and have rights to infrastructure, services and urban government agencies who are accountable for delivering the services. The strong community-based organisations or federations of the urban poor and the extreme poor can mediate the changes with formal public agencies and establish their rights to access services, infrastructures and opportunities for long term resilience.

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Appendix

Appendix 4.1- List of Existing Projects Focused on the Extreme Poor in Dhaka City

Project Name	Implementing Institutions	No. of beneficiaries	Focus of the focus	Locations
Urban Partnerships for Poverty Reduction	Dhaka City Corporation, LGED, UNDP and community based organisations	311 new CDCs covering 62018 households with a total population of 612225	Community-based approach of slum upgrading	Karail, Mirpur, Mohammadpur, Gabtoli, Dholpur, Bauniabad, Kayllonpur, Mohakali, Chowdurypara, Vashantaek, Kurmitola and etc.
DSK-Shiree Project	DSK, funded by UK-aid and Government of Bangladesh	25000 extreme poor households	Asset transfers approach	Karail, Kamrangirchar, Mirpur and etc.
Amrao Manush (We are the humans)	9 NGOs funded by Irish Aid	15000 street dwellers	Providing services to street dwellers	Mirpur, Bangabandu National Stadium, Segun-Bagicha, Kawran Bazar, Komlapur, Green road and etc.
INVEST	CONCERN-Bangladesh	700 street dwellers	Asset transfer approach	Mirpur and Kawran Bazar
From Margin to Mainstream: A Drive of Challenged People for Economic Empowerment	Action for Disability and Development (ADD)	700 disabled beneficiaries	Asset transfer approach	Dhaka City Corporation areas

Source: Desk study and field survey, 2012

Appendix 4.2- Project Description of the Shiree and the UPPR Programme

The Department for International Development (DFID)/UK-aid and the Government of Bangladesh (GoB) developed a comprehensive extreme poverty reduction programme- The *Economic Empowerment of the Poorest Programme (EEP)/Shiree (Stimulating Household Improvements Resulting in Economic Empowerment)* that aims to enable over 1 million people to lift themselves out of extreme poverty and achieve sustainable livelihoods by 2015. Under the scale and innovation fund⁹⁴, the programme delivers funds to the ‘asset transfer’ projects implemented by the international and national NGOs in 5 distinct geographical regions that experience a high incidence of extreme poverty. These are: the Northwest (especially affected by seasonal hunger), the Southern coastal belt (most vulnerable to severe climatic shocks including cyclones), the Chittagong Hill Tracts, the Northeast *haor* region and Dhaka urban slums. The *EEP/Shiree programme* intends to address the needs of the extreme poor; while there are varying definitions of extreme poverty, Shiree beneficiary households fall well within ‘the poorest 10% of the Bangladeshi population’. The sub-projects target mainly socially marginalised households who are often affected by: chronic malnutrition; insecure employment; lack of shelter; landlessness; limited or no assets; little social or political capital; limited ability to withstand shocks; and poor access to health, education and other basic services (Source: www.shiree.org, accessed on 23/02/2014).

The *Urban Partnerships for Poverty Reduction (UPPR)* programme is the largest urban poverty reduction initiative in Bangladesh. The *UPPRP* works with communities in 23 towns and cities across Bangladesh to develop the capacity of poor households, especially women, to manage their own development issues and tackle the needs they identify as most important. Key strategies include community mobilisation; improvement of physical infrastructure; support for livelihoods development; developing partnerships between communities and service providers; and influencing policy. This cooperation between the *UPPRP* and the communities will see three million urban poor people improve their livelihoods and living conditions by August 2014. In order to provide this support to the communities in poor urban areas, the GoB and the United Nations work together to manage and implement *UPPRP*. It is the Local Government Engineering Department (LGED) that hosts and executes *UPPRP* at a national level. In the towns and cities in which *UPPR* works, it does it jointly with the Municipality or City Cooperation. UNDP manages the implementation of the Project, and UN-Habitat supports the components that work on improving living conditions. Beyond the contributions of these actors, the majority of funding is provided by UK aid (*UPPR*, 2012).

⁹⁴ Scale funds focus the projects proven approaches to improving the livelihoods of the extreme poor taken to scale whereas, innovation funds intend to develop innovative approaches to improve the livelihoods of the extreme poor. These are tested, evaluated and successes prepared ready for scaling up (www.shiree.org, accessed on 23/02/2014).

Appendix 4.3 - Land Ownership Pattern in Slums of Dhaka City

Types of Land Ownership	Percentage of Slums/Bustees	Percentage Distribution of Population
Government/Semi Government	9.0	25.7
Private	89.8	70.3
Other types	1.2	4.0
Total	100	100
	N=4966	N=3420521

Source: CUS et al. (2006)

Appendix 4.4 Targeting the Urban Extreme Poor in the DSK-Shiree and the UPPR Project

Targeting is the critical first step, not only because good selection is important for a grant project, but also central to creating a common understanding of the overall project approach and rationale to a wide range of stakeholders such as the project implementers, donors and the community. The *DSK-Shiree project* adopted integrated targeting methodologies to reach the most severe cases of extreme poverty in the slums and squatter settlements of Dhaka city. It was decided that the first operational step in the process of targeting the urban poorest households in the project was to carry out a transect walk, social mapping and participatory wealth ranking exercise of the households living in the slums identified for the project. However, the project found that using some participatory research appraisal (PRA) tools to identify the extreme poor proved very difficult in an urban context for some reasons: most of the urban slums do not have enough open space to carry out PRA activities such as wealth ranking exercises; and a lack of community integration in the urban slums generates limited information about the urban extreme poor households. In addition, the sudden migration or eviction of households on occasions also required staff to repeat the selection processes. To overcome the challenges, the project implementers carried out key informant surveys and a door to door household survey.

The project developed two essential criteria: monetary based criteria (household income level less than 3,000 per month) and no access to formal financial network or micro-finance institutions in order to select the project beneficiaries; along with these two essential criteria, the selection process also followed eleven supplementary criteria (Table 1). These essential and supplementary criteria were fixed after several field visits and discussions with the donor and also other partners of the Shiree programme. The project implementers also set some strategies in order to overcome the problem of monetary based criteria, including assessing the monetary situation of a household through its income-generating ability (e.g. enquiring about the number of adult earning members; number of dependant family members (disabled or elderly); the situation of indebtedness; and a

households' certainty in gaining work); asking households to recall what they have spent in the last 24 hours. The project also adopted a cross checking method through the discussion with neighbours, close relatives of the households and others in order to validate the information that was collected from door to door survey. After verification from donors, the project finalised the actual list of beneficiaries.

Table 4.4.1- Selection criteria used by the DSK-Shiree project

Essential criteria	<ul style="list-style-type: none"> • No access to or member of financial network or MFI • Household Income level less than 3000 BDT/per month
Supplementary criteria	<ul style="list-style-type: none"> • Employment (day labourer, cobbler, road side barber , rickshaw puller, push cart diver, old age women beggar, disabled male beggar, house maid) • House rent ceiling is 1000 or less than 1000 BDT • No more than two pieces of cloth for adult • No more than one room for all members • Chronic illness of HH member(suffering for 3 months longer period) • Migration from other slum due to fire/eviction • Household include disable or economically inactive member • Widow/ divorced/separated and abandoned women as head of household • Little or no education/illiterate (18 years and above) • Only one man earner in the household • Disable beggar (Male/Female)

Source: DSK-Shiree Project Annual Report (2011)

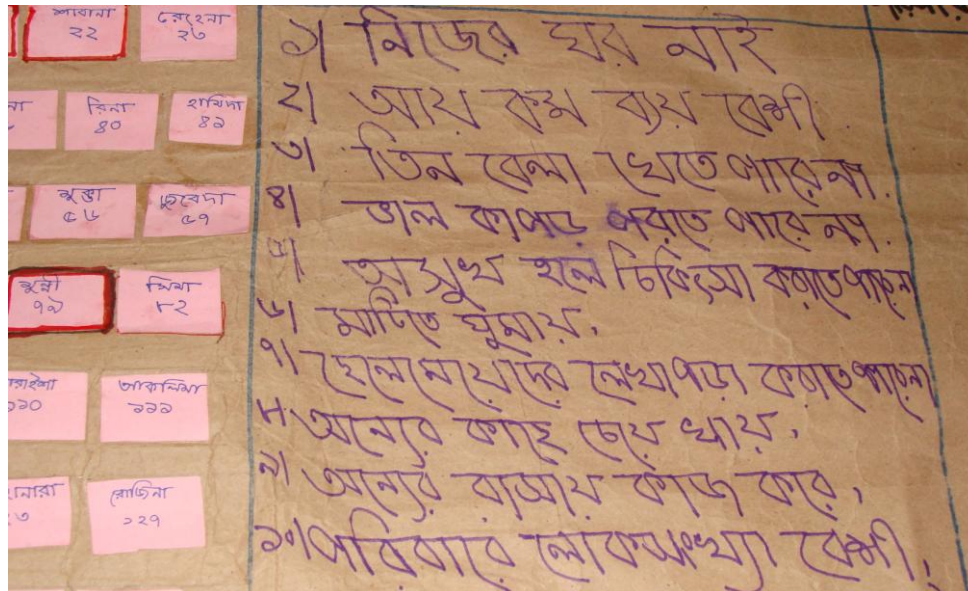
The *UPPR project* introduced a participatory well-being assessment to identify the extreme poor, moderate poor and non-poor in the CDC areas of Dhaka city. The WBA method also records other vulnerability indicators such as women-headed households, low-castes, tribal ethnicity, and households with a disabled member. The WBA improves targeting, provides a poverty baseline, enables random selection of a sample for other surveys, and improves a community's understanding of the status of its member households.

Table 4.4.2- Criteria for Well-being Analysis in the UPPR Project

Extreme Poor	Moderate Poor	Non-Poor
Living in rental accommodation	Having own house but illegal development on the public land	Having own house but illegal development on the public land
Having more expenditure than income	No savings	Getting rents from their housing clusters
Difficult to manage three meals a day	Unable to send children to good private schools	Ability to take nutritious food
No better clothes	Having less nutritious food	Ability to send children to schools
Unable to bear treatment cost when someone becomes sick in the household	Unable to access good medical treatment	Having savings in the private banks
No education for the children in the household	Having less social respect	Having recreational facilities
Rely on informal charities	Under-employed	Having more income than expenditure
Working as a maids	No recreation for the children	Ability to buy clothes
High dependency rates		Having precious furniture in the household
No furniture in the household		
There is no social respect for the household		
No skills		
Unemployment		

Source: Field survey, 2012

Figure 4.4.1-Well-being Mapping in the UPPR Project



Source: Field survey, 2012

Appendix 4.5: List of Interviewees and Purpose of Interviewing

Sector	Organisational Respondents	Number	Purpose
Community	Members, Community Develop Committees in Karail	2	To understand the CBOs' activities, decision making process, networks with different stakeholders and community based collective action
	Members, Cooperatives in Kamrangirchar	2	
	Landlord & community leaders	2	
Urban Local Government	Member, Disaster Management Committee	1	To identify roles and responsibilities, financial and technical capacity to support the urban poor, and problems regarding disaster risk reduction planning
	Slum Development Officer	1	
	Estate Officer	1	
City government agencies	Executive Engineer, DWASA	1	To identify their service delivering process and problems of delivering services to the urban poor
	Urban Planner, RAJUK	1	To understand how the RAJUK execute zoning regulations; organisational focus on implementing pro-poor housing and problems to develop pro-poor urban planning measures
Formal Political System	Ward Commissioner	1	To identify functions of the ward-commissioners in disaster management, service delivering process, conflict resolution and also find out the constraints associated with their activities
Academics, Researchers & Consultants	University Faculty & Consultant	2	To develop an institutional actor mapping; and to understand problems and vulnerabilities that the urban poor face, role of city and municipal governance in adaptation
	Researcher, Bangladesh Institute of Development Studies (BIDS)	1	
	ARCAB, Bangladesh Centre for Advanced Studies	1	
Civil Society Actors	Executive Director, Coalition for the Urban Poor	1	To identify advocacy and also service delivering role of the civil society organisations
	Member, Bangladesh Institute of Planners (BIP)	1	
	Centre for Urban Studies (CUS)	1	
	Microfinance Programme of SAJEDA Foundation & Proshika	2	
	Dushtha Shasthya Kendra	2	
	Urban Partnership for Urban Poverty Reduction Programme	2	

Source: author, 2012

Appendix 4.6: Interview Checklist for Life-history Interviews

Questionnaire for Household Information

- 1) Name and Age of the Respondent:
- 2) Address:
- 3) How many members do you have in your house?
- 4) For each household member:
 - Age, birth place, and level of education
 - What do they do? (list the activities in order of economic significance. For children and non workers ask if they do any work)

Open-ended Questionnaire for Understanding the Household's Wellbeing before their Move to Dhaka City

- 1) Where were you born? Where did you grow up? Can you please explain about your birth-place?
- 2) Can you explain about your parents and siblings?
- 3) Thinking back to that time in your parental house, have things got better/worse and in what ways have things got better/worse? (check the consumption level of the household at the better/worse time and also track what types of assets they acquired/lost at those times.)
- 4) When did you get married? How was your husband's economic situation (income and household assets)? How was your household situation after the birth of your children?
*If respondent is male, then ask did you send your wife to work outside? What are the reasons behind sending or not sending to work?
- 5) Can you explain about the worse events that you have faced after your marriage? How did you cope with these worst events? (check the consumption level of the household at the worse time)
Did you have any improvement in your households' income and assets after your marriage?
What are the reasons behind these improvements?
- 6) When and why did you think to move on to Dhaka city? How did you migrate in Dhaka city (i.e. process of migration)?
- 7) Did you face any major floods/cyclones/river erosion before migration to Dhaka city? Can you explain your sufferings at that time and also mention your coping strategies?

Questionnaire to Understand the Household's Wellbeing after Migration to Dhaka City

- 1) After migrating to Dhaka city where did you get accommodation in the urban slum?
Who helped you to get accommodation in the slum of Dhaka city?

- 2) How did you get access to the urban labour market? What were the barriers that you faced at the entry to the urban labour market? Did you generate enough income from your employment to meet the basic necessities for your family? How did you manage to provide for regular household consumption (three meals a day)?
- 3) Can you explain some better/worse events that you have faced living in the urban slums? (Choose depending on their response; Keep asking until they run out of responses). Why did the events happen? Where did you get assistance at this time of adversity?
- 4) Did you have any experience of facing the floods and fire hazards after migrating in Dhaka city? Can you explain in brief your sufferings and coping strategies? During the flood, did you stay in your home or take shelter in the relief centre? Tell me about your experience in the flood relief centre? Where did you get assistance to cope with the flood situation?
- 5) Can you explain in brief about the seasonality effects in your employment and living condition? What are the specific problems that you face at the summer, rainy and winter season? Does seasonality cause any asset erosion in your household? How do you cope with this seasonality effect?
- 6) Can you explain your relationship with relatives, neighbourhoods, house owners, employer and elites or political leader within the slum? What kind of assistance did you get?
- 7) Did you move from one slum to another? What were the reasons behind changing your location?
- 8) Can you explain about your current dwelling unit? How many rooms do you have? What is the total size (in sq. ft) of your room/(s)? Who is the owner of this dwelling and settlement? How much money (in Taka) do you pay as monthly rent? Who collects this monthly rent?
- 9) How do you get access to basic services such as electricity, sanitation and water supply? Who delivers these services in your slum? How much money do you pay for these services? What problems do you face in accessing these services?
- 10) Can you explain about your health-seeking behaviour? Where do you go when someone has fallen sick in your family? What are the problems that you face in accessing NGO and government initiated public health services? How frequently do you visit government hospitals? What problems did you face in the government hospital?
- 11) Do you have any membership in micro-finance organisation? If no, then what are the reasons behind this?
- 12) Do you have any access to the membership of the community-based organisation? If no, then what are the reasons behind this?

Questionnaire to Understand the Impacts of the Asset Transfers or the Community Based/Driven Approach on the Well-being of the Households (from 2009 to 2012)

- 1) How did you get involved in the project? What kind of assistance did you get from this project?
- 2) How did you invest the project grant in the livelihood productive sector? Can you explain in detail your investment process and return? Did you get any training and market support from the project to build your micro-enterprise? How did you use these complementary services? Tell me in brief what were the impacts of the project on employment and incomes?
- 3) Can the project improve your consumption, access to better housing, household physical assets and savings? Inventory of main households assets before the project and after the project?
- 4) Can the project improve the level of your service accessibility (water supply, sanitation and drainage, electricity, housing and access roads)? Can you explain the process of building these services? In what ways did you get involved in this process?
- 5) Can you explain your present health seeking behaviour?
- 6) Can you explain in detail your involvement in community based activities?
- 7) Have other members of your family been supported by the project's activities? How has this support impacted on your household wellbeing?
- 8) Did you face any bad events during this project period? How did you cope with this?
- 9) Did the project improve your mobility within the community? (If yes) Has this improvement in mobility had any impact on your wellbeing or not?
- 10) Can you explain your future plans?

Appendix 4.7: Discussion Guidelines for Focus Group Discussion

1. Why are you living in this settlement? What are advantages of living this settlement?
2. How was the slum developed?
3. Can you explain about the specific problems that you face living in this settlement?
4. Can you explain about the service delivering process in this settlement? List the actors who involved in the service delivering process (prepare the list according to level of interaction)
5. Can you explain the relationship between the slum inhabitants and the formal political system and the civil society organisations? How did you get support from these actors? Do you have direct contact with them?
6. Can you explain the situation of the slum people at the major flooding time? Where did the people go for shelter? Who helped you during that time? Can you explain in detail some community based coping initiatives during the floods of 1998/2004/2007?
7. Who are the most involved organisations supporting you living in the settlement?

Appendix 4.8: Interview Guide for the Community leaders

1. How was the slum developed?
2. Can you explain about the specific problems that you face living in this settlement?
3. Can you explain about the service delivering process in this settlement? List the actors who involved in the service delivering process (prepare the list according to level of interaction).
4. Identify community organisations and can you explain activities of community organisations?
5. Can you explain the relationship between the slum inhabitants and the formal political system and the civil society organisations? How did you get support from these actors? Do you have direct contact with them?
6. Can you explain the situation of the slum people at the major flooding time? Where did the people go for shelter? Who helped you during that time? Can you explain in detail some community based coping initiatives during the floods of 1998/2004/2007? What role did community organisations play during these flooding events?

Specific for CBOs of the DSK-Shiree project and CDCs of UPPR project

1. Can you explain in detail the formation of the CBOs/CDCs? How did you involve the urban extreme poor in the process of building the CDCs?
2. How did you organise meetings and implement the project activities? Can you explain the decision making process? In the case of the CDCs, how did you select the beneficiaries for the social-economic funds of the UPPR Programme?
3. In what ways did you get an opportunity to meet the higher level political actors and formal service delivering organisations? How did you organise people for the collective action? In the case of the CBOs, how did you build a collective business enterprise? In the case of the CDCs, how did you organise people to protest against the eviction and network with the civil society organisation for legal action?
4. How did you help when the members face adversity?
5. What are the problems that you face in implementing the project activities? What are your future plans?

Appendix 4.9: Interview Guide for the House owners

1. Can you explain in detail the slum development process?
2. Can you explain the process of buying a house in the slum? Who was involved or controlled the informal housing market in the slum?

3. How did you fix the rents for your rooms? How did you collect the rents from the tenants? How did you provide basic services to the tenants? What is the system of payment for the utilities?
4. Do you need to maintain good ties with local political elites for tenure security and basic services? What kind of services do local political elites offer to you?
5. Can you explain in detail your relationship with the tenants?
6. How were you involved in the NGOs development programmes? Did you involve your tenants in these projects?

Appendix 4.10: Interview Guide for the Ward Commissioner

1. What roles and responsibilities do you perform in the urban slums of Dhaka city? How do you interact with the slum dwellers? Can you explain the resource distribution system at the ward level from the city corporation?
2. What are the problems that you face in supporting slum dwellers?
3. Can you explain the process of forming the local disaster management committee and also their responsibilities? Can they work according to their responsibilities? What problems do they face? Can you explain how you supported the urban slums during major floods of 1998/2004/2007? What were problems were in the relief and rehabilitation process?
4. Do you have any specific suggestions to improve the city management and service delivering process?

Appendix 4.11: Interview Guide for the Civil Society Organisations

1. Can you explain service delivery process in the slums of Dhaka city? Did you implement any service delivery model in the Karail and Kamrangirchar area, (if so) please explain in detail?
2. How did you develop the community based organisation? Who were usually involved in the CBOs? Do you have any focus on the extreme poor and marginalised groups? What were the problems that you faced in selecting or targeting the extreme poor?
3. Can you explain your specific advocacy role with the formal service delivery organisations and the formal political system on behalf the poor? What changes did you make for the urban poor?
4. What role do you play in ensuring the tenure security of the urban poor? How do you involve the urban poor in the advocacy process? Can you recognise the problems that limit your ability to bring changes for the urban poor?
5. What role do you play in city management and promoting environmentally friendly urban development? Can you mention the specific problems of city management and promoting environmentally friendly urban development?

6. Explain what role you played in the major flood disasters of 1998/2004/2007?

Appendix 4.12: Interview Guide for the Officers of Dhaka City Corporation

1. Are there any specific urban poor plans/programmes designed by DCC? Do you have any organisational structure to support the urban poor?
2. What types of service provision do DCC provide to the urban poor?
3. How does DCC deal with the housing issues of the urban poor?
4. How do DCC coordinate other actors in urban development? Can you explain the relationship between DCC and the central government?
5. What role does the Disaster Management Committee (DMC) perform? How is the disaster management committee supported by central government? What are the problems that limit DMC's ability to support the urban poor?
6. What are major sources of finance to Dhaka City Corporation? Are these sources enough to support the activities of Dhaka City Corporation?

Appendix 4.13: Interview Guide for the Professional Officers of RAJUK (the Capital Development Authority)

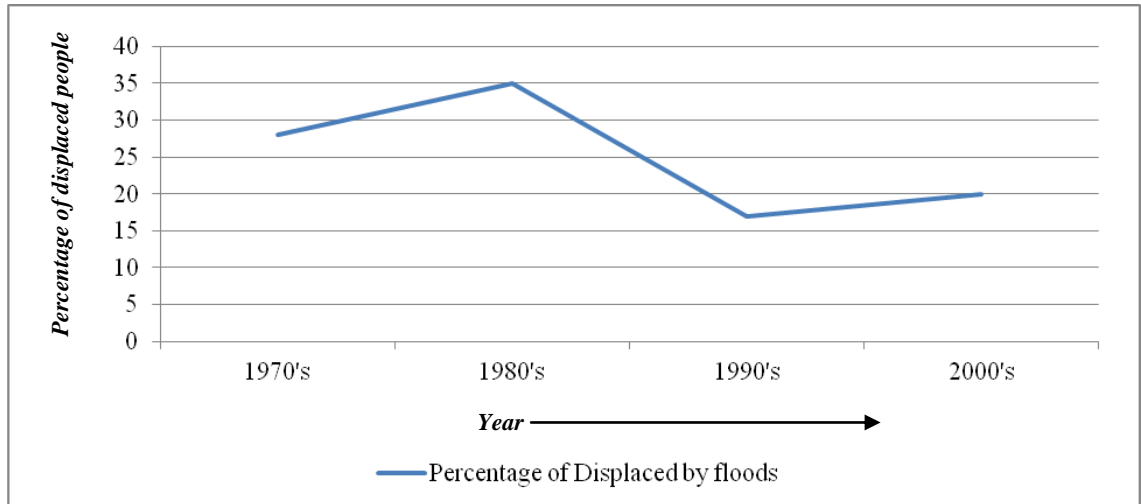
1. What types of services do you offer to the urban poor? Do you have any plan to develop housing programmes? What are the problems that you face working in the slum and squatter settlements of Dhaka city?
2. What initiatives do you take for implementing the land use management strategies recommended in the DMDP? Why do you fail to control the land use management strategies in the flood flow zones?
3. How does the RAJUK coordinate with other actors such as DCC, D-WASA, etc. in the implementation of land use management and housing development in Dhaka city?
4. Can you please tell me about how the slum dwellers of Dhaka were encouraged to take part in the process of participation while preparing the DMDP?
5. Do you think that in the matter of housing and basic services, the recommendations made in DMDP reflect the opinions, capabilities and conditions of slum dwellers?

Appendix 4.14: Interview Guide for the Professional Officers of D-WASA

1. Is there any specific plan/programme for the urban poor designed by DWASA?
2. What type of service provision does DWASA provide to the urban poor?
3. How does DWASA deal with the informality issue of the urban poor when providing services? How does DWASA coordinate with the other actors involved in working for the urban poor (NGOs and CBOs)?

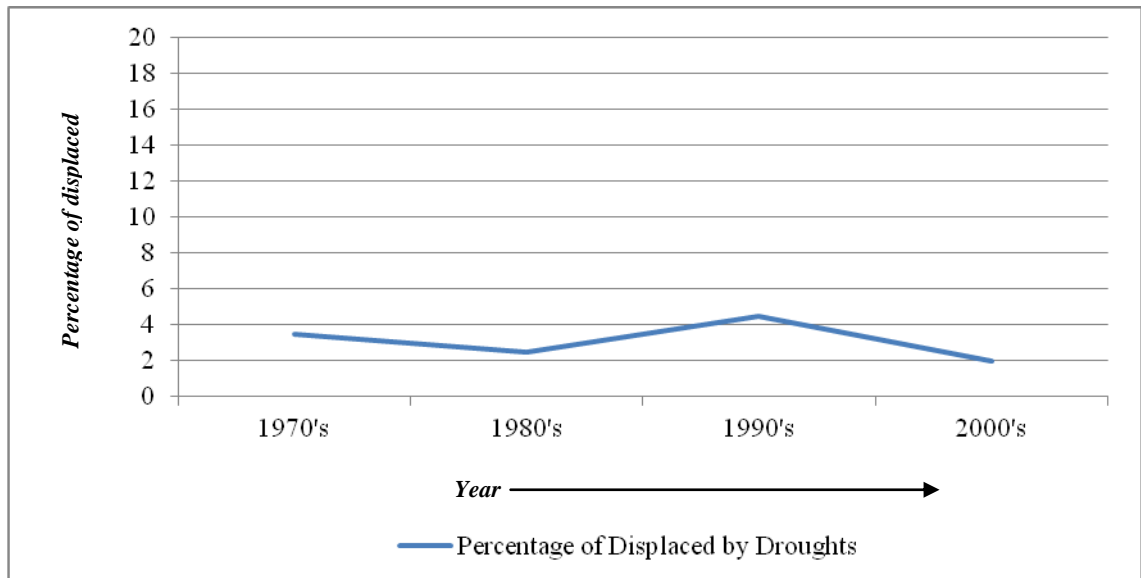
4. Is there any provision in the organisational structure of DWASA to support the urban poor in terms of service provision?
5. What are the major challenges for DWASA in providing a water supply for the urban poor?

Appendix 5.1: Average Displacement by Floods from 1970 to 2000



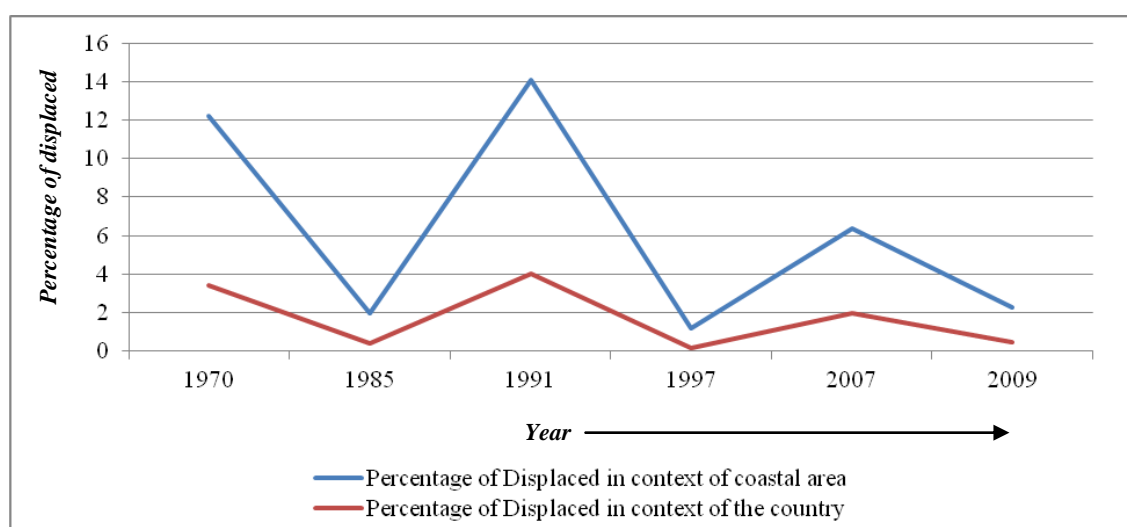
Source: Analysed from Akter (2009)

Appendix 5.2: Average Displacement by Droughts



Source: Analysed from Akter (2009)

Appendix 5.3: Percentage of Displaced People with respect to Total Population in Coastal area and the Country



Source: Analysed from Akter (2009)

Appendix 6.1: Summary of Land use Proposals for Slum Development/Low Cost Housing Schemes in the Detailed Area Plan

DPZ for Central Dhaka (Study area C)	Total Area (Acres)	Proposed Slum Development / Low Cost Housing Areas (2015)	
		Acre	Percentage
DPZ – 1: Old Dhaka (West) (Islam bag and Shahid Nagar)	1450.00	Unspecified	Unspecified
DPZ – 2: Old Dhaka (East)	1314.00	Unspecified	Unspecified
DPZ – 5: Eastern Suburb	3488.38	Unspecified	Unspecified
DPZ – 8: Western Suburb (South)	1221.00	Unspecified	Unspecified
DPZ – 9: Western Suburb (Middle)	2292.00	Unspecified	Unspecified
DPZ – 10: Western Suburb (North)	3821.00	Unspecified	Unspecified
DPZ – 12: Mirpur East	2110.07	Unspecified	Unspecified
DPZ – 13: Mirpur West	1523.33	Unspecified	Unspecified
Total Study Area C	26535.40	Unspecified	Unspecified
DPZ Study area A			
Gazipur Pourashava (DPZ - 30)	4749.90	66.3	1.40 percent
Tongi (DPZ - 05)	8421.22	244.3	2.90 percent
Rupganj-Sitalakkha West (DPZ - 09)	13564.00	161	1.19 percent
Total Study Area A	108410.40	542.68	0.50 percent
Study Area B	51212.35	No data	No data
Study Area D	2109.91	0	0.00 percent
Study Area E (DPZ – 16: Northern Fringe)	21000.26	202.65	0.96 percent
Grand Total	209268.32	745.23	0.36 percent

Source: Nahiduzzaman (2012, p. 168)

Appendix 6.2: List of Housing Projects by Government and Private Sector in the Flood-flow Zones

Name of the Projects	Agency (Name of Developer)	Area (hectare)
Purbachal New Town	Government	1031
Uttara Third Phase	Government	850
Jilmil	Government	467
Modhumoti Model Town	Private (Amin Mohammad Land Development Company)	207
Bashundhara River View	Private (East West Property Development Pvt. Ltd.)	1012
Green Model Town	Private (Amin Mohammad Land Development Company)	203
Ashulia Model Town	Private (Amin Mohammad Land Development Company)	526
Bangladesh Development Company	Private	222
Basumoti (Satarkul and Bhatara)	Private (Hirarjeel property development Ltd.)	611
Basumoti (Kathaldia)	Private (Hirarjeel property development Ltd.)	205
Shornali Abason	Private	472
Pink city	Private (Xeno Valley Model Town)	121
Sun Valley	Private (Swadesh Property Ltd.)	2091
United City	Private	74
Reliance Model Town	Private (Reliance Model Town)	202
Century Reality Ltd.	Private	81
Sagufta	Private (N.M. Housing Pvt. Ltd.)	431
Mansurabad R/A	Private	14
Ashian City	Private (Ashian City Land Development Ltd.)	375
35 Government Approved Hosing Projects	Private	836
Grand Total		10294 (25426 acre)

Source: Islam (2009, p.73)

Appendix 7.1: Community Action Plans developed by the CDCs in Karail

০	<p>৫০০০</p> <p>৫০০০</p>	<p>পানির না। বেকারত্বের হার বৃদ্ধি পাচ্ছে। অসুস্থতার অসামান্য সুস্থি-হতা অসামান্যভাবে বাজে নিশ্চ হতে পারে।</p>
২	<p>৫০০০</p> <p>৫০০০</p>	<p>অসুস্থতার হার বৃদ্ধি পাচ্ছে। হেলে হেলে অসামান্যভাবে বাজে নিশ্চ হতা অসামান্যভাবে অসুস্থতার বেকারত্বের হার হতে যাবে। অসুস্থতার হার হতে</p>
৩	<p>৫০০০</p> <p>৫০০০</p>	<p>অসুস্থতার হার হতে হতে হতে অসুস্থতার হার হতে হতে হতে অসুস্থতার হার হতে হতে হতে অসুস্থতার হার হতে হতে হতে অসুস্থতার হার হতে হতে হতে অসুস্থতার হার হতে হতে হতে</p>

Source: collected from the CDCs, 2012