

Case Study 6.4 Individual, Communal, and Institutional Responses to Climate Change by Low-Income Households in Khulna, Bangladesh

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Keywords	Poverty, flood, resilience, household adaptation, community-based adaptation, institutional adaptation, environmental justice
Population (Metropolitan Region)	759,618 (BBS, 2013)
Area (Metropolitan Region)	72.6 km ² (BBS, 2013)
Income per capita	US\$1,330 (World Bank, 2017)
Climate zone	Aw – Tropical savannah (Peel et al., 2007)

Khulna is the third largest metropolitan city in Bangladesh, located in the coastal region in the southwest of the country (see Case Study 6.4 Figure 1). Climate-related hazards have long been experienced in and around Khulna, for instance, floods, storms, limited availability of fresh water, waterlogging, and heat waves. This study examines the underlying drivers of vulnerability as they affect extremely low-income residents of the city. In addition, it examines the potential for actions taken at the household and community levels in urban areas to go beyond offering short-term “coping” solutions in response to specific events and instead result in more transformational changes that address the underlying drivers of vulnerability.

Other than the conventional “socioeconomic” and “biophysical” vulnerability, this research identifies a third type of vulnerability in the study area, which can be termed “legal vulnerability” and is derived from the tenure insecurity of the low-income urban residents. Tenure insecurity is a major factor dissuading low-income households from investing in their housing to make it more adaptive to climatic shocks because they live in constant fear of eviction. A wide range of specific adaptation-related activities can be identified as responding to these vulnerabilities, and can be grouped into three main categories: individual, communal, and institutional. The study examines the extent to which institutional actions meant to address these underlying vulnerabilities are merely coping or whether they create the conditions in which individuals and households can strengthen their own long-term resilience. Similarly, it examines the extent to which individual and communal responses are merely coping or whether they have the potential to generate broader political change that strengthens the position of marginalized groups in the city.

ADAPTATION PRACTICES: HOUSEHOLD, COMMUNAL, AND INSTITUTIONAL

Low-income residents in Khulna are already taking a wide range of actions to respond to climate-related hazards (see Case Study

6.4 Figure 2). These are largely spontaneous or “impact minimizing” rather than planned or “preventative,” often because residents lack the means to make more substantial changes. They are also ingenious and varied, particularly recognizing the severe technical, locational, and economic constraints under which these households operate.

Most of these actions involve making modifications to the physical dwelling and its immediate surroundings to deal with different types of threats (see Figure 2A). Many of these deal with hazards related to heavy rainfall and flooding. Polythene sheets or the covers from cement bags are placed on the roof and in wall openings as protection from heavy rain. Plinths are elevated or houses are built on stilts to avoid waterlogging. If flooding does take place, household goods are placed on shelves near the ceiling, and furniture is lifted off the floor using bricks or wood. In addition, a wide range of approaches using locally available materials, such as *golpata* (*Nypa* leaves), are used to repair damaged houses. Residents also use community kitchens during disasters to reduce costs. As part of climate-proofing or recovery from extreme weather events, communal activities involve building or repairing common services (i.e., tube wells, drains, toilets, elevated pathways, and small retaining walls at the edge of water bodies to prevent land erosion).

A considerable number of institutions operate in these areas, both public (City Corporation) and private (nongovernmental organizations [NGOs] like Save the Children, Bangladesh Rural Advancement Committee [BRAC], Water Aid). The City Corporation is mostly engaged with post-disaster relief. The NGOs work more generally on community development as well as on providing emergency services during disasters.

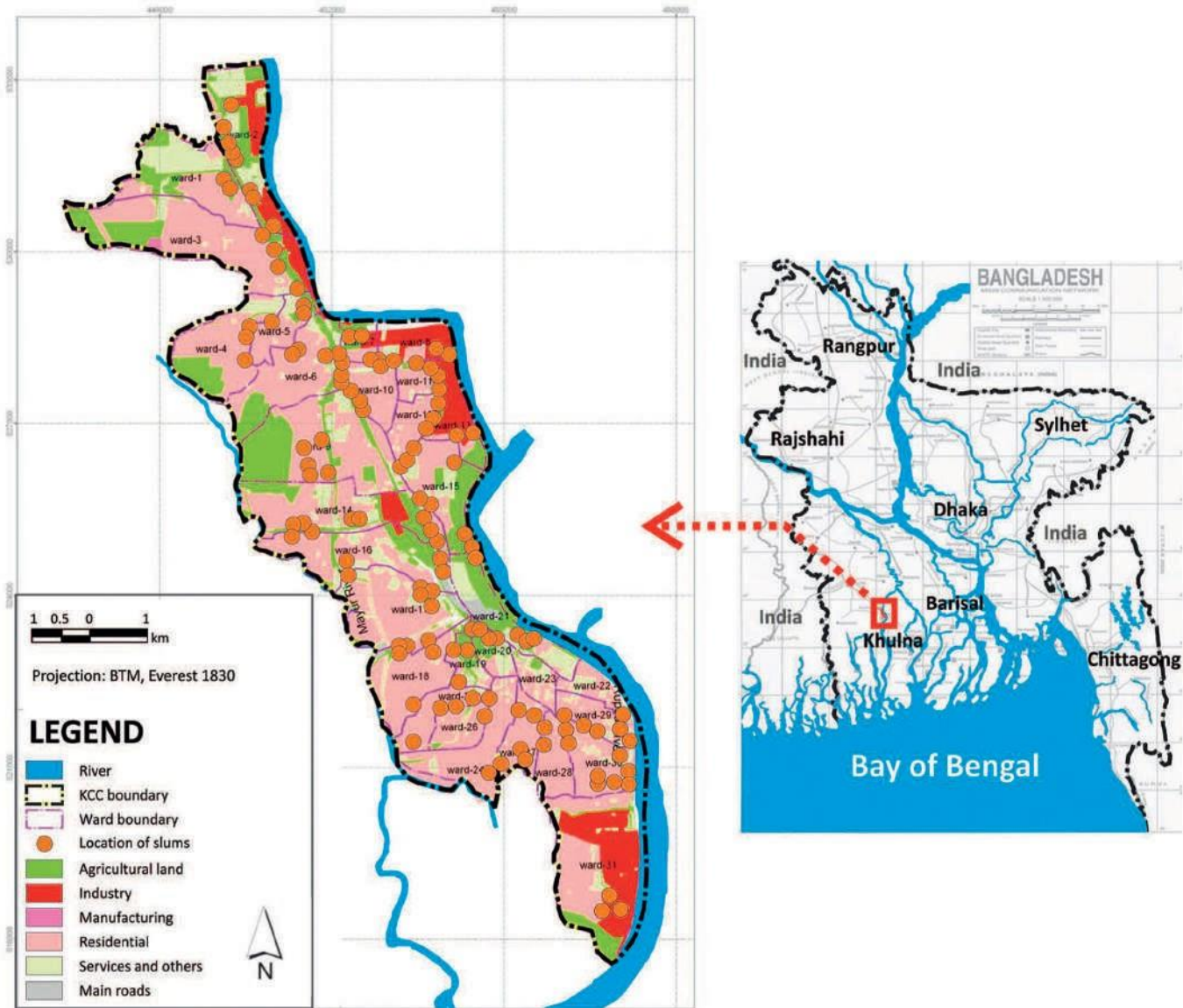
TOWARD TRANSFORMATIONAL CHANGE THAT REDUCES VULNERABILITY

None of the existing responses addresses the underlying social and political marginalization of the communities, which is perhaps the single most important feature contributing to their vulnerability to climate variability and change. While all the inhabitants of the city are entitled to basic service provision, the City Corporation in Khulna fails to acknowledge the existence of many informal settlements. This means that they are excluded from the City Corporation’s provision of basic services. Improved provision of basic services and infrastructure would be a considerable contribution to vulnerability reduction by strengthening the adaptive capacity of individuals and households and by reducing exposure to flooding and waterlogging. In turn, such public investment could increase the motivation of residents to invest in improvements.

Another significant underlying factor contributing to vulnerability is the position of these low-income and informal settlements, most of which are in locations categorized as low-lying or agricultural rather than residential because areas designated for residential use are unaffordable to the very poor. Some of these are in areas that are exposed to particular hazards. Although responses to informality have gradually recognized the advantages of *in situ* upgrading (as opposed to relocating), the changing risk context as a consequence of climate change may result in the acceptance of the need to move

some residents. However, this requires strong relationships of trust between organized community groups and local authorities.

One possible response to risk is to use the skills and knowledge that already exist in these communities. These skills and knowledge are



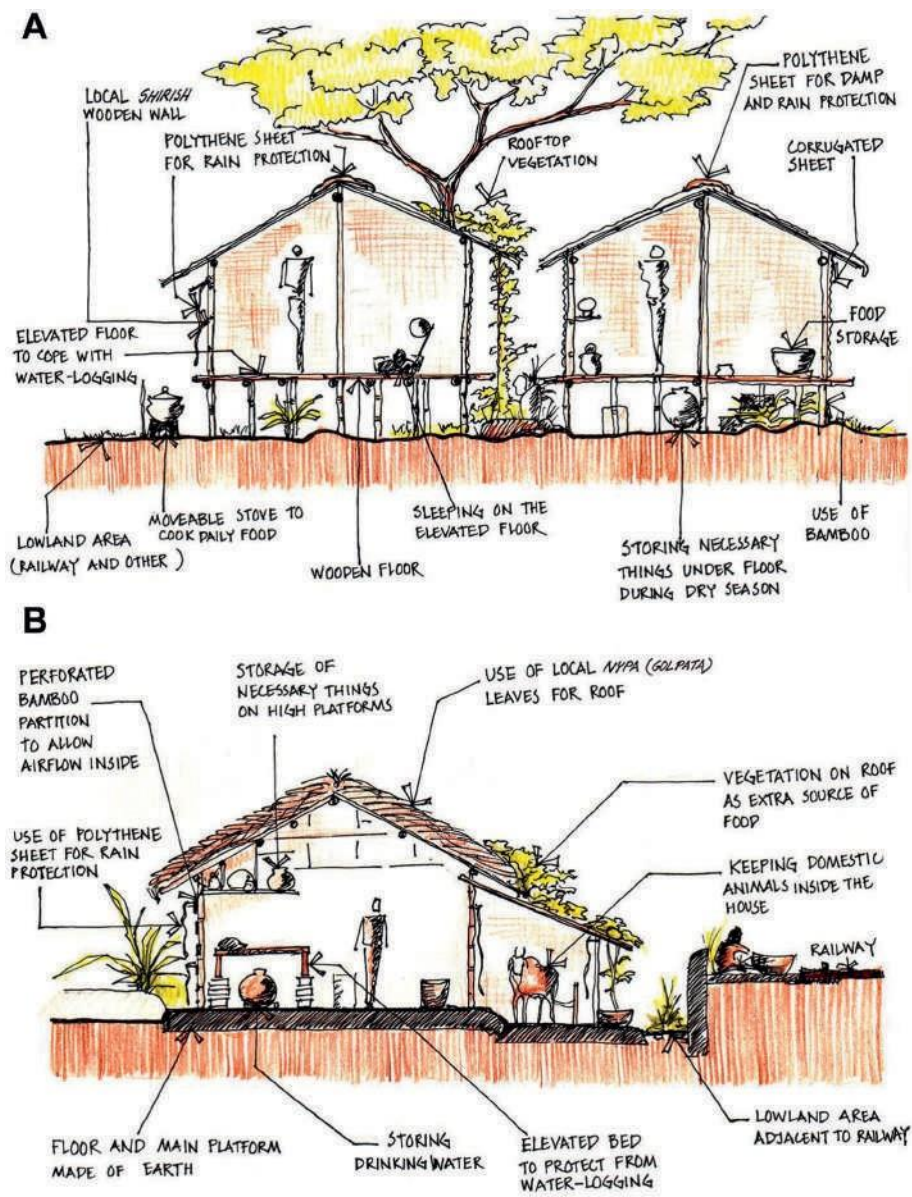
Case Study 6.4 Figure 1 Location map of the city of Khulna (showing land use and low-income settlements).

more likely to be used by residents if they are more confident that their efforts will not be lost through forced evictions. Their knowledge can be supplemented through awareness-raising and training workshops that can also help to prevent maladaptation. For example, although elevating the level of paths and walkways may reduce flooding in one location, if this is done without adequate consideration for broader drainage patterns it can worsen the issue elsewhere.

Another response that strengthens the adaptive capacity of low-income communities is to support the development of climate-resilient livelihood strategies. People living in low-income areas of Khulna have already been identified as undertaking different ways of earning money, and these have often been supported by NGOs – for example, through providing financial services (assets or capital) to develop small businesses such as sewing, handicraft production, and retail outlets. Households with savings have greater coping ability during a crisis (Dodman et al., 2010), and the city corporation and NGOs are implementing different types of saving schemes. NGOs have also been seeking to strengthen women’s access to and control over assets and resources, thereby boosting the ability to make decisions, participate in the process of city governance,

and thereby strengthen their resilience. However, efforts also need to be made to improve information-sharing about climate-related risks. Because the majority of the households surveyed do not have televisions, radios, or mobile phones, they lack access to climate change information from media sources and are therefore unable to take actions to reduce the consequences of particular climate-related events, in addition to being uninformed of longer-term climate trends. Although the City Corporation provides public service announcements using loudspeakers, this is only delivered to river-bank settlements.

All of these issues will require greater engagement and accountability from institutional actors. The Khulna Development Authority is responsible for enforcing regulations (which are also monitored by the Khulna City Corporation) to ensure that landlords meet the minimum standards of housing infrastructure, while the presence of active NGOs can also reduce the likelihood of forced evictions. These responses can provide an incentive to low-income residents to invest in their housing, make physical adjustments to their shelter, and sometimes even improve the settlement to better adapt to climatic variability and change.



Case Study 6.4 Figure 2 Household adaptation to climatic changes – modifications to household structure to reduce impacts of climatic events.

The experiences of these residents of Khulna indicate that many activities are already being taken that respond to particular threats. However, while these short-term practices may respond to urgent needs, they will be insufficient in the longer term. Long-term meaningful resilience is not possible without institutional support to households and communities – and this in turn will not happen unless households and

communities have effective ways of influencing the processes of urban governance. Equally, this needs to be supported by national policies that grant responsibility, autonomy, and resources to local authorities to address local and urban development concerns. National, urban, institutional, communal, household, and individual adaptation are therefore all required to achieve meaningful and enduring resilience.

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