

Pro-poor adaptation for the urban extreme poor in the context of climate change

A study on Dhaka City, Bangladesh

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Abstract

Purpose – The purpose of this paper is to examine pro-poor urban asset adaptation to climate variability and change. It constructs a conceptual framework that explores the appropriate asset adaptation strategies for extreme poor households as well as the process of supporting these households and groups in accumulating these assets.

Design/methodology/approach – Qualitative data are obtained from life histories, key informant interviews (KIIs) and focus-group discussions (FGDs). These data are collected, coded and themed.

Findings – This research identifies that households among the urban extreme poor do their best to adapt to perceived climate changes; however, in the absence of savings, and access to credit and insurance, they are forced to adopt adverse coping strategies. Individual adaptation practices yield minimal results and are short lived and even harmful because the urban extreme poor are excluded from formal policies and institutions as they lack formal rights and entitlements. For the poorest, the process of facilitating and maintaining patron-client relationships is a central coping strategy. Social policy approaches are found to be effective in facilitating asset adaptation for the urban extreme poor because they contribute to greater resilience to climate change.

Originality/value – This study analyses the empirical evidence through the lens of a pro-poor asset-adaptation framework. It shows that the asset-transfer approach is an effective in building household-adaptation strategies. Equally important is the capacity to participate in and influence the institutions from which these people have previously been excluded.

Keywords Bangladesh, Adaptation, Climate change, Asset, Urban poverty

Paper type Research paper

1. Introduction

There is an emerging consensus that climate-change adaptations that are pro-poor can be achieved from ongoing development interventions (ActionAid, 2006; Agrawala, 2005; Huq *et al.*, 2007a, 2007b; Mitchell and Tanner, 2006). Huq *et al.* (2007b) indicate that to reduce climate-change vulnerability, urban adaptation strategies should target the most vulnerable citizens, i.e. those who are often associated with the poorest and most excluded groups. Scholars argue that improved urban development planning and the provision of public services and safe infrastructure are crucial for both the development and promotion of



resilient cities (ActionAid, 2006; Stern, 2007; Tanner *et al.*, 2009). In addition to these planned adaptation measures, governments, donors and civil society actors must consider how they can support autonomous adaptation efforts by poor urban populations.

A robust social policy response is one that is rooted in an understanding of the risks the poor and extreme poor face in relation to climate change and climate vulnerability, and how to help them overcome this (Heltberg *et al.*, 2009, 2010). This research approaches this topic from the point of view of two impoverished communities in Bangladesh. It points to social approaches to assisting poor urban communities manage both climate change and climate volatility and support them as active agents in creating resilience through different household- and community-level interventions. These programmes include programmes social funds for community-based adaptations and asset-transfer. It identifies the processes through which the extremely poor can accumulate these assets and build resilience to the impacts of climate change. Further, it identifies how the extreme poor households' assets can be protected, and it explores how long-term resilience for the urban extreme poor can be built. This study may offer valuable lessons for policy adaptation that is pro-poor, as this concept is not yet widely appreciated in the climate-change-policy literature.

This research is set up as follows. Section 2 presents the conceptual framework of pro-poor asset adaptation and Section 3 defines the research strategy. Later, the results and discussion section identifies urban extreme poor's autonomous adaptation, role of formal institutions for building pro-poor asset adaptation, integration of pro-poor adaptation in urban planning, role of informal institutions for building pro-poor asset adaptation and role of social sector approaches for pro-poor asset adaptation.

2. Conceptual framework of asset adaptation of the extremely poor

Adaptation to climate change at the local level is largely made up of individual choices; in an urban context, however, collective action taken at the community and municipal levels is the most appropriate response for adaptation (Adger, 2005; Moser, 2010; Tanner *et al.*, 2009). Considering this, the conceptual framework of pro-poor asset adaptation to climate change identifies the process of building micro-level (household), meso-level (community) and macro-level (municipal) adaptation strategies that enable the urban extreme poor to protect themselves, or to recover from, the negative effects of the slow insidious changes in weather events whose patterns and intensity are 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) available to poor households help them build their own individual adaptive practices (Moser, 2010). However, the adaptive responses of the individuals or households that are counted among the urban extreme poor are mostly short-term, individual and *ad hoc* impact-reducing efforts to save lives or protect property. Urban policies and institutions, both formal and informal, often place significant limitations on the urban extreme poor in their efforts to extend their individual strategies for long-term resilience to climate change (Devas, 2001; Huq *et al.*, 2007a, 2007b; Tanner *et al.*, 2009). Therefore, this sector of society needs asset-based planned adaptations that are more poverty focused so as to help build both their short- and long-term resilience (Heltberg *et al.*, 2009; Vernon, 2008).

At the micro level, the household should be considered the most important unit for the accumulation and management of resources. An effective approach for the extreme poor would be one that requires multiple entry points, and instruments that are protective (cash grants and/or food aid), preventive (basic services and infrastructures) and promotive (productive asset transfer, enterprise development, trainings and credits), that can create

these entry points for the poor so they can build their household assets (such as financial, human, physical, livelihood-productive assets and household belongings) when all of these measures work together at least some of the time (Hulme and Moore, 2008). Households' access to productive assets, such as micro-enterprises, can reduce poor households' overdependence on one income source – their own labour. Preventive measures (such as the provision of basic services and housing improvements) can save both their human capital and their financial assets from sudden erosion (Devereux and Sabates-Wheeler, 2004). A combination of protective, preventive and promotive measures can enhance the resilience of households of extreme poor by developing new livelihood activities and making multiple assets available to them.

Assets available to households of the extreme poor help them 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. Assets will also enable them to afford measures that help them cope with illness or injury or damage to their assets due to climate change. Given the insecurity of urban livelihoods, the asset-accumulation process is not necessarily sustainable for these households unless these new assets are also structurally protected (Banks, 2012; Hossain and Matin, 2004). Therefore, micro-level asset-adaptation strategies need to be integrated into meso- and macro-level strategies to protect households from asset erosion and to maximize the linkages between different inter-dependent assets.

At the meso level, urban communities that exist in an informal settlement also deploy different physical (e.g. clearing blocked drainage channels), socio-economic (e.g. community-based savings groups) and political measures (e.g. development of networks with political parties and NGOs for formal assistance) to withstand weather-related risks that arise from climate change (Wamsler, 2007; Wamsler and Brink, 2014). These are constrained, however, often by a lack of secure tenure and communities' physical and financial capacities 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 organizations. This is not to say that it cannot be done. Community-directed slum and squatter upgrading has achieved this, but this is where support from social funds has been provided and community-driven development has occurred.

Through social funds, the international community could channel external finance to small-scale community-based adaptation projects in a large number of communities of informal settlements (Heltberg *et al.*, 2009). To protect households' assets and help them build greater resilience, households of the extreme poor need to connect with community-based adaptations. New livelihood activities can provide these households with the type of flexibility and wellbeing that can give them the confidence to participate in community-based risk-management strategies. This can facilitate the development of collective assets (such as saving groups, peer support groups and cooperatives) that can have positive influences on 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 organizational capacity into a collective entity for groups of the extreme poor. While the extreme poor lack access to important information related to risks and risk management, their active engagement in community networks can improve their access to the information they need to manage their risks.

The possibility for building resilience to climate change is much greater when community-based organizations build partnerships with local or national governments. In many countries, there are now national federations of slum and shack dwellers that have

entered into partnerships with local governments and aid organizations. These partnerships have implemented programmes to address housing, upgrade slums and make improvements to service delivery and basic infrastructure in slums. However, it is also necessary to make changes in formal urban institutions and policies (macro level) that aim to help poor households and communities become more proactive in building asset adaptation to promote long term resilience in the face of climate change. For example, the local governments in Ho Chi Minh City and Cape Town called for resettlement of communities that were situated in the most risk-prone areas, in addition to ensuring improved construction and building regulations for the construction of low-income and informal housing (Baker, 2012). Of the more proactive approaches, both these municipal governments encouraged the adoption of new methods of construction that will enable communities to cope with anticipated flooding, such as elevating buildings and creating floating communities.

Social protection for vulnerable and marginalized groups (e.g. cash transfers) can enhance their preparedness for recovery after a climatic shock. At the macro level, institutional actors should undertake such actions as identifying adaptation options for the poor and marginalized that consider existing housing and social-sector policies that complies with the kind of asset adaptation vulnerable households and communities need. For example, the national government should give power and resources to local governments so they can help poor households and communities obtain safe, legal land sites for housing; the urban poor should also have improved access to justice.

This framework will be used to understand adaptive responses of the extreme poor to the extreme weather events that arise from climate change. It will explore how social sector programmes help the extreme poor build asset adaptation for short- and long-term resilience. It will also identify how urban institutions and policies constrain their adaptation strategies in relation to the poor and identify the gaps in pro-poor asset adaptation for the urban extreme poor in Bangladesh (Figure 1).

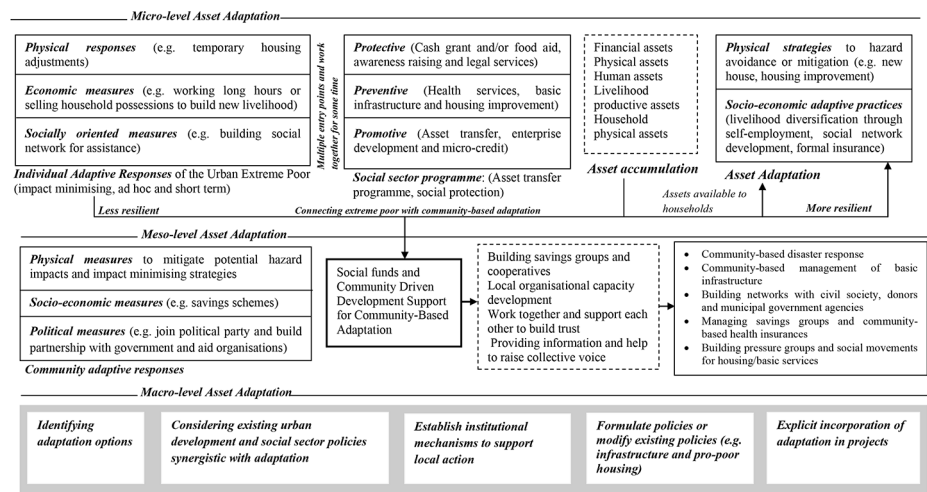
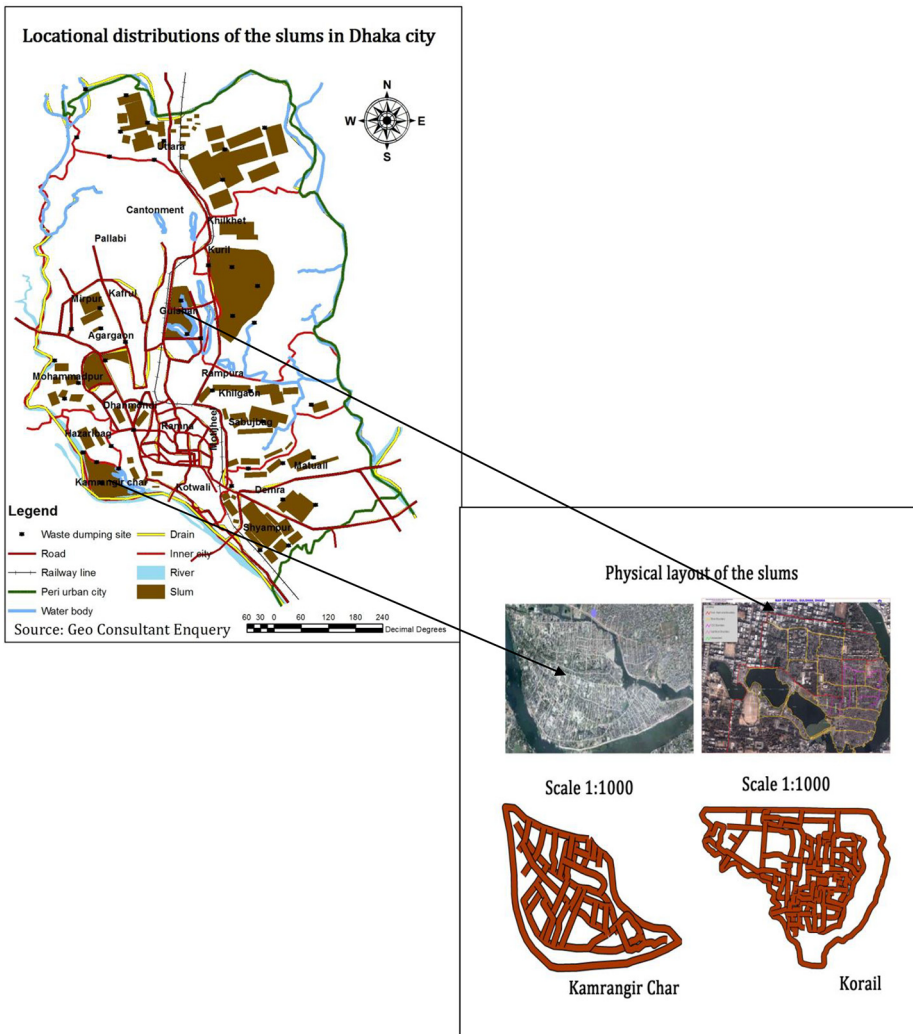


Figure 1. Pro-poor asset adaptation framework for the urban extreme poor

Source: Author's own

3. Materials and methods

This paper is based on a qualitative research design process. At the micro level, the empirical research consisted of case studies of settlements in Bangladesh. Slums were selected for review for which sufficient information already existed in the literature. The settlements of Karail and Kamrangirchar were selected because of the existence of project-based interventions for households of the extreme poor in these communities, with different approaches being available for review. In Karail, a community-based approach is being implemented that includes both poor and extreme poor households; in Kamrangirchar, extreme poor households are supported through an asset-transfer programme (Figure 2).



Source: Author's own

Figure 2.
Map of case study
settlements

The data collection technique included interviews on the life histories of extreme poor households. Forty interviewees (20 respondents each from Karail and Kamrangirchar) were selected for face-to-face life-history interviews through a technique wherein local community leaders recommended which households were the most suitable candidates for this study. The interviewees were selected from both socially vulnerable (old, widow/divorced and chronically ill/disabled) and professionally vulnerable groups (rickshaw pullers, maids and beggars). These life-history interviews were supplemented by surveys of key informants, and also focus-group discussions and the analyses of grey materials. For a broader testing of the findings, the researcher held dialogues with representatives of public-service-delivery organizations, members from community-based organizations and the academic community, policy makers, civil society organizations and knowledgeable members of the two selected settlements. In addition, focus-group discussions were used to identify the relevant urban institutions and processes at the two settlements in the case study. Focus-group discussions were also undertaken to validate the information.

The qualitative data that were gathered from different interviews were organized under a number of themes. The researcher read through the transcripts and noted down themes as they appeared in the interviews. For example, if the interviewees talked about their different aspects of poverty, such as food insecurity, housing, water supply and sanitation, shocks and stresses, the researcher noted this down as “multidimensional aspects of poverty”. At the bottom of each page, the researcher then noted down the main themes, such as the multidimensionality of poverty, vulnerability, urban institutions and the role of programmes. From this initial detailed analysis, the researcher reviewed the themes that had been pulled out of the interviews and grouped these into wider thematic categories, such as service accessibility, migration, labour market participation and barriers to entry into the labour market. Finally, the researcher used electronic copies of his transcripts to piece together the segments of data that represented each theme. Following this, the researcher developed qualitative analysis through analysing in detail what the extreme poor said about these themes and what they might signify in their everyday practices and how they negotiated within their everyday lives.

4. Results and discussion

4.1 *Urban extreme poor's autonomous adaptation*

The study data from the household interviews reveal that households of the urban extreme poor employ a range of measures to reduce or adapt to their level of disaster risk shortly before they incur the impact of the potential hazard. Moreover, during and following the impact, they also deploy *ad hoc* response-and-recovery measures. The range and diversity of individual adaptive practices can therefore mainly be categorized according to two objectives:

- (1) impact-minimizing strategies; and
- (2) preparedness measures for response and recovery.

Most of the impact-minimizing actions have become integral parts of coping and adapting practices that had been generated in past experiences. For example, in Karail, the extreme poor construct barriers at their front doors (5 households out of 20), increase furniture height (6 households) and build higher plinths (12 households). In the settlement of Kamrangirchar, similar physical coping-and-adaptive strategies are also found in the urban periphery. This settlement's extreme poor households also deploy impact-minimizing strategies, such as placing barriers across their front doors (4 houses out of 20), putting furniture onto bricks (3 houses), arranging high storage facilities (3 houses) and building high plinths (14 houses).

The study found some physical measures taken by the urban poor, such as building two-storey structures and using combinations of construction materials to build residential units that have the potential to reduce the risk of flooding. Only 4 of the total of 40 extremely poor households were found to be living in the two-storey houses. To help adapt to very high temperatures, creepers were grown in courtyards so as to cover roofs, and other materials were put on roofs to also reduce the heat (3 houses in Karail and 4 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). 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 that comes from corrugated sheet iron roofing and partitions.

The urban extreme poor also use specific non-hazard political as well as economic- and social-oriented measures to reduce or mitigate the increased risk levels that are associated with climate variability and change. Further, respondents from male-headed households reported that engagement in two jobs, simultaneously, limits the number of working hours in labour-intensive jobs; this is one strategy through which household heads try to reduce or overcome the impacts of hot and humid weather, during summer. This research found that two male breadwinners in Karail maximize their hours worked by pulling a rickshaw in the morning and running a street-peddling business in the afternoon. The elderly heads used this strategy, during the summer months, to cope with the exhaustion caused by undertaking physical labour in the extreme heat. In Kamrangirchar, two female heads (out of 20) used this strategy to get relief from heat stress, as both the weather and the associated power cuts make it impossible to work the whole day. Respondents from female-headed households reported that they worked as maids in the morning and engaged in the shoe-making industry in the afternoon or evening.

The urban extreme poor of both settlements employ a number of socially oriented measures. They practice highly effective forms of reciprocity and attachment with neighbours, friends and family members who offer them assistance at times of adversity. The common mechanisms these extreme poor families use to cope with seasonality are borrowing money and/or goods. Male respondents explained that families are always very cautious about their repayment of a loan. Repayment is considered very important for obtaining another loan the next time they face adversity. Common strategies used to repay these loans are either saving money by going hungry or working long hours when the rain stops. These financial coping strategies can create further obstacles (such as the erosion of physical strength) for these households. Other measures relate to education and include sending children to study outside of the slum area. In Karail, one female household head sent her daughters to an NGO school, outside the slum area, where they are offered not only free secondary school education but also free daily meals. In Kamrangirchar, two female heads (out of 20) sent their children to their parent's houses, which are in a rural area, as they can get free education and female stipends from government schools. This stipend means a monthly allowance to support their need for buying educational materials.

In 2012, the community network also played a dominant role in tackling the eviction threats of the Karail bustee. The community committees mobilized the entire community to demonstrate against threats of eviction. On 4 April 2012, they put pressure on those at higher political levels, e.g. ministers, their member of parliament, the mayor, the ward councillor and public agencies that were involved in the evictions in the Karail slum, to put a stop to this unethical practice. In addition, the community leaders developed a network with members of civil society and legal aid institutions to initiate a legal action against the

evictions. They filed a writ petition in the High Court to suspend the evictions from the Karail slum, until further orders. During the interview process, a male community leader reported that the leaders were also actively involved in mass campaigning against the evictions of the Karail squatter settlement. They did so by going through the national newspapers and print media to seek the support of the people of Dhaka City. This was a success story as these community leaders received financing and relief, and protests and dialogues with the members of formal political systems (e.g. ministers, political leaders). Following their writ petition, the High Court issued a stay order on evictions from the Karail slum. In Kamrangirchar, however, the urban extreme poor residents did not report any politically oriented measures apart from the rickshaw pullers' participation in the local rickshaw pullers' association.

The urban extreme poor of both settlements coped with or adapted to extreme-flooding events by taking a range of preparedness measures for response and recovery. Most measures were taken shortly before the occurrence of impacts from the potential hazard. In Kamrangirchar, most of the urban inhabitants moved to the nearest safe places, such as primary schools, embankments, rail lines, highways and government offices. A female landlord in Karail explained that during the flooding of 1998, moving to safer areas is not a preferred option; moving means losing assets and possibly losing the right to live in the area. 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 the services of their unaffected neighbours. The community leader also reported some temporary measures to reduce the impacts of flooding and water logging, such as building high barriers at the front doors, creating outlets from the house for easy flow of water, building high stilts inside the rooms and community initiatives to clean drainage and move sick children, the disabled and the elderly to hospitals and safer spaces within the neighbourhood.

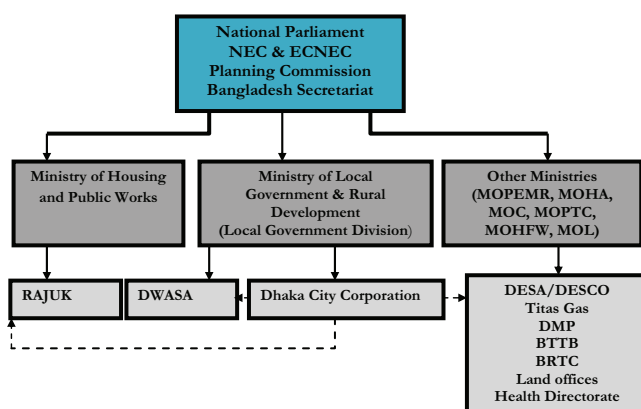
The interviews with the extreme poor who faced the flooding event of 1998 revealed that they used their savings to address food storages and their family's medical needs. When the floodwaters did not recede, during that event, households borrowed money to meet food costs. The households of the urban extreme poor of both settlements also deployed some preparedness recovery strategies to help them quickly recover from the impact of a hazard/disaster (e.g. damage to housing and loss of income), and bounce back to their former condition. From the interviews conducted with the extreme poor, this research found that there was a collective effort between home-owners and tenants in rebuilding houses and improving living conditions. Though most of the extreme poor stayed in rental accommodations, they were actively involved in the post-disaster-reconstruction process that took place within their housing cluster, including cleaning the courtyard, rebuilding community kitchens, repairing floors, increasing plinth levels and exchanging materials for plinths, roofing and walls. They took out loans and got help from household members or neighbours for this purpose. Home owners revealed that they obtained loans from their community saving groups to pay for repairs. The residents of both settlements used some common strategies to address their lack of income, food insecurity and health problems, such as using savings to build alternative livelihoods; working long hours and engaging in two jobs, simultaneously; selling some household possessions; taking loans from informal sources; begging; and borrowing money from an employer.

4.2 Role of formal institutions for building pro-poor asset adaptation

In Dhaka City, the institutional arrangements related to urban planning, basic services and infrastructure are complex. They include housing, water supply and sanitation, roads and drainage. Services are delivered by a mix of central, urban and local governance agencies

that have limited resources, weak administrative capacity and little coordination. Dhaka City Corporation (DCC) is the city's urban political administration; its specialized agencies include the Capital Development Authority-RAJUK; Dhaka Electric Supply Authority (DESA); Dhaka Metropolitan Police (DMP); Titas Gas; central government institutions, such as those responsible for land administration, public works, education and health; the Bangladesh Telephone and Telegraph Board (BTTB); the Bangladesh Road Transport Corporation (BRTC); and the Dhaka Water and Sewerage Authority (D-WASA). **Figure 1** shows the urban institutional arrangements and their relationships. As explained above, national policies for housing and basic services do not provide much legislative support and protection to the urban poor (IGS, 2012). In the absence of legislative support, the government agencies are not willing to assist the urban poor in accessing housing and basic services in Dhaka City's urban slums (**Figure 3**).

There is a lack of clarity regarding the relative roles of the main public institutions that are tasked with 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. RAJUK's jurisdiction covers the Dhaka Metropolitan Area, including the city proper. However, RAJUK's mission has never been to provide housing for the poor. Nevertheless, it has been known to provide serviced lots of a minimal size (100 square meters). But, given land prices in the city, these lots are 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 adequately perform their functions due to the severe resource constraints they face and their limited authority. The larger squatter settlements' lack of legal tenure further complicates service delivery, as neither DWASA nor DCC are willing to invest in settlements such as Karail.



Source: IGS (2012, p. 51)

Figure 3.
Mapping of urban
public institutions in
Dhaka CITY

4.3 Integrating pro-poor adaptation in urban planning

As a part of disaster preparedness, the Dhaka Metropolitan Development Plan (DMDP) set out the standard for land-use and floodplain management as per the guidelines of the National Flood Action Plan. This plan recommends that at least 12.1 per cent of the low-lying areas be preserved as retention ponds for flood water (DMDP, 1995). The DMDP's structure plan designates two categories of flood flow zones: the main flood flow and the sub-flood flow zones, which are based on the two flow directions of the rivers that adjoin the city and are the main tributaries in Dhaka. According to the DMDP (1995), it is strictly forbidden to develop land for residential, commercial and industrial use, including raising the land level with fill. 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 that is compatible with the rural nature of the area will be permitted insofar as it does not disturb the flood flow.

The Capital Development Authority, RAJUK, is the public institution responsible for implementing the recommendations of the DMDP; it has the following legal tools to control land use and city growth: the DMDP 1995, comprising the Urban Area Plan and Detailed Area Plan (structure plan); the 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 the recently approved *Mohanagar Imarat Nirman Bidhimala*, 2006 (Building Construction Rules, 2006). These laws and rules have several weaknesses that affect their ability to control unplanned growth in the flood flow zones and provide incentives for the urban poor to build preventive measures against extreme weather events.

4.4 The role of informal institutions for building pro-poor asset adaptation

Amid the lack of formal urban institutional support, informal institutions (such as, local political elites and community-based organizations or CBOs) 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 organizations for the urban poor. These organizations provide support for communities in Karail to build autonomous adaptations to climate change. In addition to these informal institutions, formal political systems, NGOs, aid organizations and legal-aid civil-society organizations 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 and legal-aid organizations), and attempt to influence the provision of assets so as to enable these communities to help those in vulnerable situations adapt to the potential hazardous conditions that are related to climate change.

This research has investigated the role of informal institutions in building or constraining the urban poor's adaptation practices in the settlements covered in the case study. The above-mentioned institutions have been mapped out according to the level of interaction of the urban poor with these institutions in terms of accessing assets and services for adaption (Tables I and II).

The participatory institutional mapping, of both of the settlements in this study, found patron-client relationships, at multiple levels, that provide varying degrees of support. While the poor and extreme poor households of both settlements lack a formal set of entitlements, they try to manage uncertainty and improve access to employment, finance and physical and social support by maintaining patron-client relationships. In this context,

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 use physical measures
Externally connected leaders build informal relation with public service delivering organizations	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 (tube well) 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 organizations and community groups for tenure security NGOs and community groups	Tenure security	Households can deploy preventive and impact minimizing physical measures to climate variability
	Accessing services (e.g. credit, health services, education and 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. Bazaar (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

Table I.
The role of informal
institutions for
adaptation practices
in Karail

Source: This is based on the key informant interviews undertaken at Karail, involving three community leaders; the findings of key informants are validated by one focus group discussion. The group consisted of two house/room owners and five tenants

Table II.
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 minimizing non-hazard measures
NGOs' credit services outside the community	Access to financial assets	Households 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

Source: This is based on participatory methods including two key informant interviews and one focus group discussion undertaken at Kamrangirchar, involving two non-poor house owners and five extreme poor tenants

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 revealed that the urban poor do not just have one patron. It was found that households of the urban poor seek solutions to their multiple needs, at different levels, including from employers, landlords, local political leaders, local representatives, community leaders and moneylenders. Households of the extreme poor further seek to improve and extend their social contacts by seeking to establish and maintain a patron by being trustworthy, hardworking and reliable. This approach 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. Those who work as maidservants consider their employer as one of their important social contracts. In a sudden crisis, these contacts sometimes give financial help and suggestions. However, household heads who experience a lack of physical vigour or ill health find that this constrains their ability to actively construct or benefit from social capital through association. For example, it was found that garage owners are reluctant to offer employment to the elderly who wish to pull rickshaws; employers and moneylenders often refuse to provide credit to households where breadwinners are sick or disabled.

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 Tables I and II) reveals that in both Karail and Kamrangirchar, NGOs and/or cooperatives operate formal credit-and-savings schemes that offer loans to the urban poor for building income-generating activities. They also provide credit to help the urban poor adapt to stresses related to climate. Additionally, these schemes also help people use different physical and economic recovery-preparedness measures. In formal credit arrangements, the urban poor must participate in compulsory savings schemes for 6 to 12 months to get access to credit. Loan repayment can guarantee further access to loans. Banks (2012) argues that compulsory savings periods often limit the role of formal loans as a source of emergency financing for the urban poor. However, the research identifies that, in both settlements in the case study, formal credit systems operated by NGOs and CBOs rarely select extreme poor

households as beneficiaries. This is partly because of self-exclusion. That is, the extreme poor households reported that they do not have the ability to take on risk, which is key to becoming successful entrepreneurs. So, initially, these households do not want microcredit and, hence, they do not want to join in the community group because they feel that they would be unable to pay back the loan and would therefore be stuck with debt for which they would eventually be forced to sell off their few possessions.

There is also an element of social exclusion since, for both economic and social reasons, members in the credit-and-savings schemes do not want to associate with members of extreme poor households. Community members refer to households that are in extreme poverty as the beggar class and as poor helpless households. The latter either have only one adult income earner, 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 and sickness. The community members consider that these poor households have a low capacity to make regular savings and to invest the money they borrow. As the members of the credit-and-savings group must shoulder joint responsibility for repayment of the loan, they prefer members who are either moderately poor or non-poor slum dwellers. Hence, this excludes the extremely poor. This exclusion from access to financial services limits these people's capability to gain income-and-asset diversification and, consequently, their vulnerability remains unchanged.

4.5 Role of social sector approaches to pro-poor asset adaptation

This section examines evidence from two social sector projects: the Urban Partnership for Poverty Reduction (UPPR) project and the DSK-Shiree project, which are being implemented in Karail and Kamrangirchar, respectively. [Table III](#) shows how social-sector approaches facilitate asset adaptation or resilience strategies for the urban extreme poor in these two communities. The UPPR project focuses on a participatory approach to mobilizing communities. Here, it uses different structures and seeks to identify the problems different groups of the poor face; it then prioritizes actions to mitigate these problems. Although the project used a democratic process to identify community leaders, in reality, the existing leadership, local elites and their supporters hold the committee positions on these projects. Therefore, the UPPR project can be viewed as a project that serves to distribute patronage and not one that provides an enabling environment for the enhancement of the extreme poor. The Community Development Committees within the project appear to consider the extreme poor only in terms of making demonstrations of charity and public largesse. This means that these types of promotional measures suffer from tokenism, marked by a modest transfer of resources. As a consequence, the UPPR project has less impact on households of the extreme poor in terms of helping them develop asset-adaptation strategies. Despite this, the project has devised a number of collective physical-adaptation strategies for the slum dwellers in Karail. These have helped this community improve drainage systems and reduce waterlogging risks in the slum. The UPPR project's savings-and-credit scheme can be drawn on to help the poor and extreme poor adapt to shocks and stresses, including those arising from climate variability.

Despite the drawbacks, these community-based adaptation strategies contribute to the adaptive resilience of the extreme poor, including both individuals and households. The UPPR project intends to bring transformative changes, such as access to legal services or tenure security through building strategic partnerships between the city and municipal government and local communities. However, several institutional barriers may constrain the sustainability or long-term support of municipal governments in Dhaka City, including inadequate laws and rules and financial capacity, a lack of incentives for the urban poor and

Level of interventions	Karail	Kamrangirchar
Household level asset-based adaptations through the UPPR and DSK-Shiree project	Self-employment for some extreme poor individuals who were unemployed and wanted to change job Additional labour mobilization for few extreme poor households Informal support networks Use of streets as rent free business yards	Economic diversification through self-employment Skilled employments for adult children Additional labour mobilization 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	Community mobilization and representative community organization Building community infrastructure to prevent or avoid threats Community-based savings and credit schemes	Social organization 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	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	No support from city and municipal organizations

Table III.
The role of social sector approaches for pro-poor asset adaptation

Source: Findings summarized from 40 extreme poor interviews

a fragmented approach to service delivery. The UPPR project used community mobilization to identify and implement their own development priorities, but these actions have had fewer benefits of consequence for extreme poor households. As structural inequalities underlie the community structures of the informal settlements in Dhaka City, the committees within the UPPR project reinforce, rather than break, these pre-existing inequalities. Overall, the local elites appear to have more power and resources, while the poorest remain as dependent as ever on the local elites for gaining access to the resources the UPPR project provides.

The DSK-Shiree project's asset-transfer approach has been more effective in building self-help strategies, as compared to the UPPR project. This asset-transfer project takes a wider approach to social protection. It recognizes that social protection must address not just the economic risks associated with poverty but also the adverse structural context that extremely poor households face. Therefore, the DSK-Shiree focuses on providing multiple assets and also on the interconnectedness of these assets. This study suggests that the protective and preventive instruments offered should give extreme poor households the security they need to invest their time and effort in the "promotional" components of resilience (e.g. turning a small micro-enterprise's asset transfer into a viable income-generator). It is also found that this project's asset-accumulation strategies positively facilitate asset adaptations for extreme poor households. Economic diversification through self-employment, additional labour mobilization and skill

employment is an effective practice that not only helps extreme poor households be less affected in the case of future hazards/disasters but also enables them to recover more quickly from the impacts of these hazards.

Extremely poor residents in Kamrangirchar are able to deploy hazard-avoidance measures, such as moving their small enterprises to a safer house and location. They also use some additional preventive measures for small businesses, such as raising plinths, arranging higher storage facilities, carrying limited stock and running a seasonal business so as to avoid the negative effects of weather hazards. Small, home-based enterprises are important for households with small children. This type of business allows household members combine income earning with caring for children. These families' women also have enough time to cook and serve family members fresh food, which contributes to greater resilience to extreme temperatures. Improvements in income also help extreme poor households in Kamrangirchar earn money to pay for additional power usage, during summer.

The importance of formal education for children was also identified in Kamrangirchar. Here, it was revealed that children's educational levels have a positive effect on the extreme poor's risk-reducing strategies through family members' future formal employment; their awareness and understanding of current risk levels; and access to and provision of information on risk reduction. Aside from these asset adaptations, the project also aids in reducing extremely poor respondents' physical-adaptation deficit through the construction of 39 improved water points and 62 hygienic pit latrines. In addition, the project's savings-and-credit schemes contribute to greater resilience and reduced climate risks. The practice of regular savings has both instrumental benefits (the ability of savers to access funds when necessary) and organizational benefits (the relationships of trust built up within small savings groups that allow their members to work on collective solutions to larger problems).

4.6 Discussion

The pro-poor asset-adaptation conceptual framework and the analysis of autonomous and planned asset-based adaptation in the Bangladesh context provide some important insights:

- The extreme poor have already coped with extreme weather events through deploying different physical adaptations and also adjustments in human behaviour. However, the strategies they use to cope with extreme events are short lived, ad hoc and impact minimizing, and even adversely lead to asset-based poverty traps. Therefore, the extreme poor households in this study need a set of integrated interventions that work together for over the long term. This will help them build asset portfolios that can be a key determinant in helping them adapt to extreme weather events and climate variability.
- External supports must be available at the neighbourhood level to improve the capacity of community organizations to develop community-level infrastructure that prevents or mitigates the adverse effects of extreme climate events.
- Households' assets need to be structurally protected.

Without this, positive changes can quickly be reversed if households face a sudden shock. Hence, meso- (community-based initiatives) and macro-level interventions (such as, floodplain management, infrastructure development and the provision of basic services) are important to protect household assets from destruction and/or erosion.

This investigation found that, for the settlements in this case study, protective and promotive components of an asset-transfer programme can have a positive impact on building the asset-based strategies of extreme poor urban households. It also shows that

cash transfers 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” (such as, microcredit, bed nets and women’s groups). Rather, they need a carefully sequenced set of supports that provide livelihood security; confidence building and skill development; asset transfer; and support for and institutionalization of their improved position within the local economy and society ([Hulme and Moore, 2008](#)).

Where there are representative community-based organizations, 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 that is used 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 settlements in the case study, exemplify such an opportunity. While municipal governments are best placed to address the adaptation needs of the urban poor, the 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 a change in the formal governance structures, the urban poor will continue to find it difficult to get access to a formal set of entitlements, such as housing, basic services and social protection.

5. Conclusion

This research contributes to the existing asset-adaptation frameworks by lending to a greater understanding of the asset-adaptation strategies and processes of extreme poor households and groups. Existing asset-adaptation arguments point to the need of the poor in urban communities to cope with extreme weather events through a range of measures. Both formal and informal contexts can provide an enabling environment within which actors can operate to both protect and/or adapt their assets. For the extreme poor in urban areas, access to adaptation assets becomes limited when the adverse structural context that comes from formal and informal institutions and policies are not considered. This research addresses this gap by analysing individual adaptive responses and their limitations, using the case of Dhaka City in Bangladesh.

Extreme poverty is an extreme stage of economic, social and political deprivation that results from the continuous erosion of the human, financial and household physical and social capital, of the poor, that result from unforeseen events. At the micro-level, it is necessary to pay special attention to each of the issues the extreme poor face. In this context, this requires the application of significant additional resources to further expand the asset-transfer approaches that are already successfully working 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 to facilitate the kind of social organizations that ensure that the mobilization of vulnerable and marginalized people becomes a vehicle for breaking, rather than reinforcing, existing structural inequalities.

A strong community-based organization can negotiate and build pressure on the formal governance structures so as to ensure access to a formal set of entitlements, such as housing

(in the 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 financial capacities to undertake large infrastructure projects. Thus, macro-level interventions that include infrastructure works, basic services and tenure security can protect households and communities from asset erosion and also generate opportunities to further the kind of asset accumulation that will allow these vulnerable people to exercise resilience in the face of climate-change hazards.

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