BANGLADESH

Planning and Implementation of Post-Sidr Housing Recovery: Practice, Lessons and Future Implications

Recovery Framework Case Study | CONFERENCE VERSION

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ACRONYMS AND ABBREVIATIONS

ADP	Annual Development Plan
BBS	Bangladesh Bureau of Statistics
BDRCS	Bangladesh Red Crescent Society
BIDS	Bangladesh Institute of Development Studies
BoQ	Bill of Quantity
BUET	Bangladesh University of Engineering and Technology
CBO	Community-Based Organization
CGI	Corrugated Galvanized Iron
CSO	Civil Society Organization
DDM	Department of Disaster Management
DEC	Disasters Emergency Committee
DFID	Department for International Development
DMB	Disaster Management Bureau
DRF	Disaster Recovery Framework
ECNEC	Executive Committee of National Economic Council
ESDO	Eco-Social Development Organization
GoB	Government of Bangladesh
GFDRR	Global Facility for Disaster Reduction and Recovery
HFA	Hyogo Framework for Action
HIES	Household Income and Expenditure Survey
IFRC	International Federation of Red Cross and Red Crescent
IMED	Implementation Monitoring and Evaluation Division
IDNDR	International Decade for National Disaster Reduction
LCG	Local Consultative Group
MoDMR	Ministry of Disaster Management and Relief
MoEF	Ministry of Environment and Forests
MoHPW	Ministry of Housing and Public Works
NDMC	National Disaster Management Council
NGOAB	NGO Affairs Bureau of Bangladesh
NHA	National Housing Authority
NHP	National Housing Policy
ODR	Owner-Driven Reconstruction
PIO	Project Implementation Officer
PMO	Prime Minister's Office
SCG	Shelter Coordination Group
SDC	Swiss Development Corporation
SOD	Standing Order on Disasters
SWG	Shelter Working Group
WRC	World Reconstruction Conference

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INTRODUCTION TO THE CASE STUDIES SERIES

The World Bank's Global Facility for Disaster Reduction and Recovery (GFDRR), the United Nations Development Program (UNDP) and the European Union (EU) are working on a guide for developing disaster recovery frameworks (DRF). This guide aims to help governments and partners plan for resilient post disaster recovery while contributing to longer term sustainable development. It is based on practices gleaned from country experiences in disaster recovery around the world. Hence, the development of the DRF Guide entailed the development of country-level case studies as well as thematic case studies on disaster recovery.

These case studies have been designed to collect and analyze information on: i) disaster recovery standards and principles adapted by countries for specific disasters; ii) planning efforts for making such recovery efficient, equitable and resilient; iii) policies, institutions and capacities to implement and monitor disaster recovery; and iv) ways and means for translating the gains of resilient recovery into longer-term risk reduction and resilient development.

Importantly, these case studies aim to learn from, and not evaluate, country reconstruction initiatives. Practices learned from each country's experience will inform the contents of the guide for developing a DRF. Additionally, the case studies examine the planning processes and not the implementation details of recovery experiences. As such, they do not seek to offer a comprehensive account of the post-disaster recovery program, but instead provide details and insight into the decision-making processes for reconstruction policies and programs.

EXECUTIVE SUMMARY

This case study, 'Bangladesh: Planning and Implementation of Post-Sidr Housing Recovery: Practice, Lessons and Future Implications', was conducted in 2014 to document the lessons learned from the housing recovery operation carried out in the wake of Cyclone Sidr that hit Bangladesh in 2007. The cyclone, which caused damage to over a million houses, prompted arguably the largest ever housing recovery in the country's disaster history. In a first, housing was considered an integral component of a principle-led recovery that sought to reach out to the most vulnerable sections of society, as opposed to random repairs and reconstruction of houses in the past. The recovery operation, influenced by an array of national and international agencies and their strategies and approaches, has brought about a visible change in the housing recovery practices of Bangladesh. Thus, the post-Sidr recovery operation offers important lessons for Bangladesh and other countries in shaping effective post-disaster recovery guidelines.

The themes discussed in this report are specific to the post-Sidr housing recovery, namely:

- the institutional mechanisms to implement and manage recovery;
- policies, planning and prioritization for recovery;
- designing, costing and financing recovery; and
- monitoring and evaluation for disaster recovery.

The objectives of this case study are to examine:

- how disaster recovery standards and principles are adopted and applied;
- the methods adopted for planning efficient and resilient recovery;
- the lessons learned on policy, institutions and local capacity; and
- the ways in which recovery is translated into long-term disaster risk reduction and development.

Background of the study

Bangladesh, officially known as the People's Republic of Bangladesh, is a densely populated country that is highly vulnerable to all types of disaster hazards. Since 1970, on a yearly basis, hazards ranging from floods and cyclones to tornadoes and river erosion have been responsible for fully damaging approximately 300,000 houses and partially damaging about 500,000 houses. A conservative estimate of the Government of Bangladesh (GoB, 2011), puts the damage caused by five major disasters since 1998 at around 15 percent of GDP. Collectively, half of this economic damage has been caused in the housing sector. The houses of the poor sustain the maximum disaster losses. It is against this backdrop that the post-Sidr recovery operation needs to be looked at.

On the basis of past assessments made by the government, the Shelter Coordination Group (SCG) and the United Nations Development Programme (UNDP), it was estimated that:

- of the 1.5 million affected households, about 200,000 households (later revised to 300,000) would require external assistance to repair and reconstruct their houses; and
- transitional shelters would have to be arranged for 80 percent of households residing beyond the embankment or raised bank built to prevent flooding (i.e.; households residing between the embankment and river, lake or sea)

One of the dominant features of the Sidr housing recovery operation was the multiple implementation strategies employed by the various agencies. This case study has examined the overall planning as well as a few selected recovery practices in an attempt to catch the distinct features and pluses and minuses of each strategy as well as the larger picture created by them together. The methodology of the study comprises:

- a review of available literature;
- a practice review of four participating agencies:
- United Nations Development Programme (UNDP) – for scale of construction;
- UNDP/ActionAid – for resilient features;
- British Red Cross/Bangladesh Red Crescent Society (BRC/BDRCS) – for potential of lessons from owner-driven construction (ODA); and
- Bangladesh Climate Change Trust Fund, GoB – to understand the influence of Sidr's lessons in recent housing practice;
- a beneficiary sastisfaction survey with 194 households in the severely affected Patuakhali District.

Key findings of the study

The study revealed an interesting mix of findings:

- although Bangladesh has a highly effective disaster response system, its post-disaster recovery of housing has been driven by practice rather than policy in the absence of agreed standards and principles of housing recovery.
- the post-Sidr experience once again underscored a big gap in post-disaster recovery efforts, namely the existing lack of clarity in institutional mechanisms to manage housing recovery:
- post-disaster housing recovery is not clearly mandated to any one agency of the GoB. While the onus of post-disaster recovery in the larger sense is on sectoral ministries under the overall guidance of the National Disaster Management Council (NDMC), headed by the Prime Minister, the roles of different ministries in housing recovery are not spelled out in the country's main legal framework for disaster management and other instruments;
- the problem is further compounded by the fact that the country's draft National Housing Policy (NHP) has no mention of post-disaster housing;
- in the post-Sidr period, the Ministry of Disaster Management and Relief (MoDMR) and its associate departments such as the Disaster Management Bureau (DMB) and the Department of Relief and Rehabilitation (DRR) took the lead in coordinating the housing recovery process;
- at the end of 2007, SCG was activated with IFRC and United Nations Human Settlements Programme (UN-Habitat), led by UNDP; and

- from 2008, in overall terms the monitoring of field performances of shelter strategy was handled by the Shelter Working Group (SWG), under the aegis of the GoB.
- what set the Sidr experience apart from earlier recovery operations from the outset was the vigorous public debate around fundamental concerns such as to:
- set minimum standards for the unit cost of housing seeing that the many agencies involved in the operations were using different unit costs and design for the housing;
- provide housing for the landless on the basis of equity in a context of land scarcity in coastal Bangladesh, varying stances of agencies on the issue, and a general bent toward in situ construction; and
- organise the recovery operation within the framework of climate justice and follow a resilient building practice of build back better.

After this debate, during which comparisons were drawn with the Indian Ocean tsunami recovery operation, SWG, under the aegis of the GoB and UNDP, facilitated a discussion on the importance of maintaining minimum standards for housing, which was endorsed by the GoB. The principle of build back better featured in the overall strategy developed by the GoB.

- a review of the implementation of these minimum standards brings out the fact that it was not such a straightforward task:
  - differing stances of the agencies largely tied up with their source of funding and the diverse construction processes employed by them, from subcontracting to private contractors to direct cash grants to homeowners, created a situation in which these standards were selectively applied; and
  - while agencies receiving funding from UNDP or European Commission (EC) adopted the minimum standards, others with internal/flexible funding were more selective. Considerable time was taken up on the issues of equity, design and in situ construction.
- in addition, there were a number of policy and operational challenges that shaped the planning process:
  - the scale of operations required a substantial local capacity for house construction;
  - there was a need to coordinate the efforts of various actors interested in shelter construction under common principles and standards so as to reduce disparity among the beneficiaries;
  - it was a big task for the GoB and the SWG to mobilize everybody to adopt resilient principles in house construction while ensuring that all affected people received the benefit of recovery;
  - to ensure transitional shelters for everybody affected by Cyclone Sidr was an important priority since the reconstruction of houses could take several years; and
  - to mobilize resources that the most conservative estimates pegged at US$284 million was one of the biggest challenges.
- In overall terms, the recovery operation was effective as it was able to reach the most vulnerable of the affected population. The housing recovery:
- reduced the number of beneficiaries living outside a protected environment by 30 percent, from 37 percent to 7 percent;
- resulted in an all-round improvement in accommodation, comfort and privacy standards apart from protection from inclement weather due to the adoption of resilient building features, making asset protection possible (see table 5.5);

- has resulted in an enhanced social status of roughly half of the beneficiary homeowners, especially the landless, with the clean aesthetic of concrete houses contributing to more positive self-perceptions among many socially marginalized groups; and
- has played a major role in changing perceptions about the role of women in the family.

Lessons of recovery

Once the housing recovery was 'over', it was time to draw lessons from it for future strategies and actions:

- The GoB attempted to consolidate the gains made in knowledge and capacity to strengthen housing recovery in the country. For instance, the Shelter Cluster has been included in Bangladesh's post-disaster coordination mechanism. However, important capacity gaps still remain in the areas of housing design, monitoring mechanism and follow-up in the long term.
- while Bangladesh continues to improve its disaster response system, recovery as a policy measure still remains weak. The GoB has taken a significant step forward by mainstreaming recovery by sectoral ministries. The planning process allows for budget reappropriation, revision of the Annual Development Plan (ADP) as well as new projects and programmes. However, the GoB's internal monitoring and accountability mechanism for post-disaster recovery requires streamlining under a single recovery policy.
- the post-Sidr experience has demonstrated that design and construction processes are largely driven by experts and engineers with limited community involvement. Owner-driven construction, on the other hand, is often perceived to be time consuming and difficult to implement in a deadline-driven situation. Although the use of private contractors is a feasible option, there is a need to strengthen communication between the private sector and humanitarian actors.

The way ahead

The case study offers a set of recommendations each for the GoB and the Shelter Cluster members. The recommendations for the GoB are as follows:

- streamline policy and institutional mechanisms to facilitate post-disaster recovery, especially in the private housing sector;
- strengthen the recovery component of the draft Disaster the Management Policy by placing a greater emphasis on principles, minimum standards, resource allocations and land tenure issues. GoB should also clarify the mandate of various ministries in housing recovery;
- build the capacity of DDM for implementing the GoB's housing recovery programme with an emphasis on the monitoring and evaluation mechanism;
- develop a national recovery monitoring system to monitor the level of recovery at the household level; and
- develop a building code for rural housing taking into account all hazards; and invest on the transfer of resilient technology to the rural population and construction workers.

The recommendations for Shelter Cluster are as follows:

- document and promote owner-driven reconstruction (ODR) as one of the preferred housing recovery approaches; and
- enhance resilient construction practices.

CHAPTER 1: BACKGROUND: CONTEXT OF THE POST-SIDR HOUSING RECOVERY

1.1 INTRODUCTION

Over the past four decades, Bangladesh has been able to significantly reduce its disaster mortality but simultaneously it has witnessed a spurt in disaster losses suffered by the economy. This is mainly due to:

- the increasing frequency and intensity of multiple disasters; and
- economic development combined with a growing population and rapid pace of urbanization.

A conservative estimate puts the annual economic damage caused by five major disasters since 1998 at an average of 2.7 percent per hazard event (GoB, 2011). While an aggregated figure on the GoB's expenditure on post-disaster recovery is not available, it is evident that the costs associated with it have been a major, annually recurring development. This issue poses a challenging problem for public finance and human development experts in Bangladesh. Since the 1970 Bhola cyclone, the GoB has:

- spent at least US$10 billion in disaster related sectors and it would be safe to assume that a considerable proportion of that expenditure would have gone toward post-disaster recovery work (MoEF, 2008); and
- primarily mobilized these resources either through budget re-appropriation, borrowings from International Financial Institutions, bilateral and multilateral aid, and humanitarian support mobilized by aid agencies, local philanthropic organizations and individuals.

While the impact of a disaster seeps into every aspect of life, housing damage directly affects a household's economy and well-being[1]. The cause of housing damage in Bangladesh cannot just be attributed to the overwhelming presence of fragile housing; the overall topography of this densely populated country has a role to play in it too. Bangladesh is vulnerable to all types of hazards:

- on a yearly basis, 20 percent of the landmass is inundated due to flooding; in the case of major floods such as in 1998, two-thirds of the country could get inundated;
- the entire coastal belt of Bangladesh is exposed to cyclones posing an inundation risk of a 1 m high surge;
- only one in every three homes in Bangladesh is made of concrete[2]; the rest, i.e.,70 percent of the houses, are made of non-concrete materials and are significantly weaker in the face of

[1] Housing is used as one of the indicators of well-being by BBS and World Bank, among others

[2] Brick and cement were used in the roof of 26 percent houses, in the walls of 10 percent houses and in the floor of 23 percent of houses respectively in Bangladesh (BBS, 2012).

disasters. Consequently, private housing accounts for a major proportion of the economic loss and damage associated with disasters in Bangladesh. As has been mentioned in the executive summary, in the annual cycle of disasters from 1970 onward, almost 300,000 houses are fully damaged by flood, cyclone, tornado or river erosion every year. A house is the most valuable asset of the poor in Bangladesh. With a rise in the frequency and intensity of disasters brought about by climate change impacts, such damage to housing is also bound to increase.

In 2011, the world witnessed the highest number of disasters ever recorded, "continuing a trend that has seen economic losses triple over the past 30 years," according to the World Bank Global Facility for Disaster Risk Reduction (WB GFDRR). It is in this context that the World Reconstruction Conference of 2011 recommended the development of the DRF Guide. This case study has been undertaken as a supportive input toward its development.

1.2 CONTEXT OF HOUSING IN BANGLADESH

In Bangladesh, like in any other society, a house is more than just a structure with a roof and four walls. It exemplifies the homeowner's social position, cultural identity and economic status. A typical house in a rural area would have to provide adequate accommodation, security, comfort and protection from inclement weather, storage space for assets, and privacy. The rural homestead is a very important part of a homeowner's livelihood as well. Hence, the success of post-disaster housing recovery involves the recovery of its functions too.

Spread of habitations and evolution of housing

The quality of housing is linked to poverty profile and reflects the level of vulnerability. Traditionally, most rural houses are made of natural and primary materials, though the housing patterns and building styles have changed over time in response to changes in socio-economic, climatic and geographic contexts. The initial habitations developed in the south-eastern highlands with a rich forest cover that accorded natural protection from floods, river tides and cyclones. Gradually, the rise in population prompted expansion in areas with agricultural prospects. Eventually, population growth became the single largest factor for the spread of habitations all over Bengal, which remained almost entirely rural until the end of the 17th century (Banglapedia, 2007). One of the significant aspects of rural houses is its multigenerational dimension, with one generation constructing a house and later generations modifying and beautifying it over time (Alam, 2010).

Over the last two decades, a considerable change has come about in housing patterns in Bangladesh. While primary and natural materials such as bamboo, wood, mud, and clay tiles are still widely used in house construction, corrugated galvanized iron (CGI) sheets have gained popularity in recent times as roofing and wall material. In addition, there has been an increase in the number of *pucca* houses as a result of growing formal wage employment and inflow of overseas workers' remittances (Moniruzzaman, undated). Since 2000:

- the proportion of houses with concrete or CGI sheets increased twofold, (World Bank, 2013); and
- A review of Census data from coastal areas indicates that nearly all families with an annual income level of US$ 470 live in *pucca* houses (ibid.).

Vulnerability and local innovations

The structure and location of a house determine its exposure to disaster hazards. While *pucca* houses constructed with reasonable engineering specifications can structurally withstand the average cyclone, they provide no remedy for inundation from storm surges. *Pucca* houses can effectively substitute for cyclone shelters in areas with an inundation depth of less than 1 m (World Bank, 2010). However, a major part of the coastal belt and offshore islands is exposed to tidal surges as high as 3 m that are associated with cyclones.

Table 1.1: Damage of house by cyclone, flood and river erosion during 1970-2007

Year and disaster	Houses damaged	
	Fully	Partially
1970 cyclone	3,350,000	-
1986 flood	196,803	279,212
1988 flood	1,151,189	2,536,408
1988 cyclone	788,715	863,837
1991 cyclone	819,608	882750
1991 flood	340,043	573,446
1993 flood	234,393	615,336
1995 flood	898,7082	2,014,017
1996 flood	218,275	598,818
1997 cyclone	290,320	452,886
1997 flood	113,252	241,147
1998 flood	984,002	2,456,795
1999 flood	138,076	426,695
2000 flood	437,050	309,775
2002 flood	115,511	564,527
2003 flood	109,147	541,988
2004 flood	969,161	3,602,009
2007 flood and cyclone	659,826	1,811,329

Source: DMIC, Ministry of Food and Disaster Management.

Definitions: In the context of disasters a fully damaged house refers to a house damaged to such an extent that it is no longer habitable, while a partially damaged house refers to a house that can be made habitable after repairs (translated from Bangla: DDM, GoB, 2014).

Over the years, aided by local wisdom, people have innovated to make their houses resilient to known hazards and climatic conditions (Alam, 2007). For instance:

- in flood-prone areas, the plinth of the house is raised or the house is built on raised ground to avoid inundation; and light materials are used to build makeshift structures by the poor so that as much material as possible can be moved in the likely event of river erosion.
- on the coastal belt, which is prone to strong winds, cyclones and tidal surges, the plinth is raised and the roofs are made relatively low and somewhat sloped to allow the house flexibility. Trees are planted around the house to break or weaken the force of the wind, with the wood coming in handy for any repairs in the house.

Changing context of disaster safety

However, the disaster safety of a house and its inhabitants is not solely decided by individual construction features; the presence of public safety measures such as protective embankments, green belts and cyclone shelters is very significant. The people of Bangladesh are faced with the reality that most parts of the country's coast are just above sea level where surge heights often exceed 1 m (BUET-BIDS, 1993). Moreover, due to the impacts of climate change, the frequency of cyclones in the months of November and May over the northern part of the Indian Ocean has increased twofold in the past 122 years (Singh et al., 2007). Using the Bay of Bengal in a hydrodynamic model, World Bank estimates suggest that by 2050, the areas of Bangladesh exposed to cyclones are likely to increase by 26 percent, with the affected population touching a staggering 122 percent (World Bank, 2010). This shows that traditional technologies have their limits and may not always work in the context of changing patterns, frequency and intensity of disasters. Besides, people may know about the right kind of housing but not have the financial wherewithal for it. Also, the fact that many people do not possess their own land[3] discourages them from investing in housing. In normal circumstances, rural people employ local carpenters and masons to build their houses.

An analysis of the 2001 Bangladesh Census indicates that households increasingly move to *pucca*[4] houses as their incomes rise:

- the projected increase in per capita incomes by 2050 is expected to alter the mix of housing types in Bangladesh;
- by 2050, rising income levels will enable approximately 98 percent of households to afford a *pucca* house. As a result, most of the housing damage will largely comprise damage to assets within the houses;
- the average *pucca* dwelling in Bangladesh in 2050 is expected to remain at the current size of 400 sq feet in size with 2,000 sq feet of brick wall surface (World Bank,2010).

1.3 OVERVIEW OF CYCLONE SIDR AND ITS IMPACT ON HOUSING

With two extreme weather disasters, 2007 was unique in the disaster history of Bangladesh (Alam, 2008). Widespread flooding in July and August was soon followed by the category-4 Cyclone Sidr in November:

[3] According to BBS census report 2001, number of people living in *kutcha* HH in Bangladesh: 18,772,009. (Population – 90,839,898); number of people living in *Jhupri* HH in Bangladesh: 2,246,126 (Population – 10,087,255); and percentage of landless people in Bangladesh: Don't own land: 44.20%, Own land: 55.80%

[4] *Pucca* refers to houses that are fully made of brick. Semi-*pucca* refers to houses with floors and/or walls made of brick and the rest made of 'tin' (metallic sheet) and/or other hard materials. *Kutcha* refers to houses with earthen floors and roofs and/or walls made of 'tin' (metallic sheet). *Jhupri* refers to houses with earthen floors.

The floods:

- caused 3,363 casualties;
- affected 10 million people in 44 out of 64 districts and reduced crop output by at least 13 percent;
- fully damaged 95,949 houses and partially damaged 856,264 houses; and
- the average cost of damaged houses amounted to BDT39,235 (US$574).
- Even as the flood recovery was underway, the coastal areas were buffeted again by cyclone winds at the speed of 240 km per hour which:
- impacted the lives and livelihoods of 8.7 million people in 30 out of 64 districts; fully damaged 563,877 houses and partially damaged nearly 955,065 houses in 26 districts (GoB, 2008);.
- the most severe damage occurred in the districts of Bagerhat (118,899), followed by Barguna (95,412), Jhalakathi (69,685), Pirojpur (63,896), Patuakhali (53,291) and Barisal (41,470).
- the overall impact on housing was significant, with a loss of 11.5 percent of total housing stock in some districts. A conservative estimate places the value of loss of the total housing stock at US$800 million. (GoB/World Bank assessment).

The initial estimate of damage was US$1.6 billion, of which nearly 50 percent was attributed to the housing sector (GoB, 2007a). The bulk of the damage was borne by semi-*pucca* houses, *kutcha* houses and *jhupris*. In contrast, *pucca* houses, with brick walls and a concrete roof, remained structurally intact. They sustained minimal damage that could be remedied by replastering the walls (World Bank, 2010).

More than 98 percent of the damaged houses were *kutcha*. Of these:

- about 70 percent households had been living in the area for more than 10 years and 45 percent of those households had been living there for generations; and
- approximately 35 percent lived beyond the embankment before Cyclone Sidr (SWG, 2008).
- almost 31 percent of the affected households did not possess homestead land, while another six percent either owned a piece of land without a certificate or had lost the land certificate during the cyclone[5].

The GoB and donor agencies contributed an amount of US$126 million for repairing 622,247 partially damaged houses, of which more than 100,000 houses have been constructed till date. The cost per house ranged from US$730 to US$2,193. House construction has acquired pace and momentum with the participation of more humanitarian actors.

[5] 'Report of the Field Investigation of Shelter Conditions and Need, post-Sidr Shelter Cluster'. Undated. Unnamed.

1.4 APPROACH OF THE CASE STUDY

Since this case study is one of several such thematic studies[6] that have been conducted to inform the formulation of the DRF Guide, it examines the GoB's post-disaster recovery policy, the institutional mechanism, resource mobilization, planning and implementation and, in particular, housing recovery. It focuses on critical lessons, highlights gaps and recommends actions to improve the post-disaster housing recovery policy and practice in the light of the post-Sidr experience.

Why a case study on post-Sidr recovery?

There were several reasons for identifying the post-Sidr housing recovery as a relevant case study for the DRF Guide:

- the disaster as well the housing damage was on a large scale, spread over a large geographical area;
- the damage was assessed at the household level, with its scale and cost reflected in the damage assessment report. The assessment of damage provided the basis for planning and implementing an organized housing recovery effort, guided by a policy framework developed by the GoB. Apart from the government, a number of other stakeholders comprising multilateral agencies, donors, international and national NGOs contributed financial and technical support to the housing recovery programme;
- for the first time ever, housing was taken up on a systematic basis as a component of the recovery programme, as opposed to repair and reconstruction of individual houses supported on a random basis; and
- in addition, the Sidr recovery operation was a major milestone in the disaster history of Bangladesh for it transformed housing recovery from a tradition of 'unorganized effort' to a more 'principle-led recovery'; therefore, it offered important lessons for shaping effective recovery guidelines for Bangladesh and beyond its borders.

The study focuses on four major areas of investigation:

- the standards and principles adopted for shelter recovery;
- the tools and processes adopted for planning shelter recovery, including the efforts, considerations and provisions (if any) for making such recovery efficient, equitable and resilient;
- policies, institutions and capacities put in place to implement and monitor shelter recovery; and
- ways of translating resilient recovery into risk reduction and resilient development in the longer term.

[6] The themes are as follows: Institutional arrangements to implement and manage recovery; policy, planning and prioritization for recovery; designing, costing, and financing recovery; and monitoring and evaluation for disaster recovery.

Methodology of the case study

The methodology of the study has been shaped by the fact that the post-Sidr recovery operation did not did not follow a single planning process. It was shaped by multiple planning approaches led by the GoB, the UN agencies, IFRC/BDRCS as well as national and international NGOs. However, these approaches and practices were linked through the larger context shaped by expectations that the housing recovery should follow a principle of resilience. Accordingly, the case study has covered as many planning approaches as possible to illustrate the overall planning and implementation process through a practice review. Recovery efforts by the community and by philanthropic individuals and organizations have been kept out on purpose.

Overall, the methodology comprises:

- a review of documents and literature of the GoB (e.g.,minutes of NDMC), of the Shelter Cluster (UNDP and IFRC), and other participating agencies in the study;
- interviews of key officials of the GoB, UN agencies, World Bank, and NGOs;
- a practice review of four participating agencies selected on the basis of:
    - scale of construction (UNDP)
    - resilient features (ActionAid and UNDP)
    - the potential of lessons learned from owner-driven construction (BDRCS/BRC); and
    - the influence of Sidr lessons in recent housing practice (GoB's resilient house construction through the Bangladesh Climate Change Trust Fund).
- assessment of beneficiary satisfaction with selected practices by means of qualitative and quantitative methods, examining the:
    - process, including beneficiary participation;
    - level of functional recovery of the houses;
    - design and construction; and
    - use of resilient design features.

Allowing for a similarity in the characteristics of 80 percent of the population in the area under survey, with a 95 percent confidence level with +/- 10 percent error of margin and a design effect of 1.5 percent and 5 percent non-response, the sample size was determined at 194 beneficiary homeowners. The survey was conducted in Patuakhali, one of 15 districts seriously affected by Cyclone Sidr. Readers are advised to consider the findings accurate for the selected district as well as indicative of overall recovery. The standard concept of housing and recovery applied was based on the author's earlier work that had taken into account the recovery of both the structure and function of the house. This was reflected in the satisfaction survey as well.

1.5 STRUCTURE OF THE REPORT

The report is divided into six chapters:

- Chapter 1 provides an introduction to the report, the context of housing in Bangladesh, especially its vulnerability to disasters, a brief overview of Cyclone Sidr, followed by a brief description of the approach adopted by the study.
- Chapter 2 discusses the overall existing policy and institutional mechanism for post-disaster recovery as well as in the specific context of post- Sidr housing recovery.
- Chapter 3 takes a close look at the planning of the recovery operation.
- Chapter 4 presents the findings of the implementation.
- Chapter 5 presents the beneficiaries' reflections on the operation, which provided an opportunity to reappraise the Sidr recovery effort after a gap of eight years.
- Chapter 6 lists out the core lessons learned and a set of recommendations to improve the planning and implementation of housing recovery after a major disaster.

CHAPTER 2: POLICY AND INSTITUTIONS FOR POST-DISASTER RECOVERY

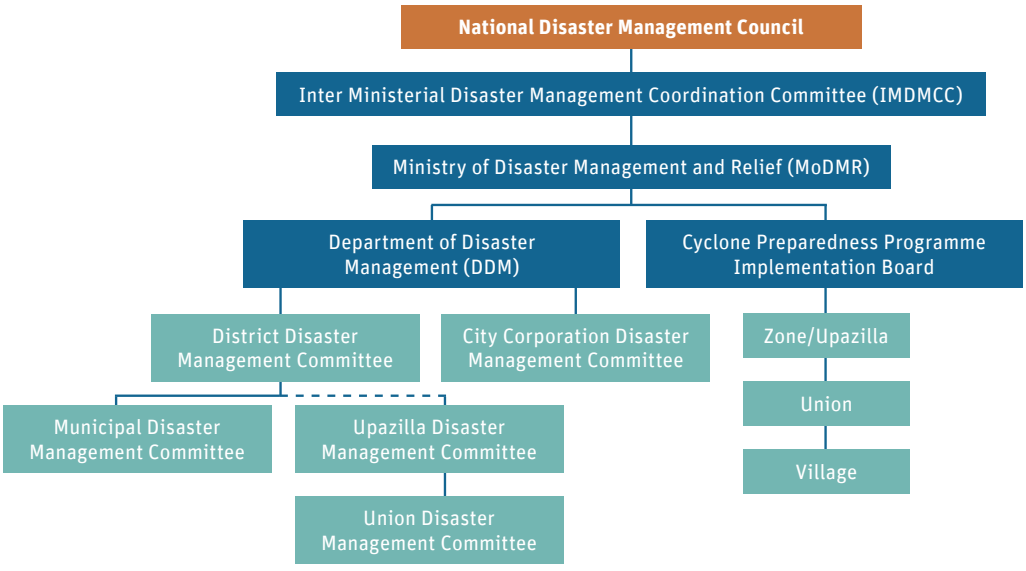
This chapter describes the general policy and institutional mechanism for post-disaster recovery in Bangladesh. Placing the key aspects of housing recovery within a historical perspective, it details the institutional mechanism that was put in place to plan and implement the post-Sidr housing recovery.

2.1 DISASTER MANAGEMENT POLICY AND INSTITUTIONAL MECHANISM

Bangladesh is globally known for its highly effective and well-developed disaster response system and practice. However, seeing the frequency of disasters, it cannot afford to disassociate disaster preparedness from its development planning. Hence, over a period of time, the country has developed a policy, procedure, guidelines and an institutional mechanism for responding to disasters:

- NDMC, headed by the Prime Minister, is the apex body that provides strategic guidance in all aspects of disaster management;
- MoDMR is the key agency that formulates policy, oversees its implementation and coordinates the disaster response efforts that the 29 sectoral ministries are expected to undertake. Figure 2.1 describes the existing institutional structure of disaster management in Bangladesh.

Figure 2.1: Disaster management institutions in Bangladesh



Following the floods and cyclones of 2007, Bangladesh has intensified its efforts to tackle the issue of disasters in the context of climate change impacts:

- the Disaster Management Act, 2012, outlining the country's legal framework for disaster management, is a milestone in this regard;
- the Bangladesh Climate Change Strategy and Action Plan, 2009, has been formulated, too;
- a number of funding mechanisms have been created to support the effort of Bangladesh to become a disaster-resilient country; and
- the Sixth Five-Year Plan of Bangladesh (2011-2015) has outlined a roadmap that sees disasters as an opportunity for sustainable development and as one of the most important means to achieve a middle-income status by the end of 2021,which marks the fiftieth anniversary of the country's independence.

2.2 HISTORICAL OVERVIEW OF POST-DISASTER HOUSING RECOVERY

The evolution of post-disaster housing recovery in Bangladesh has been shaped by a number of interconnected trends:

- in the post-independence years, self-effort was the dominant mode of recovery along with limited and unorganized institutional support. For example, after the devastating Cyclone Bhola of 1970 that killed 500,000 people, 83 percent of the houses were reconstructed by the affected communities on their own, with outside assistance accounting for only 17 percent of it (Chisholm, 1999);
- the role of humanitarian actors grew in the wake of the 1988 flood and the devastating cyclone of 1991. On its part the GoB strengthened its institutional mechanism by establishing a separate Ministry for Disaster Management clarifying the roles of sectoral ministries through a Standing Order on Disaster Management and by setting up an institutional mechanism for disaster management at the district and local government level.
- throughout the International Decade for Natural Disaster Reduction (IDNDR) from 1990 onward, there was a greater degree of investment in disaster preparedness by the GoB, knowledge sharing at the international level and involvement of international actors in disaster management.
- while there was considerable improvement in post-disaster response and preparedness, national policies and practices in respect to housing recovery lagged behind. However, a combination of circumstances such as the Indian Ocean tsunami in December 2004, the adoption of the *Hyogo Framework of Action (HFA), 2005*, as well as Bangladesh's own GDP growth, led to an increase in government spending on post-disaster recovery. The number of national and international humanitarian actors was also on the rise during this period, resulting in a pluralistic institutional environment for post-disaster planning and implementation.
- although considerable ground had been covered in terms of recovery efforts, they still remained *ad hoc* and limited for want of agreed standards and principles. Until 2007, the primary mode of government response to disasters remained at the level of providing cash support and distributing CGI sheets. MoDMR essayed the primary role of providing support for shelter construction in the wake of disasters; and
- while 2007 has proved to be a watershed year in terms of sparking reflection on the various aspects of post-disaster recovery, the question of housing recovery still remains an area with limited clarity in the existing institutional mandate.

Post-disaster housing and institutional mandate

Until 2007, the GoB's post-disaster recovery efforts were based on the assumption that if the recovery of public infrastructure was ensured, it would enable households to recover as well. However, researchers have pointed out that it is necessary to examine such assumptions to comprehend the impact of mega investment on recovery (Bake, 2005). For inexplicable reasons, post-disaster private housing recovery never received adequate attention from the 1970s to the 1990s. Lending agencies such as World Bank and Asian Development Bank continued to provide post-disaster support to critical infrastructure, ignoring housing recovery in the project document without providing any rationale for doing so (Bake, 2005). Similarly, NGOs support to housing recovery during the floods of 1988 and 1998 and the cyclone of 1991 were fraught with issues of problematic targeting, geographical overlapping, lack of coordination, wide cost variations and non-participatory and inappropriate design (Bake, 2005).

The Ministry of Housing and Public Works and the National Housing Authority are the lead agencies that guide housing in Bangladesh. In 2008, the government took the significant step of formulating a draft National Housing Policy based on an earlier draft formulated in 1993. The policy recognized housing as a fundamental human right and articulated the goal of housing for all citizens in Bangladesh based on the principle of equity. It included a major component related to land, housing technology and financing but did not extend to disaster management and resilient technology. The focus of the Ministry of Housing and Public Works and the National Housing Authority was on developing and allocating land, mostly in urban areas, to middle-income groups and low-income groups.

The GoB has initiated several housing programmes for the poor and landless too. Among them are:

- the Cluster Village approach through which the Ministry of Land constructs houses for the landless on *khash* land under the 'Agriculture Khash Land Management/Settlement Policy' of 1997;
- the Asrayan programme, run by the Prime Minister's Office, for the landless; and
- a housing loan programme for the poor initiated by Bangladesh Bank, the central bank of the country.

However, this institutional support is far from adequate to cope with the demands of 3.5 million residential structures to be built in rural areas (Murtaza, undated). Only five percent of those structures have been constructed with institutional support.

Then again, while the National Building Code provides guidelines on how to build earthquake-resistant houses in urban areas, it does not cover post-disaster reconstruction. The lack of such policy provisions have resulted in an absence of clear principles and processes through which homeowners affected by disasters can find a designated place in recovery efforts. Therefore, the degree and nature of the homeowner's role in post-disaster recovery is still dependent on the inclination of the recovery agencies.

2.3 POLICY AND INSTITUTIONAL CONTEXT OF POST-DISASTER RECOVERY

Until 2007, post-disaster recovery was the responsibility of the sectoral ministries. The GoB developed an institutional culture and practice of designing and undertaking recovery operations in sectors such as agriculture, infrastructure, water resources, food security and studying the implications of disasters for macro-economic indicators. Till 2005, some of the major recover efforts included provision of credit and agricultural inputs such as seeds and fertilizers to farmers by the Ministry of Agriculture, support for water infrastructure by the Local Government Engineering Department.

In the absence of a separate recovery policy, post-disaster recovery has largely been driven by practice. It has remained a fragmented policy measure with an unclear institutional mandate. After a disaster:

- response is coordinated and managed by DDM;
- the Standing Order on Disasters provides the main operational guidelines that set out the roles and responsibilities of all the ministries, departments, local government organizations and other actors, including UN agencies and NGOs spanning the entire spectrum of disaster management;
- through the Disaster Management Act, 2012, the GoB has adopted a broad definition of recovery that covers private and public infrastructure, economy, livelihood and psychosocial aspects of a disaster on affected people. The Disaster Management Act proposes two disaster management funds, at the national and district level respectively, to support disaster response and recovery;
- Although post-disaster housing recovery, including its financing, requires a clearer definition, it is increasingly being recognized that post-disaster housing recovery in Bangladesh needs to involve more than one ministry by spanning sectors such as housing and public works, land, embankments and the green belt.
- Each ministry might not have a dedicated budget for recovery but:
  - The GoB has a provision to keep a block fund of BDT100 crore annually for the ministries to undertake any relief and recovery operations;
  - generally, the ministries access an additional budget either by reappropriation, revising their ADP or undertaking new projects to support the recovery. The budget revision is placed before Parliament for accountability and undergoes an approval process through the National Planning Ministry. The Auditor General's Office is responsible for monitoring compliance and performance of the projects implemented by the ministries and for tabling its report before the Parliamentary Standing Committee on Disaster Management;
- immediately before Cyclone Sidr, the Disaster Emergency Response Group worked as a platform for planning and implementation of response and recovery by national and international humanitarian actors. It was linked to the Local Consultative Group[7], which is a formal forum for aid coordination comprising GoB and its development partners.

2.4 POST-SIDR HOUSING RECOVERY MECHANISM

The post-Sidr mechanism for planning and implementation of housing recovery was not markedly different from previous occasions. The Ministry of Disaster Management remained the mandated agency to coordinate overall response and recovery in addition to its specific practice-driven mandate for housing. An additional dimension of the mechanism was its international character, which was shaped by the following key factors:

- **the rise of international humanitarian actors**: In the absence of a policy and standards for housing recovery, the non-GoB humanitarian actors enjoyed reasonable freedom to decide what approach to adopt;
- **an argument for international equity**: Media and Civil Society Organizations (CSOs) argued that humanitarian agencies and donors should maintain a unit cost in housing comparable to the one used during the post-2004 Tsunami recovery in the region;

[7] The LCG comprises 32 Bangladesh-based representatives of bilateral and multilateral donors of the BDF with the Secretary, Economic Relations Division (ERD), representing the government. In May 2000, the LCG structure was reviewed by a high-level donor panel and an LCG Executive Committee was created to jointly steer the Group. The members of the Executive Committee are selected by the full LCG on a rotating basis. The current members are ADB, the Netherlands, Norway, USAID, UN and World Bank.

- **demand for resilience**: There was significant public pressure, particularly from CSOs and media, to employ cyclone-resistant housing design. The risk reduction factor in recovery had never been the focus of so much public attention in the past;
- **concern for landless people**: The robust public demand that housing recovery should include building houses for landless families living on the embankments gradually got sidelined. Within a few months of the disaster, the GoB imposed a ban on building houses on the embankment without allocating land to them, which created a big dilemma for humanitarian agencies.
- **a national-international coordination mechanism**: UN Humanitarian Reforms, which came into existence a year before Cyclone Sidr, were relatively unknown to the GoB and other humanitarian actors. The global humanitarian reforms introduced the cluster system which began to evolve in Bangladesh.

In the wake of Cyclone Sidr:

- the Ministry of Disaster Management and its associate departments, i.e., DMB and the Department of Relief and Rehabilitation, remained the lead agencies for coordinating the housing recovery process;
- a Disaster Management Control Cell was created to coordinate international response;
- at the end of 2007, SCG was activated under the leadership of IFRC and UN-Habitat. The group was involved in initial rapid needs assessment, designing guidelines and strategy for transitional shelter and highlighting the gaps in funding for shelter recovery. (Davidson, 2008). Later in 2008, SCG handed over the reins to UNDP. The GoB, with representation from DMB, co-chaired SCG, which eventually became the locus of the post-Sidr housing recovery;
- a major outcome of the SCG was the facilitation of an energetic debate on the development of minimum standards for housing which was endorsed by the government. However, as many agencies were engaged in housing construction with many different standards of unit cost, the government (a military- backed caretaker government at the time) perceived significant political risk arising from houses built to inadequate resilience standards.

UNDP and international NGOs also had sizeable housing plans but all of them did not necessarily follow the minimum standards and process, choosing to adopt diverse approaches instead.

Three factors can explain the reason behind their adoption of different approaches:

- varying positions of the agencies over the issue of housing for landless people. A few agencies, notably ActionAid and BRC, decided to support landless people. They mobilized the community to secure *khash* land from the government;
- the ability of the agencies was influenced by the type and source of funding they received. Agencies that received funding from UNDP or European Commission adopted minimum standards. But agencies that used their own internal funds or received flexible funding (such as from the Disasters Emergency Committee) could adopt a flexible approach; and
- due to the absence of an agreed process for construction, the agencies used processes ranging from complete sub-contracting (to private constructors) to a direct cash grant to homeowners for reconstruction.

CHAPTER 3: PLANNING PROCESS OF POST-SIDR RECOVERY

This chapter throws light on the planning process of the post-Sidr housing recovery programme, from needs assessment to the formulation of principles, standards and strategies. The objective is to see how these aspects influenced the approach of the GoB and other humanitarian actors toward housing recovery.

3.1 NEEDS ASSESSMENT AND PLANNING

The GoB's primary basis for post-Sidr damage and needs assessment was the D-form, a simple multi-sectoral information collection format that is part of the Standing Order on Disasters. The information about fully and partially damaged houses is usually collected by local disaster management committees and is aggregated at various levels of administration.

Apart from the D-form, three more post-Sidr needs assessment initiatives were undertaken by:

- Early Recovery Cluster together with SWG;
- GoB and UNDP jointly to specify needs for shelter assistance; and
- GoB with support from World Bank and European Commission.

All these assessments were able to estimate the number of cases of self-recovery in shelter and of home-owners requiring additional external support. These assessments followed standard damage and needs assessment methodologies. The Shelter Cluster, together with DMB, undertook a number of studies to monitor the gaps in shelter construction.

The post-Sidr needs assessment highlighted a number of lessons:

- the D-form is an efficient method of gathering quick information but it can allow biases to creep in due to the lack of an agreed definition of full and partial damage to houses. DDM has already taken the initiative to clarify these definitions.
- the methodology applied to determine self-recovery requires further validation of its underlying assumptions; and
- assessments tend to get influenced by the likely extent of resource mobilization and in this case it resulted in a smaller figure of unit cost.

Debate on the principles of planning

It was perhaps for the first time that the planning process itself became the centre of a significant public discourse constructed around the following questions:

- what principles should inform the planning process;
- what kind of design should be adopted for the houses; and
- how to address the issues of housing for the landless based on the principle of equity, even as the entire recovery operation was focused on in situ construction.

This public debate continued for a considerable length of time which is not unusual for disasters of this magnitude where the resources are limited but the ground to be covered is vast. Issues that needed to be thoroughly discussed were foreground.

The entire planning was influenced by a number of policy and operational challenges:

- the scale of operations was such that it required a substantial amount of local capacity for house construction;
- the coordination of various actors under commonly accepted principles and standards so as to reduce disparity among the beneficiaries;
- it was a huge task for the GoB and developing partners to mobilize everybody to adopt resilient principles in house construction while simultaneously ensuring that all affected people received the benefit of the recovery. This dilemma marked the entire recovery operation and continues to shape post-Sidr policy and planning;
- there was a need to ensure transitional shelter for everybody affected by house damage based on the assumption that house reconstruction might take several years;
- the final challenge was to mobilize resources based on the costing of BDT20,000 for a fully damaged house and BDT10,000 for a partially damaged house (GoB, 2007a); and
- the total estimated figure based on the above calculations came to approximately US$284 million, which was not an easy task.

The important public debate preceding the planning and the magnitude of the challenges ahead shaped four planning approaches:

- GoB-led cash grant support for house repairs with select construction material;
- Shelter Cluster-led design of the core shelter implemented largely by UNDP and other members;
- bilateral support primarily from the governments of India and Saudi Arabia that fell outside the agreed principles of the Shelter Cluster and followed through the policies of the respective governments; and
- NGOs-led construction influenced by the minimum commitments required for participation in clusters under the Shelter Cluster Approach, the policy stance of each NGO and the amount of resources they were able to generate; and
- eventually, when it came to planning strategies, the need for transitional shelter was overlooked as most resources were directed toward permanent housing.

3.2 OVERALL PLANNING STRATEGY

In February 2008, the Ministry of Food and Disaster Management, with the assistance of UNDP, formulated a strategy for intervention on Cyclone Sidr. Although the strategy changed direction over the course of the recovery operation, it remained an important reference point for all recovery efforts. The strategy was based on prior damage, loss and needs assessments, strategic frameworks developed by the SCG as well as the evolving discourse among humanitarian actors. The strategy included housing and all other sectors.

At the heart of the strategy was the build back better principle cutting across all sectors and sub-sectors. For the housing strategy, a number of assumptions were arrived at based on past assessments conducted by the GoB and by SCG as well as by the Early Recovery Cluster together with the SWG:

- of the 1.5 million affected households, an estimated 66 percent households with fully damaged houses and 83 percent households with partially damaged houses would not require any external assistance to repair their houses;
- an estimated 200,000 households (later revised to roughly 300,000 households) would require external assistance;
- transitional shelters would be needed for 80 percent of the households residing beyond the embankment. The GoB and NGOs had already provided a considerable amount of support for transitional shelter.

The follow-up on these assessments was as follows:

- cash support of BDT10,000 and BDT5,000 for housing repairs was provided by the GoB to all affected households (totalling US$27 million);
- other shelter materials such as CGI sheets, tents, plastic sheets and toolboxes were provided by the GoB, NGOs, IFRC and the governments of Japan and Saudi Arabia;

Box 3.1: Overall strategies for recovery

The short-term and mid-to-long-term strategies for recovery are as follows:

- The resources and competencies of the BMD should be assessed and strengthened, where necessary, to ensure timely and accurate warnings and produced and delivered.
- The current warning and alerting system of BMD should be reviewed to ensure that communities can better understand the level of actual risk they face and the actions they must take to protect themselves and their livelihoods. This should be complimented by an expansive education and awareness programme.
- A new national cyclone shelter strategy should be established with designs based on an all-hazard risk assessment with specific emphasis on gender needs and safety of livestock factored in. Consideration should also be given to the construction of single community-based shelters to compliment larger shelters that are designed to accommodate a broad range of communities. Such shelters should also have provision for storing immediate relief needs.
- A national Contingency Plan for major crisis events should be developed. This plan should detail policy and arrangements for matters such as overall coordination, dissemination of warnings, evacuation management, search and rescue, relief management, including damage assessment, information management, government/donor and NGO coordination and rehabilitation planning.
- Contingency plans for each district should be developed to bring greater efficiency to response management operations. This plan should consider the issues outlined in the national plan and provide greater emphasis to the establishment of a district relief management system that may include the establishment of pre-positioned supplies of relief materials.
- Reconstruction of damaged infrastructure, including embankments, should be undertaken following a full risk assessment to establish...why the damage occurred and, more specifically, how it could have been avoided. Climate change has added new risk dimensions to cyclone, storm surge and flood threats and therefore simply replacing damaged infrastructure will not prevent future damage or even deaths.
- Strategies should be implemented as a matter of urgency to restore the livelihood of affected families.

Source: GoB, 2007

- the actual coverage of transitional shelters was not assessed to get a better understanding of further needs, despite a growing concern about negotiating the monsoon till such time as permanent houses were built; and
- one of the assumptions, that scaling up Bangladesh Bank's microfinance and housing programme would be able to cover a major recovery need, did not hold true as 58 percent of the surveyed households declined to take any loan for house repair (SCG, undated).

Box 3.2: Ten guiding principles of housing recovery

1) Employ a disaster-resilient construction practice to reduce multiple risks and impact. Make a core unit that is disaster resilient and amenable to further extensions;
2) Empower homeowners to enable them to develop their own housing recovery strategy;
3) Focus on the most affected and vulnerable groups of people to ensure non-discrimination;
4) Ensure efficient coordination for equity in distribution of housing support;
5) To achieve speedy and efficient construction, invest in improvement of local technology, utilize local materials and engage local entrepreneurs;
6) Coordinate planning among various departments such as water, health, cyclone shelter, livelihood and community infrastructure for a synergetic impact;
7) Promote and practice transparency and accountability, with an added emphasis on telling people about their rights, sharing information about the timetable for construction, source of funds, and engage the community in monitoring and evaluation;
8) Work toward decentralization in planning, implementation, monitoring and technical assistance, bringing the entire process as close as possible to the affected people;
9) Bring a gender perspective to planning, implementation, monitoring and technical assistance; and
10) Have an integrated strategy to support landless people as well as people living beyond the embankment through the GoB's commitment to providing *khash* land.

3.3 EMERGING DEBATE ON STANDARDS AND PRINCIPLES

As mentioned earlier, one aspect which distinguished the post-Sidr recovery operation from all others preceding it was the public debate regarding the principles on which the housing recovery was to be grounded. It is important to follow the thread of the debate as it emerged out of the condition in which the affected people found themselves.

While the post-Sidr recovery operation was underway, there was an alert about cyclones Reshmi and Nargis forming in the Bay of Bengal. As people braced themselves for yet another possible disaster, Cyclone Nargis passed Bangladesh by and inflicted major damage in Myanmar. The situation of anxiety that had been created sparked a nationwide debate in Bangladesh about finding a resilient solution to housing recovery in the context of a growing concern about climate change impacts. The media, too, highlighted facts about the unit cost decided upon during the 2004 Indian Ocean tsunami recovery and posed questions about the relatively low level of resources allocated to post-Sidr housing recovery by the GoB and humanitarian actors. On their part, CSOs campaigned for the Sidr recovery operation to be compensated by industrialized nations within the climate justice framework. This intensified the efforts of the GoB and the SCG to formulate minimum standards and a set of principles for housing recovery, including resilient shelter design.

Challenges on the way

The attempt to find common ground on design standards and models of housing recovery took considerable time and consultation for a number of reasons:

- prior to Cyclone Sidr, Bangladesh did not have national design standards, only a building code for the construction of concrete buildings in urban areas;
- until early 2008, due to uncertainties of resource mobilization for housing recovery, the SWG members led by IFRC at that stage, found it difficult to agree on minimum standards and designs that could be universally followed. On the other hand, humanitarian agencies, which had already generated their own resources and also had distinct positions on recovery, applied their own set of standards;
- with the build back better principle at the core of their intervention strategies, the GoB and the SWG intensified their efforts to evolve a house design based on the proposal of the engineering department of the Ministry of Disaster Management. This design, honed at a workshop conducted by the SWG in Barisal on housing and the use of timber, led to a set of guiding principles, minimum standards and a model house that was validated during several technical consultations held in Dhaka. The principle of core shelter was included in the GoB's strategy and was communicated in 2008 to Deputy Commissioners heading the district administrations for implementation;
- in practice, implementing the minimum standards and the model did not prove to be such a straightforward task for the GoB and the agencies, given the major dilemma between the huge unmet need for shelter and the high unit cost for resilient housing. Some of the donors, too, did not agree with the standards. Eventually, a number of construction practices emerged out of this exercise with some features of resilient design. In 2012, the SWG documented some of these practices (Rumana 2010), which are presented in the following table.

Table 3.1: House recovery approach of SWG members

Implementing Agency	Source of Fund	Unit Cost	Design Features
ACF through local partner NGOs. In-house design by experienced engineer.	ECHO, FAM France, and ACF	BDT 29,000	Structure: 14 sqm. Timber frame with cement stump, with T-footing for foundation. Timber-framed pitch roof with CI sheet Resilient feature: against high winds and floods to 915hh 70 sessions.
ActionAid through local partner NGOs, implemented by construction firms. Designed by external architects.	DEC, Mariah Foundation, AGIRE, SCP	BDT 240,000	Structure: RCC frame structure with brick wall. Reinforced flat roof. Resilient feature: against wind and surge.
BRAC Self-Implementation and design by BRAC University.	DFID, Oxfam Novib	BDT 47,000	Structure: T-footing cement pillar with timber posts and frame. Timber framed hip roof with CI sheet. Resilient Feature: information n/a.
CARE Bangladesh In-house design.	DEC, USAID	BDT 105,000	Structure: 180 sq ft/two rooms. Cement pillars with footing and timber post and frame structure with bamboo wall. Roof steel truss with CI sheet. Resilient feature: rain water harvesting and other features unknown.
Concern Worldwide Bangladesh	DEC, ECHO, Irish Aid, CESVI, GLANbia and public donation	BDT 28,942, BDT 27,058 and BDT 36,647	Structure: 168.75 sq ft, 131.62 sq ft & 195 sq ft RCC pillars with footing and timber post with bamboo mat wall. Steel truss with CI sheet. Resilient feature: information n/a.
UNDP	DFID and UN	BDT 72,000 and BDT 100,000	Structure: 150 sq ft and 225 sq ft Concrete pillar with bamboo mat wall and wooden truss (in Phase I), and reinforced brick Masonry with wooden mezzanine floor and metal roof truss (Phase II). Resilient feature: information n/a.
Muslim Aid	Muslim Aid Headquarters and Channel S London (core shelter), ECHO and Individual donation from UK (Transitional Shelter)	BDT 1,00,000 (core shelter)	Structure: 320 sq ft (core shelter). Brick masonry structure with scope for further extension, CI sheet with timber roof truss. Plinth, CI sheet with timber roof truss. Resilient feature: information n/a.
BDRCS	60 different donors	BDT 110,000	Structure: RCC pillars and grade beam, with bracing/roofing wooden truss. Wood beams for support of eventual mezzanine. CGI sheet fencing. Bracing and roofing wooden truss with CGI sheets. Truss design to allow maximum living space for eventual mezzanine use. (for BDRCS/BRC design)

3.4 APPLICATION OF STANDARDS AND PRINCIPLES

For the purpose of the case study it is important to examine the manner in which the design standards and principles of recovery were applied by various agencies in their projects.

UNDP: The principle of core shelter

UNDP developed the design of the houses in two phases:

- in the first phase, a consultant was hired to design a transitional shelter with non-concrete materials;
- in the second phase, a core shelter idea was conceptualised on the basis of three principles:
  - durability, which meant the use of concrete;
  - resilience to cyclonic wind; and
  - suitability for the most vulnerable households.

Box 3.3: Idea of core shelter

Among SCG member agencies, the idea of a small house built with strong cyclone-resistant materials to which the homeowner can make additions suited to personal needs such as storage spaces, verandas and extra rooms, has gained popularity. This progressive approach to shelter provision ensures that it acts as a step toward strong, cyclone and flood-resistant housing that would reduce a household's vulnerability to future storms. However, while selecting building materials, it would be important to take into account the aspect of salinity that is one of the persistent risk factors in the area.

The core shelter design is based on the idea of constructing a small house with strong cyclone-proof materials to which homeowners can make additions as they want. This design assumes that if people have one portion in the house that is cyclone proof, they would be more willing to go to the nearby cyclone shelter knowing that their assets are well-protected. This unwillingness of many people to go to the cyclone shelters, leaving behind their hard-earned assets, is a serious concern. The other assumption on which this design is based is its amenability to being extended over a period of time by its homeowner.

The core shelter unit was designed as a one-room house with one door. Considering the scarcity of available land and resource constraints, among others, the minimum house size was 100 sq ft (9.2 sq m). The unit cost in Phase I of the recovery operation was BDT72,000 and in Phase II, the unit cost of the core shelter was BDT104,000.

In Phase I, concrete pillars with a bamboo mat wall and wooden truss were used. In Phase II, brick masonry with a wooden mezzanine floor and metal roof truss were used. The resilience of the core shelter was tested in a simulation exercise at BRAC University in Dhaka.

Box 3.4: Building the capacity of homeowners

Post-disaster recovery can be an opportunity for development if there is a transfer of resilient technology to the local population. Although such an opportunity was not part of the overall post-Sidr recovery effort, it merits prioritization in future recovery efforts. The owner-driven approach of BDRCS/BRC offers some valuable lessons in this regard.

The humanitarian agencies involved the owners in the effort from the word go by organizing them into groups of 30-35 even before the actual reconstruction project started. Then the owners negotiated with the local administration to gain access to *khash* land, eventually securing a substantial area. Once this was done, the owners could negotiate with the agencies about their housing preference at the designing stage and beyond.

The involvement of the people in the process from its inception had a positive impact on the overall housing construction process. The lessons drawn from the project suggest that the quality of community mobilization had in fact increased both the pace and quality of reconstruction. The agencies, which had started the construction work, soon realized that one of the ways of maintaining the deadline was to involve the homeowners in the reconstruction process. This also helped in building a sense of ownership in them which continued even beyond the actual construction of the house. For example, people who worked with BDRCS/BRC, succeeded in securing an access road by lobbying with the local administration. At present they are involved in efforts to get electricity connections. Some of them even staged a protest at the administrative office when a dispute arose over a piece of land allocated to them. Moreover, BDRCS/BRC also trained a group of local carpenters and homeowners on features of resilient building technology that they had developed.

BDRCS/BRC: Strengths of owner-driven reconstruction

The design principle of this joint effort by BDRCS/BRC, influenced by their work during the 2004 tsunami in India, was transferred to Bangladesh through a staff deployment. The focus of BRC was on:

- transitional shelters;
- relocation of landless people to *khash* land; and
- construction of houses with resilient features.

Housing recovery was complemented with livelihood support and water and sanitation facilities. About 34 temporary communal latrines were built on Kuakata embankment as part of a transitional shelter strategy and 995 households received monsoon shelter kits; A total of 926 landless households received support for permanent houses in 35 relocation sites across four villages with joint (male/female) land titles (Armitage, 2010).

The third objective of BRC was a mix of agency-led ODR with added resilient features The process of designing involved the development of three prototypes in consultation with the homeowners from which one design was finally chosen. The house structure:

- is based on a combination of reinforced concrete pillars with a timber frame and timber trusses. The roof and walls are made of high quality CGI sheets. The structure was developed using good practice techniques for high wind conditions such as wind bracing, hurricane straps and J-hooks to connect the CGI sheets. The house, with four windows and one door that can be locked, could last between 10-20 years if it is maintained (Armitage, 2010).
- has been made more wind-resistant by decreasing the height of the house and simultaneously increasing the size of the rooms (from 128 sq ft to 242 sq ft). At the suggestion of the community, some changes were made in the use of some angles as well to prevent the roof from being blown away, which could cause severe injury during high speed winds.

GoB and ActionAid: Concrete design for a resilient house

The model of the GoB was an in-house product designed by the engineers of Department of Relief and Rehabilitation in the Ministry of Disaster Management. ActionAid hired an external engineering firm to design their house models. Both proceeded on a line of thought that reduced coverage could be justified if it was simultaneously accompanied with increased investment in concrete houses resistant to both wind and surge.

Lessons from the use of post-Sidr standards and principles

The GoB and its humanitarian partner agencies were faced with a challenge of balancing the needs of large numbers of affected people requiring housing support against the constraints of inadequate resources for recovery on the principle of build back better. While existing knowledge on performance-based evidence pertaining to resilient construction was limited (Rumana, 2010), the principle of build back better, derived from the Hyogo Framework for Action, 2005, shows how a national recovery practice can be influenced by an international idea.

The donor coordination did not work well to support the GoB and the SWG in determining a single approach for housing recovery, with each donor allocating different unit costs for their recipient organizations. The monitoring of principles and standards was inadequate due to the donors' limited communication with the local administration. The homeowners, too, were not made fully aware about the principles and standards and the lack of an empowering strategy prevented them from being able to negotiate with the agencies.

3.5 RESOURCE MOBILIZATION

The strategy formulated by the GoB set the value per completely damaged *kutcha* house at BDT 10,000 and the value per semi-*pucca* house at BDT 100,000. It initially estimated that a total amount of US$120 million would be required, based on the allocation of BDT10,000 per *kutcha* house and BDT 25,000 per semi-*pucca* house. The idea of building a cyclone-resistant house at BDT100,000 per house was considered in the strategy but seeing the uncertainty of funds, it was not explored further. Hence, the idea of build back better was adopted in the strategy as a principle rather than as an operational approach, keeping in view the many competing priorities.

A GoB-World Bank joint needs assessment conducted later put the housing sector loss and damage at US$845 million, of which only US$126 million could be mobilized till 2010 (Rumana, 2010).

However, multiple sources for resources do exist in the country for recovery efforts. In fact internal resources, located within the budgets of various ministries, have been the primary source of recovery in recent years. Other major sources for recovery include bilateral funding through development corporations, multilateral funding through UN agencies and international institutions and philanthropic private funding through NGOs. The growth of private wealth in Bangladesh is an important source of funding for recovery as well.

The GoB did not launch any appeal for international assistance in 2007. The government that led the post-Sidr efforts was a caretaker government. In response to the GoB's welcoming of external resources and the profile of the disaster, a huge sum of financial resources was channelled for recovery. In all:

- The GoB and donor agencies contributed an amount of US$156 million for repairing a little more than 600,000 partially damaged houses;
- as per the information of NGO Affairs Bureau (NGOAB, 2009), there were only 19 housing projects among the 120 foreign-funded disaster related projects that were approved by it in 2006-2007, but after Cyclone Sidr as many as 73 out of 89 reconstruction related projects were housing projects; and
- as many as 78 humanitarian agencies, national and international, were involved in post-Sidr housing.

CHAPTER 4: IMPLEMENTATION APPROACHES

This section presents an overview of the major challenges and dilemmas faced during the implementation of the approaches adopted by various agencies. The challenges were with regard to land issues, house construction and programme monitoring by the GoB and other implementing agencies.

4.1 MAJOR OPERATIONAL CHALLENGES AND DILEMMAS

The impact of Cyclone Sidr affected half the coastal belt of Bangladesh. Apart from the scale of damage, there were several other major operational challenges that affected the construction process of all agencies:

- the scattered nature of affected settlements coupled with a heavily damaged communication infrastructure slowed down the construction work and increased costs in the process;
- the construction capacity of local NGOs, private contractors and the local administration was far too limited to keep up with the required pace of construction deadlines;
- there was a lack of skilled labour to undertake the massive operation and maintain quality;
- given the limited resources and lack of donor coordination, most agencies were in a dilemma over deciding the extent of cutback on coverage to accommodate minimum standards and the build back better principle; and
- landless people were the most affected by Sidr, but their needs hung in balance as there were no clear policy measures for obtaining land for them for house construction.

4.2 ISSUES OF THE LANDLESS

Any disaster such as Sidr highlights and heightens the problems faced by the landless even in normal times. Consider these facts:

- over half of the total number of households in Bangladesh are landless, while roughly 6 percent households own 40 percent of the total land (HIES, 2010);
- in normal times, landless people build their houses 'informally' on the embankment (as a rule they are not allowed to stay there permanently), on *khash* land or on the land of others by paying rent or by encroaching; and
- landless people who live beyond the embankment are directly in the way of a cyclone, tide or surge.

These problems influenced the post-Sidr housing recovery strategy and its implementation to a great extent. The issue of land was identified as a major challenge for housing recovery by the GoB and the SWG

from the very outset. In fact, the SWG was constituted from a technical working group led by UN-Habitat and later by Oxfam, to advocate the housing needs of the landless and persuade the government to find a solution. Bangladesh has a *khash* land distribution system under the Board of Land Administration. Under a revised Policy for Distribution and Administration of Non-Agricultural Khash Land in 1995, the authority to distribute *khash* land was delegated to the district and subdistrict level of administration. However, there is no provision for distribution of *khash* land for housing.

During the post-Sidr recovery operation:

- the GoB, with support from the government of Japan, provided shelter materials and cash grants for the repair of houses that were already located on *khash* land. But there was a big gap between needs and the support provided; and
- as it became clearer that allocating land for house reconstruction involved a complex process, most agencies decided to build in situ, which sparked a major debate about providing recovery support to landless people.

Even so, some agencies gave priority to the issue of building houses for landless people, among them BDRCS/BRC and ActionAid. While all these agencies engaged the local administration to access *khash* land for construction, each employed a distinct approach to do so. For instance, BDRCS/BRC:

- identified land with the help of landless people and the concerned local government and then mobilized the people to occupy that land overnight;
- the agencies' engagement with local government helped in securing 23 acres of *khash* land for 762 households quite speedily once they had allayed the anxieties of the host communities that were initially reluctant to let in new migrants, fearing additional pressure on their resources and services. Land for the rest of the 164 households was secured by donation from the local elite and relatives of households with title documents; and
- until the end of the construction period, BDRCS/BRC secured land registration for 225 households. Another 123 household got their registration papers after two years of the project due to the convoluted official process. A total of 348 households out of the 762 households who had been given land were able to secure land registration papers.

The efforts of other agencies such as ActionAid and UNDP followed a different trajectory from the very beginning:

- ActionAid showed concrete house designs as an incentive to the local administration to identify and provide land to the landless. It also took recourse to the services of a land expert to comprehend the complexity of land tenure systems; and
- agencies like UNDP were not able to construct many houses due to the land tenure problem.

Once the recovery operation was over, agencies did not follow up with legal support. Securing land registration remained an issue, and many of the households interviewed by the study team complained about the financial expenses they had to bear to secure land registration. In the absence of legal follow-up by the agencies, the homeowners were exposed to the dynamics of the local vote-bank politics where land registration was promised in return for votes in favour of one or other political figure. One of the most important lessons of Sidr is the possibility of exploring multi-storeyed buildings as a construction approach in the context of land tenure issues as well as the increasing scarcity of agricultural land for housing.

4.3 CONSTRUCTION APPROACH

The construction process was adopted by GoB as one of the core empowering principles encouraging the use of local materials and entrepreneurs. However, the agencies implemented this principle in their own ways based on their:

- capacity;
- internal assessment of the community they worked with;
- land issues;
- adopted design; and
- timeline as decided by the donors.

The use of private contractors and supplies was common to all agencies, including the GoB. BDRCS/BRC adopted a slightly different approach of ODR in which the homeowners played an important role in the construction.

UNDP: Making a bid for resilience

The construction work was divided into two phases:

- in the first phase, which was devoted to building transitional shelters, the open bid was limited to 26 local NGOs that UNDP and the World Food Programme had jointly selected in 2004;
- in the second phase, which involved the construction of the core shelter, UNDP's international open bid failed on account of the high unit costs, given the available resources. Later, the core shelter construction was retendered to the same 26 NGOs who had been involved in the building of transitional shelters. Although the unit cost remained the same, the bids were awarded to those who offered the minimum operational cost and management fees.

There were several constraints within which the construction progressed:

- since many of the selected NGOs were not from the coastal belt, they lacked knowledge of the terrain and experienced logistical difficulties in getting materials transported to discrete sites;
- due to the monsoon season and two more cyclones, the construction process got delayed because of which contractors had to be hired even from areas that had not been affected by Sidr so that work could be hastened; and
- although homeowners contributed to the construction process in various ways, they did not have any influence over the contractor in the district which was a part of the case study.

GoB: From basic structure to a complete house

The GoB's construction, too, followed two phases:

- in the first phase, only the basic structure comprising concrete pillars, floor and roofing was constructed.
- in the second phase, the walls, windows and doors were constructed. The original plan had been to hand over the basic structure of the house to the homeowners for them to put in the rest. However, due to poverty, very few homeowners were in a position to construct those features. After receiving considerable censure for its approach at the national and international level, the GoB commenced the second phase of work to construct the walls, windows and doors at a cost of BDT 63,000 per unit.

As standard procedure, the GoB followed the Public Procurement Rules, 2008, that demanded an open bidding process for the selection of contractors. Further:

- the GoB set up a Project Implementation Committee comprising staff from the Upazila administration and local government officials from the affected villages to select beneficiaries, oversee the construction and maintain technical specifications;
- like UNDP, GoB's contractors, too, experienced problems in transporting material to discrete construction sites, with the harsh weather increasing their difficulties;
- in the case district, contractors compromised on the quality of the construction to cover those unforeseen costs;
- political influence also had a role to play in the selection of beneficiaries; and
- the community's role remained limited as the contractors were not keen to listen to them in the first phase. However, the satisfaction survey suggests that the contractors in the second phase were more responsive to the homeowners' requirements, which resulted in a change in the placement of the door and windows as per the requirements of the beneficiaries.

ActionAid: attempting a new approach

Because it had generated funding from different sources, ActionAid, like other NGOs, selected a national contractor through an open bidding process. Thereafter:

- the organization formed a purchase committee and a monitoring committee comprising female members of the household. The purchase committee oversaw the quality of construction materials. However, these committees could not play a very meaningful role because they had little influence over the constructor and the monitoring staff of ActionAid.

BDRCS/BRC: Houses that owners build

BDRCS/BRC adopted a mixed method of ODR and agency-driven construction:

- the national supplier was selected through an open bid for supply of core materials such as timber and CGI sheets;
- local masons were hired to make RCC pillars, while a group of local carpenters was hired to assemble the houses. Later the bid for wood was awarded to two local contractors as well;
- homeowners took part in the construction and were compensated for their work, which generated some income for them;
- BDRCS/BRC trained the local carpenters on resilient technology and the homeowners on ways to monitor the quality of materials and construction;

Although, this process caused initial delays and resulted in the wastage of some materials, the homeowners were happy and confident about being able to build their houses, reported the BDRCS/BRC project manager. Further, each homeowner received a toolbox for any future repairs in the house. Because of the training they had received from BDRCS/BRC, the community often challenged the quality of the wood supplied by the contractors. According to a rough estimate, only 60 percent of the money circulated in the local economy though the projects gave rise to new shops in neighbouring areas (Alam, 2008).

Lessons from the construction and contracting process

The construction process employed by the various agencies during the recovery operation highlighted several important concerns:

- it became clear that the effectiveness of recovery operation on a scale such as this hinged a great deal on the role of the private contractor. Yet, as the post-Sidr experience showed, the role of the contractor itself is dependent on several crucial factors:
    - in this case, the contractors were not familiar with participatory approaches and their contract did not specify ways of accommodating the preferences of homeowners, which can vary from one to another;
    - the contractors went through major difficulties during construction because they were not used to working on private housing on such a large scale. Consequently, their costing proposals did not factor in local realities. There was often a lack of materials in the local market, while the cost of having them transported over a long distance was very expensive. Moreover, the labour cost, too, was high. The upshot of it was that many of the contractors compromised on the quality of construction to make a profit.
- mobilizing skilled carpenters and masons also proved to be a big challenge for the private contractors and NGOs. ESDO mobilized a large number of artisans from other parts of the country;
- the approach adopted by BDRCS/BRC can offer a possible solution whereby local artisans can be trained to construct houses.
- it would help immensely if commissioning agencies were to help private contractors to come up with realistic proposals, based on needs assessment and a Bill of Quantity providing an estimate of the materials required so that the quality of the construction is not compromised. Local contractors have been found to be useful as they are able to handle the local political dynamics.

A number of lessons can be drawn from the experiences of the homeowners involved in the construction process as well:

- households with fewer family members or with members unable to work due to age, disability, health disorders or unable to take make time from their livelihood activities were not able to physically engage in the reconstruction process;
- the project of BDRCS/BRC showed that a community-based approach actually reduces the construction time;
- as homeowners get assistance for material at a fixed rate, it is essential for them to monitor market prices;
- since the staff of BDRCS/BRC had no previous experience of implementing a housing programme, an overall operational plan was developed for them by their organizations, specifying the facilitating role they were required to adopt toward the homeowners:
    - posters describing the role of the homeowner in the project were also printed and disseminated for the benefit of the staff;
    - pictorial guidelines were drawn up for the homeowners showing how to check the quality of timber being supplied by the contractors; and
    - a sign-board was put up with instructions on how to construct concrete pillars.

4.4 MONITORING AND EVALUATING APPROACHES

A monitoring system was proposed by the GoB in 2008 outlining the "assessment of input/outcome indicators derived from the programme, immediate and mid-term goals and objectives to ensure effective assessment of progress and providing timely feedback for...changes...in the course of implementation due to unforeseen changes in the socio-economic context, as well as programme strategy..." The basis of assessment was:

- sustainability of an intervention;
- implementation of the programme strategy;
- results of the strategy; and
- reports and analysis of the findings.

Since the post-Sidr housing recovery practice did not follow a single strategy and plan, it prompted three types of monitoring and evaluation strategies:

- overall monitoring by the SWG
- the respective agency's own monitoring system to fulfil its requirements of accountability; and
- oversight by the local government and administration.

In overall terms, the SWG, under the aegis of GoB, periodically assessed the field performance of the shelter strategy. A number of studies were commissioned to understand the conditions of the transitional shelter strategy, land tenure issues and gaps in housing recovery. The SWG also maintained a 3 W (who is doing what and where) to monitor gaps apart from relying on NGOs and technical working groups on shelter to get an idea of the situation. Beyond that the agencies had their specific monitoring strategies as indicated below.

UNDP: From in-house monitoring to third party evaluation

UNDP adopted two complementary approaches of in-house monitoring and third party evaluation designed with the support of the Swiss Development Cooperation (SDC). Their strategies were as follows:

- the monitors would be based close to the working location (maybe at the Upazila level) to save travel time;
- available local transport would be used during field visits in places where it was not possible for a car or minibus to reach;
- the target would be to monitor the construction of core family shelter in all the identified districts, ensuring a 100 percent coverage;
- the monitors would be provided all the back-up required from the Field Team Office and the Dhaka office to enable them to give their best;
- joint monitoring visits by the GoB officials and the donor (DFID) would be organized with support from the monitoring team;
- in addition, an independent monitoring team would be asked to review the progress of work as third party.

To operationalize the strategy, UNDP adopted a number of approaches:

- first, they deployed their own staff in the district to monitor the progress and quality of construction;
- second, they deployed a construction-consulting firm for third party monitoring;
- in addition, UNDP also organized joint monitoring visits by GoB officials and UNDP staff. Each district had an engineer from UNDP, Bangladesh, to supervise and monitor the progress; and
- a value-for-money study was also conducted by UNDP to understand the impact of its housing approach.

GoB: four levels of evaluation

The GoB has its own set rules and procedures for monitoring ADPs, programmes and projects. In general, monetary evaluation occurs at four levels in the GoB:

- ADPs and associated projects and programmes are monitored by the Implementation Monitoring and Evaluation Division, housed within the Ministry of Planning;
- the ministries undertaking a particular programme and project are primarily responsible for project monitoring;
- the local administration monitors the progress and quality of the project within its administrative boundaries; and
- for parliamentary oversight, the Auditor General's Office conducts an audit of the Sample Project and Performance Audit that was introduced in recent times.

Projects such as post-Sidr housing followed the monitoring procedure of the Ministry of Disaster Management:

- within DDM, there is a cell for monitoring and evaluation which conducts pre-project monitoring to check the efficiency and costing of project design; and
- work on periodic progress reviews, evaluating the progress made against the format developed for the project in question.

For the housing project:

- the Project Implementation Officer, with the help of the Public Health Engineering Department, conducted monitoring visits to all the project sites filling the details required in a form, attaching photographs of each house, all of which were later submitted to DDM;
- the Monitoring and Evaluation Department cross-checked the sample number of houses, which is generally pegged at 10 percent. Due to limited capacity and staff, DDM assigned its entire staff of 11 to monitor all the projects in one geographic unit. Here, too, as in the case of UNDP, the engineering specifications were monitored the most, not the process for its participative elements.

BRC: Staff and homeowners as monitors

The monitoring approach of BDRCS/BRC included:

- monitoring by its staff as well as the homeowners. The staff was assigned to monitor different aspects of the construction, including land registration. It was easier for BDRCS/BRC to closely monitor this aspect due to their owner-driven approach and on account of being based in close proximity to the construction site;

- their monitoring was focused on quality and timeliness. The staff was assigned to monitor different aspects of construction, including the quality of materials;
- a group of homeowners was trained by BDRCS/BRC to monitor the quality of construction and materials; and
- an impact assessment of their construction was conducted by BRC.

ActionAid: Faith in field visits

In this case, there was no monitoring framework put in place. Regular field visits were the main monitoring mechanism for ActionAid. However, they deployed two engineers to monitor the technical specification of the construction.

Lessons learned from monitoring and evaluation

The implementation of an overall and agency-wise monitoring strategy offers a number of key lessons for similar interventions in future:

- there was a lack of robust set of indicators, dedicated resources and management strategy to monitor the overall recovery. Although studies commissioned by the SWG and 3 W mapping provided important information about gaps in shelter recovery, they did not cover the social aspects of the recovery. There was a clear lack of monitoring in the overall construction process;
- there was no follow-up in the long term to understand whether the functions of the houses were recovered and what happened to the people who did not receive housing support. Most agencies suffered from a weak follow-up mechanism in the long term;
- lack of follow-up was a general weakness overall. For example, the major assumptions related to self-recovery on which the strategy for external assistance was formulated, was never reassessed, which was a major mistake in this author's eyes. Such reassessment could have played an important role in informing future shelter recovery strategy;
- due to a lack of financial resources, it was a challenge for the SWG to continue the monitoring process beyond the 'end' of the recovery operation. The early recovery framework for transitional shelters had proposed the inclusion of CBOs and Union Parishad, the administrative unit at the lowest level, in monitoring activities but, in reality, the compulsion to match the speed of construction to donor deadlines did not give the agencies enough room to implement this strategy;
- UNDP staff involved in monitoring activities were of the view that there was more focus on the engineering specifications not being followed rather than on evaluating the extent and quality of participation of homeowners in the construction process. Further, while the findings of the monitoring team were shared with the implementing NGOs, the results were not systematically documented for reference; and
- BDRCS/BRC were the only agency to adopt the strategy of monitoring by the community and homeowners. This strategy holds promise for future application.

CHAPTER 5: FEEDBACK OF HOMEOWNERS: SOME REFLECTIONS

This chapter presents the reflections of beneficiaries on the post-Sidr housing recovery programme. The information was gathered through a structured survey covering all the participating agencies. The survey asked some basic questions:

- who benefited from the housing programme;
- how satisfied were the beneficiaries with the construction process and its outcome;
- what were the results of the various resilience approaches adopted by the agencies; and
- what was the level of recovery of the various functions of the house?

5.1 WHO BENEFITED FROM THE HOUSING RECOVERY?

The overall response that emerged from the survey in Patuakhali District was that the disaster recovery had succeeded in reaching out to the most vulnerable sections from among the population that was affected by the disaster:

- allowing for some variation from one agency to another, female-headed households comprised nearly 9 percent of the surveyed population;
- the average beneficiary household size is close to the national average of five persons per household;
- the main livelihoods of the households included in the survey are as follows:
  - daily wage labour (40 percent);
  - fishing activities (17 percent);
  - small business (12 percent);
  - agriculture (9 percent);
  - rickshaw pulling (7 percent); and
  - government service (3 percent)
- the houses of almost 90 percent of the homeowners had suffered complete damage. Of those:
  - about 50 percent houses had been built on the land of others or on the embankment;
  - about 33 percent had houses on *khash* land;

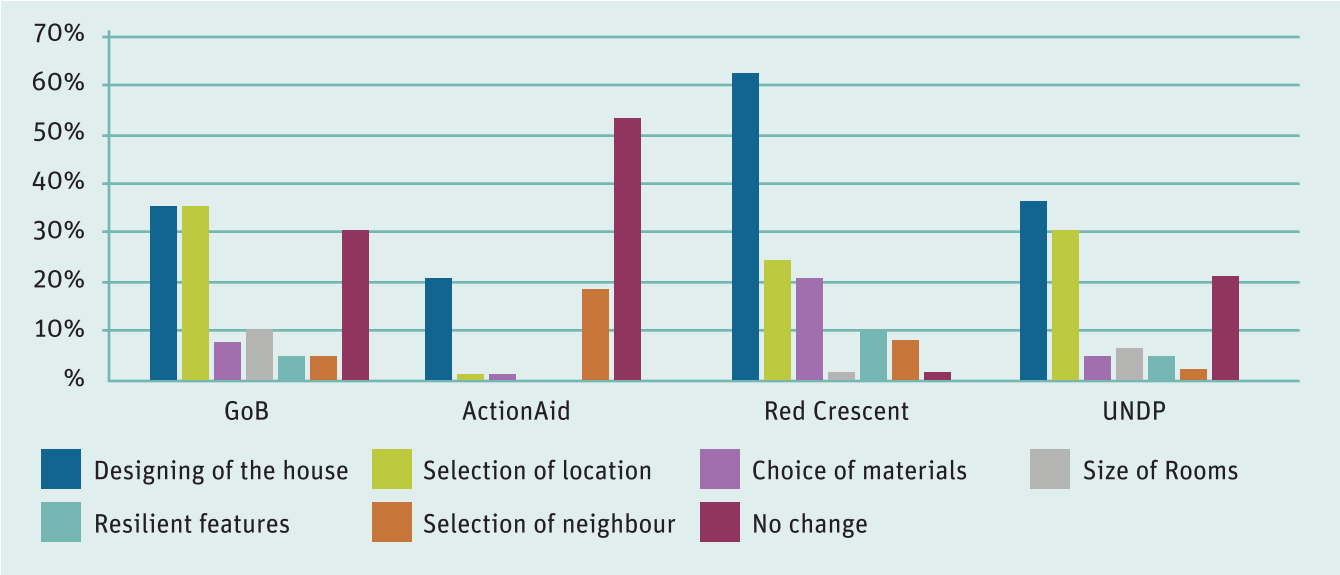
- all the beneficiaries of BDRCS/BRC were landless; and
- due to their adopted construction policy, the GoB and UNDP favoured in situ construction, which comprised 60 percent of the construction work of all agencies.

5.2 BENEFICIARY SELECTION AND PARTICIPATION IN CONSTRUCTION

Almost half of the households had been selected by agency staff. Close to 95 percent of the homeowners were not known to the agencies before Cyclone Sidr. These households were of the view that they had been selected through government agencies or army and political connections. Around 6 percent of homeowners had offered a financial inducement to be included among the beneficiaries, which highlighted a degree of fiduciary risk in the recovery process in Bangladesh.

More than 50 percent of the homeowners participated in the construction process to some extent or other (the rest felt that they were not required to play any role in it) and succeeded in bringing about changes in the house design and construction process as enumerated in Figure 5.1.

Figure 5.1: Influence of homeowners over the construction process



The homeowners contributed to the construction in various ways:

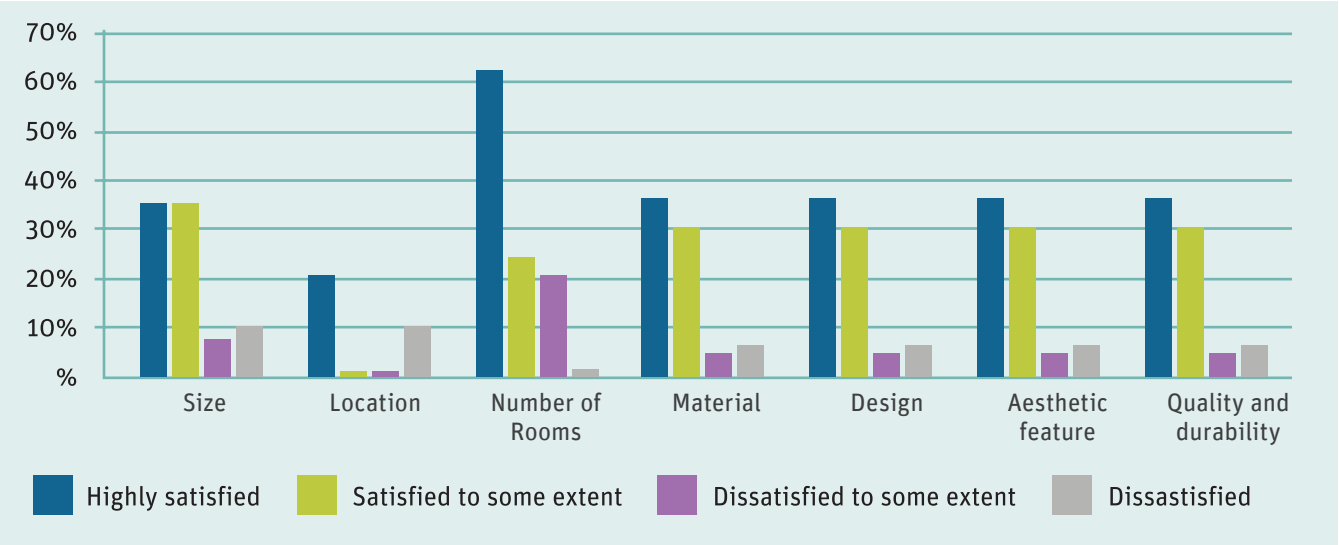
- transportation of bricks (22 percent);
- preparing the foundation (50 percent); and
- curing concrete (31 percent).

However, these contributions were not always voluntary in nature. At times the homeowners were prevailed upon to do so by the contractors engaged by the agencies.

5.3 A MEASURE OF SATISFACTION

Over 90 percent of the homeowners live in the newly constructed houses. More than 20 percent of the homeowners pronounced themselves highly satisfied and 60 percent said they were satisfied to some extent with the house size, location, number of rooms, materials used, design, aesthetic features, quality and durability (Figure 5.2).

Figure 5.2: Overall Satisfaction about the constructed house

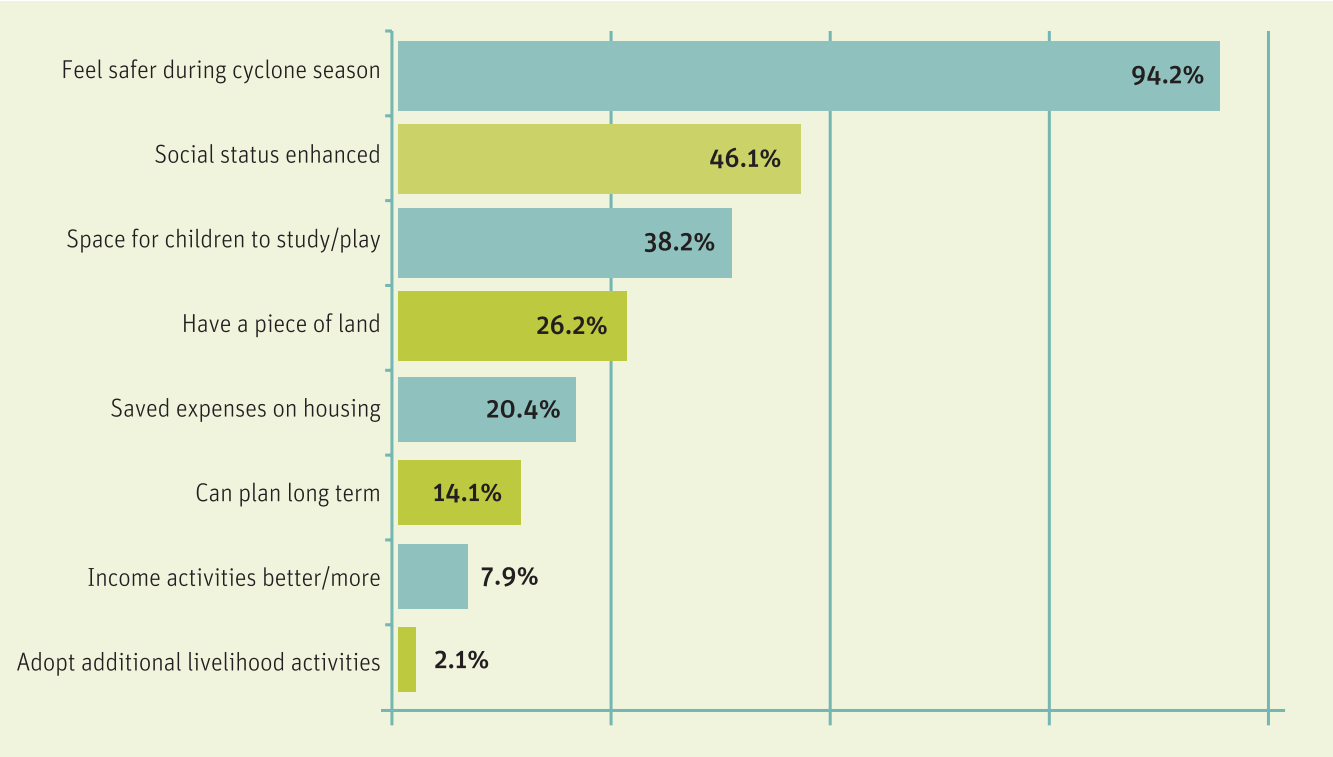


A wide variety of reasons were cited for the their satisfaction. Among them were:

- a perception of safety from disaster;
- elevation in social status;
- acquired ownership over land; and
- enhancement of ability to plan a long-term livelihood (Figure 5.3).

However, some among the homeowners were not fully satisfied with the housing recovery. Among the reasons they mentioned was distance from the workplace and legal issues related to land tenure (the latter relating to the projects of ActionAid and BDRCS/BRC).

Figure 5.3: Reasons for satisfaction

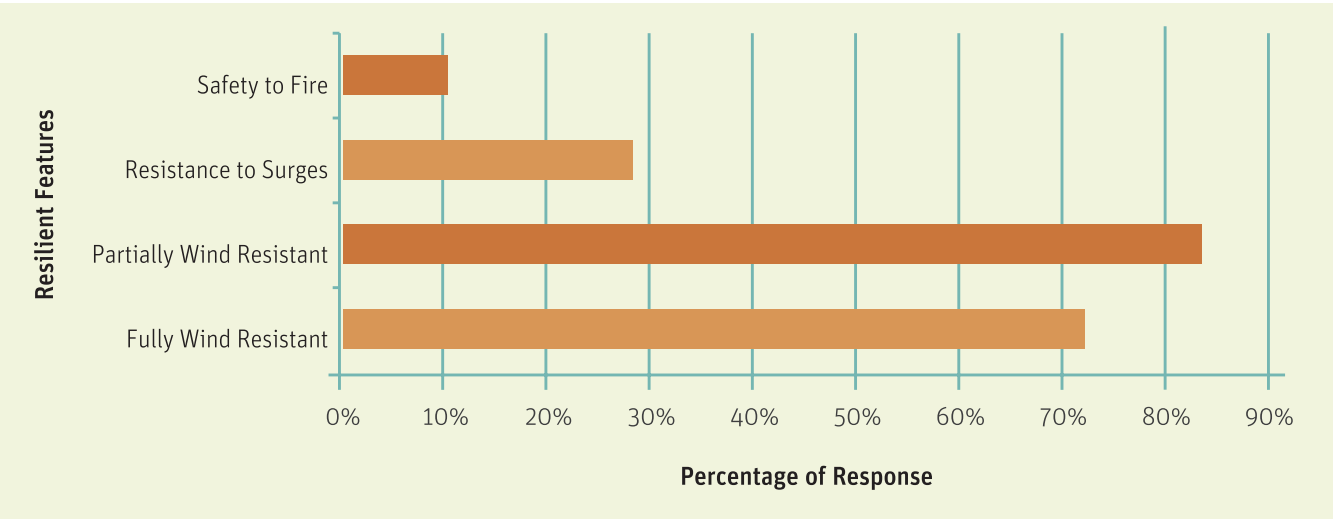


5.4 EXTENT OF RESILIENCE

Incorporating resilient features was one of the key policies of the post-Sidr housing recovery:

- the percentage of targeted beneficiaries living outside a protected environment was brought down from 37 percent to 7 percent, which marked a considerable success for the recovery operation;
- after the houses were handed over to the homeowners, almost 70 percent of them experienced one or more disaster events that caused partial damage to 27 percent of the houses; and
- close to 90 percent of the homeowners perceived a greater degree of safety before the onset of the cyclone season than they used to on earlier occasions.

Figure 5.4: Opinion of the homeowners about resilience features



5.5 FROM DISASTER TO DEVELOPMENT

The findings of the survey reaffirm the view that adopting the principle of build back better during recovery can not only better the social position of vulnerable sections but also make a house more functionally effective. Table 5.5 highlights the responses of the homeowners to the considerable improvements made in the core functions of the house, i.e., with regard to accommodation, comfort, protection from climate-related hazards, asset protection and privacy.

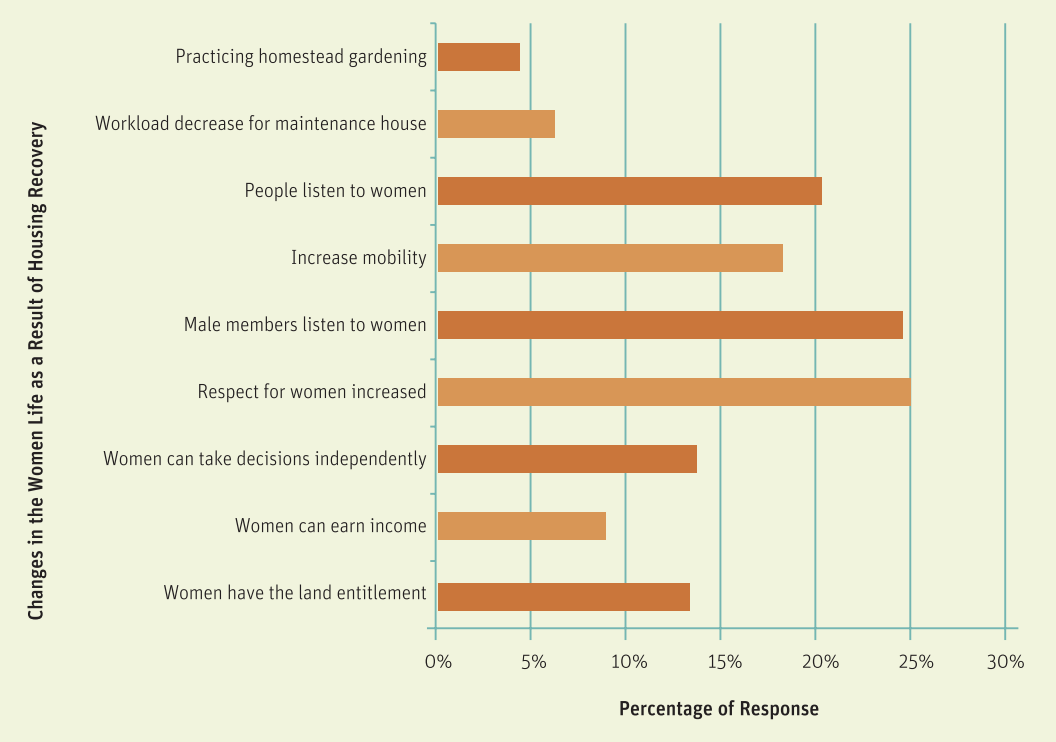
Table 5.5: Level of rehabilitation of the utilities provided by post- disaster housing

Functions of the House	Functions provided by Pre-disaster House				Functions provided by Post-Disaster Houses			
	Utility not provided	Very Satisfied	Satisfied to some extent	Not satisfied	Utility not provided	Very Satisfied	Satisfied to some extent	Not satisfied
Accommodation		3.7%	22.5%	73.8%		58.1%	32.5%	9.4%
Comfort		5.2%	38.7%	56.0%		65.4%	20.4%	14.1%
Protection from harsh weather	.5%	.5%	26.7%	72.3%	.5%	67.5%	26.7%	5.2%
Wind protection	.5%	.5%	23.6%	75.4%	.5%	74.3%	20.4%	4.7%
Surge protection			20.4%	79.6%		63.9%	28.8%	7.3%
Protection from theft		1.0%	29.3%	69.6%		61.8%	29.8%	8.4%
Storage of assets		7.3%	25.1%	67.5%		58.1%	28.3%	13.6%
Privacy		3.7%	31.9%	64.4%		55.5%	33.5%	11.0%
Income	30.4%	2.6%	29.3%	37.7%	30.9%	26.2%	38.2%	4.7%

The impact of the overall recovery has been significant:

- it has resulted in an increase in social status of roughly half of the homeowners. The case study reflects that this is more so among the landless as land is considered a symbol of social status in Bangladesh;
- on a larger scale too, the social status associated with the clean aesthetic of concrete housing has contributed to enhancing the self-perception and dignity of people from socially marginalized sections of society; and
- the recovery operation has played a major role in changing societal perceptions about the role of women in the family. Such changes were attributed to the inclusion of women's names in land titles in the case of female-headed households or along with their husbands.

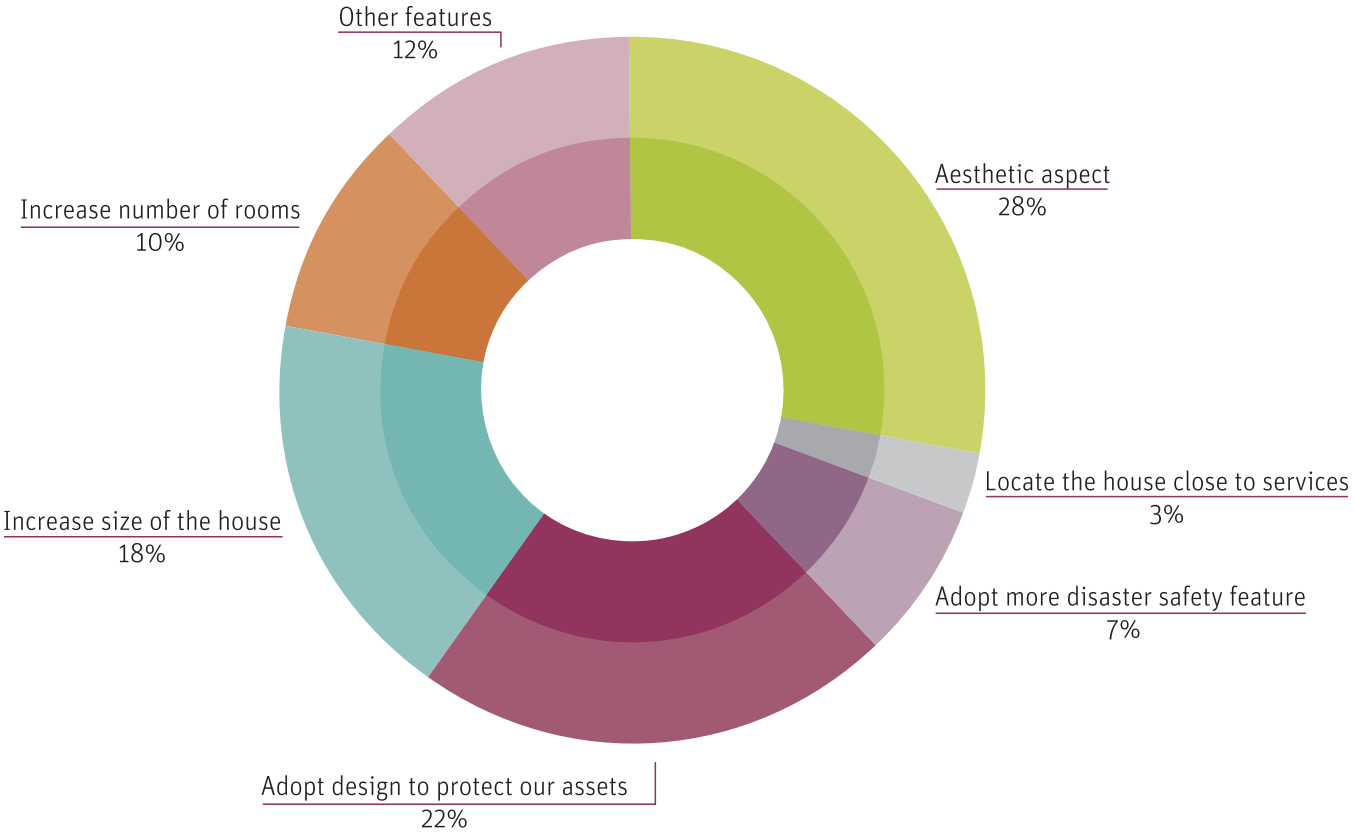
Figure 5.6: How shelter recovery changed perceptions about the status and role of women in society



During the survey, people were asked to enumerate the features most important for them in post-disaster housing design and construction. These features were:

- aesthetics (28 percent);
- protection of assets (22 percent);
- size of the house (18 percent); and
- larger number of rooms (10 percent).

Figure 5.7: Preferences in housing design and construction



CHAPTER 6: LEGACY OF CYCLONE SIDR

This chapter highlights a set of key lessons from the post-Sidr housing recovery planning and implementation and further illustrates the ways in which the lessons learned are evident in the changed housing landscape of 2014. Simultaneously, the chapter highlights some of the major gaps in housing recovery that need to be kept in mind while shaping future policies and institutional mechanisms for recovery in general and shelter recovery in particular. However, these lessons allude to only half the picture because they do not refer to the contexts of other main hazards that Bangladesh is prone to, among them floods, tornadoes and earthquakes.

6.1 MAJOR LESSONS FROM THE SIDR RECOVERY OPERATION

As on earlier occasions of post-disaster recovery, Cyclone Sidr, too, revealed the workings of the local political economy and prevailing social issues in a heightened manner. These concerns that heavily influenced the housing recovery operation did not receive adequate consideration in the strategy of the GoB and the SWG members during the planning phase. The post-Sidr experience offers vital lessons on issues such as the kind of institutional framework, policies and prioritization required for implementing and managing housing recovery in all its dimensions:

- the land issue was the most critical challenge from a moral and operational standpoint but it defied a straightforward solution, given the extent of land scarcity in coastal Bangladesh as also the shrinking availability of agricultural land. The Ministry of Land and Housing needs to explore ways of utilization of *khash* lands so that landless sections, too, are able to access the benefits of housing recovery;
- the chances of fiduciary risk are high in any post-disaster housing recovery, be it in the process of beneficiary selection, compromising on the quality of construction or leaning toward the local elite. The view of this study is that the agencies did not have a robust mechanism to mitigate such risk;
- the current trend of falling foreign assistance as a proportion of the GDP will influence the development trajectory of Bangladesh. While the extent of future humanitarian aid to Bangladesh is uncertain, the GoB's own resources are most likely to be the major source of post-disaster recovery financing, including housing recovery. Therefore it is important for the GoB to strengthen its recovery policy with an appropriately robust institutional mechanism;
- a crucial gap that was evident during the housing recovery operation was the lack of clear mandate to any GoB agency for post-disaster housing recovery. Housing recovery, being handled by

the Ministry of Disaster Management at present, has been largely driven by practice and precedence. Moreover, the country's main disaster management legal framework and instruments do not clearly spell out the role of different ministries in housing recovery and even the draft National Housing Policy of Bangladesh does not cover post-disaster housing. All these factors created a complex set of circumstances in which the Sidr housing recovery had to be undertaken. However, the post-Sidr impact on the GoB officials can be gauged by the fact that they now consider concrete housing as their most preferred housing recovery approach, particularly in the context of growing GDP and financial resources.

- as a policy measure post-disaster housing recovery remains a weak area but significant progress has been made in the mainstreaming of recovery by sectoral ministries post-Sidr. The planning process allows for budget reappropriation, revision of ADP and new projects and programmes. This is an opportune time to streamline the GoB's internal monitoring and accountability mechanism for post-disaster recovery under a single recovery policy that should include the role of Implementation Monitoring and Evaluation Division and the Auditor General's Office;
- on its part, the GoB has made attempts to consolidate national knowledge and capacity to strengthen its post-disaster housing recovery. For instance, the Shelter Cluster has become a part of the country's post-disaster coordination mechanism. The capacity gaps that need to be addressed include a further strengthening of shelter needs assessment, making resilient housing design readily available, creating a robust mechanism for monitoring and follow-up in the long term;
- one of the crucial areas requiring attention is of the transfer of resilient technology to support self-construction keeping in mind that climate change impacts are bound to increase the frequency of disasters in Bangladesh. Therefore, the exposure of houses to disasters will continue to grow despite the growth of *pucca* houses on the coast. As there is an increase in the construction of *pucca* houses, it would help to make the community as well as local artisans aware of resilient practices;
- the Sidr recovery experience demonstrated that design and construction processes are driven by experts and engineers with very little experience in community involvement. Hence, ODR is often perceived to be a time consuming affair, difficult to implement after a major disaster. The lesson also suggests that the use of private contractors can work in such a scenario but often proves to be an uphill task because of weak communication between humanitarian actors and the private sector. Hence, the principles underpinning humanitarian practice do not get translated into reality in the work of the private sector. This needs to be remedied.

6.2 RECOMMENDATIONS

The recommendations presented here are to be implemented by the GoB and the Shelter Cluster members. While the recommendations are primarily drawn from the lessons of the Sidr experience, they factor in the impact of gaps in the existing mechanism as well as the projections of future disasters, housing trends and the development scenario. These recommendations should take into account other major hazards such as flooding, tornadoes and earthquakes both in rural and urban Bangladesh.

Recommendations for the GoB:

The GoB needs to streamline its policy and institutional mechanism to facilitate post-disaster recovery, particularly in the private housing sector. The following should be included among its priorities:

- strengthen the recovery component in the draft Disaster Management Policy by emphasizing principles, standards, resource allocations and land tenure issues for housing recovery, spelling out a mandated role for each ministry and department;
- consider developing a policy framework allocating roles and responsibilities to the Ministry of Disaster Management and Relief, Ministry of Housing and Public Works, National Housing Authority and Ministry of Land that gets adequately reflected in the Standing Order on Disasters;
- build DDM's capacity for implementing GoB's housing recovery programme and strengthen its monitoring and evaluation mechanism by including not just the monitoring of technical specifications but also the long-term recovery of affected people through additional policy and investment measures;
- develop a nationwide recovery monitoring system to understand the levels of recovery required at the household level. The Household Income and Expenditure Survey of the Bangladesh Bureau of Statistics could formulate and utilize a set of indicators to monitor the level of recovery as part of the ongoing monitoring process. There is a need to strengthen the monitoring function of DDM to look at the GoB-funded recovery as well as other programmes;
- develop a building code for rural housing that takes into account all hazards. The implementation of the code should be supported with a mechanism for transfer of hazard-resistant technology to artisans in rural areas and the larger population; and
- develop a risk management system to mitigate fiduciary risk as well as the influence of the local political economy so that the most marginalized among the affected sections of people receive an equitable share of the benefits of recovery.

Recommendations for Shelter Cluster:

- document and promote ODR as one of the housing recovery approaches;
- enhance resilient construction practices;
- ensure that the needs assessment takes into account the preferences of the homeowners.

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