Revisiting Sharankhola:

A REVIEW OF POST-SIDR HOUSING PROJECTS IN BANGLADESH

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Abstract

With the unprecedented increase in the number of natural disasters in recent times, the associated losses are also rising. For this matter, post-disaster recovery and pre-disaster risk-reduction is an issue of prime importance in today’s world. Among the types of losses people face in the aftermath of a disaster, the loss of houses or displacement from their houses of origin is a major drawback which hinders their normal activities. Therefore, reestablishing housing is a critical factor in the recovery process.

The wide engagement of humanitarian actors in post-disaster reconstruction has produced both good and bad results as has been noticed in the large number of shelter projects in response to the 2004 Indian Ocean tsunami. Since then, there have been many ‘lessons learned’ and an attempt to incorporate them into a framework, in the hope of providing better shelter response in the event of a disaster, but whether these lesson are resembled in the current practice is something that needs to be more researched into.

On November 15th of 2007, a category 4 Cyclone Sidr devastated the southwestern coast of Bangladesh, a country that experiences natural disasters on a regular basis. Among all the estimated losses, housing was by far the most affected sector and a total of 78 humanitarian agencies were involved in post-Sidr housing projects differing in their choice of delivery, design and materials. The purpose of this study is to understand the nature of this shelter assistance and how it influences people’s capacity to recover for themselves.

The study is based on a field work carried out in the sub-district of Sharankhola, one of the regions to be worst hit by Sidr and consequently to become the hub of most NGO activities. Through household surveys, this study aims to find out the viewpoint of the beneficiaries about five shelter projects and how they have adapted to the houses three years after Sidr. Key informant interviews with NGO staffs were also conducted to find out their perception about their own work. A comparison between these brings out some key findings upon which recommendations are suggested for the shelter sector for achieving improved long-term results in the future post-disaster shelter projects.
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My family, for everything.

I am grateful to you all.
### Acronyms

BNBC – Bangladesh National Building Code  
BRAC – Bangladesh Rural Advancement Committee  
CARE – Christian Action Research and Education  
CENDEP – Centre for Development and Emergency Practice at Oxford Brookes University  
CGI sheet – Corrugated galvanized iron sheet  
DEC – Disasters Emergency Committee  
DMB – Disaster Management Bureau (Bangladesh)  
FGD – Focused group discussion  
GoB – Government of Bangladesh  
IFRC - International Federation of Red Cross and Red Crescent Societies  
INGO – International non-governmental organization  
NCCB – Network on Climate Change, Bangladesh  
NGO – Non-governmental organization  
NFI – Non food item  
ODR – Owner Driven Reconstruction  
PNGO – Partner non-governmental organization  
PRA – Participatory rapid appraisal  
UN – United Nations  
UNISDR – United Nations International Strategy for Disaster Reduction  
UNDP – United Nations Development Programme  
UN Habitat – United Nations Human Settlements Programme  
UNOCHA - United Nations Office for Coordination of Humanitarian Affairs  
USAID – United States Agency for International Development
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All photographs are taken by the author unless stated otherwise.
Figure 1.8 and 1.9 are taken by Nawzish Ali.
CHAPTER ONE:

INTRODUCTION
Chapter 1: Introduction

1.1 Introduction to the research idea

1.1.1 Disasters and Shelters

Numerous studies have confirmed that the world today is facing natural hazards on a scale it has never seen before. Between the years 1994 and 2003, more than 255 million people were affected and 58,000 lives were lost around the globe per year on an average. [Guha-Sapir et at, 2004] According to the United Nations International Strategy for Disaster Reduction (UNISDR), the yearly average death toll from natural disasters has risen from 43,000 in the 1990s to 78,000 over the last decade from 2000 to 2009. [UNISDR,2009] With half of the year still to come, the year 2010 has already experienced a number of deadly disasters, namely the Haiti, Chilean and Turkish earthquakes, the China and Washington D.C. snowstorms and more recently the Pakistan floods. [Rettner,2010] The upward curve in figure 1.1 shows the rising trend in the frequency of disasters from 1975 to 2009.

With this unprecedented increase in the number of disasters, the losses and damages resulting form them have also multiplied in the recent decades. Therefore, post-disaster recovery and pre-disaster risk-reduction is an issue of prime importance in the global agenda. Among the types of losses people face in the aftermath of a disaster, the loss of houses or displacement from their houses of origin is a major drawback which hinders their normal activities. Therefore, reestablishing housing is a critical factor in the recovery process. Many findings show that fundamental to all household recovery is the reestablishment of permanent housing, because
without one, the ability of households to bring themselves out of the situation and better their future is severely undermined. [Johnson, 2006]

Providing shelter assistance in a post-disaster context is undoubtedly a complex process which demands the involvement of multiple sectors, large amount of resources and a variety of skills. When a disaster strikes and people are left homeless, it is usually the humanitarian organizations who come with shelter assistance in various forms, although these expertise might not be always available in the organizations concerned. Very often, agencies face the dilemma of providing emergency relief promptly as the short-term necessity, without having much time to think about the long-term impacts or the requirements of sustainable development. [Peacock, 2009] This decision of humanitarian actors to engage themselves widely in reconstruction sometimes also produces unexpected results. This has developed a growing consensus for the need of taking account of the associated complex factors and the recognition of expert advice. After the 2004 Indian Ocean tsunami, when there were unforeseen levels of destruction but also huge amounts of resources from multiple donors, there was absence of proper guidance in place to provide a working framework for the purpose of reconstruction. [Bennet, 2008] This fact was further exacerbated by poor institutional knowledge and lack of coordination between different agencies. Since then, there have been many ‘lessons learned’ and an attempt to incorporate them into a framework, in the hope of providing better shelter response in the event of a disaster, but whether these lesson are resembled in the current practice is something that needs to be more researched into.

1.1.2 Bangladesh and Cyclone Sidr

The People’s Republic of Bangladesh, which is bounded by India and Myanmar on three sides and the Bay of Bengal on the other side, is a low-lying delta plain criss-crossed by many rivers and their tributaries. It is one of the hotspots for natural disasters and experiences cyclones, floods, droughts, earthquakes and landslides on a regular basis. In fact, some of the greatest disasters have occurred in this area. [Al-Hussaini, 2005] In terms of mortality and GDP due to multiple-hazards, Bangladesh ranks in the top 3 deciles of risk when compared to the rest of the world. [OCHA 2009] The region is often characterized as ‘extreme’ because of having one of the most complex
Figure 1.2: Estimated Multiple Risk Index [OCHA:2009]

Natural Disasters from 1980 - 2008

Overview

- No. of events: 219
- No. of people killed: 181,044
- Average killed per year: 6,959
- No. of people affected: 317,654,524
- Average affected per year: 19,446,708
- Economic Damage (US$ x 1,000): 16,002,500
- Economic Damage per year (US$ x 1,000): 97,900

Natural Disaster Occurrence Reported

- Drought
- Earthquake
- Extreme temp
- Epidemic
- Flood
- Storm

Top 10 Natural Disasters Reported

<table>
<thead>
<tr>
<th>Disaster</th>
<th>Date</th>
<th>Affected (no. of people)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flood</td>
<td>1988</td>
<td>45,000,000</td>
</tr>
<tr>
<td>Flood</td>
<td>2004</td>
<td>26,000,000</td>
</tr>
<tr>
<td>Flood</td>
<td>1984</td>
<td>30,000,000</td>
</tr>
<tr>
<td>Flood</td>
<td>1987</td>
<td>29,700,000</td>
</tr>
<tr>
<td>Drought</td>
<td>1983</td>
<td>20,000,000</td>
</tr>
<tr>
<td>Storm</td>
<td>1991</td>
<td>15,438,849</td>
</tr>
<tr>
<td>Flood</td>
<td>1998</td>
<td>15,000,020</td>
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<tr>
<td>Flood</td>
<td>2007</td>
<td>13,771,386</td>
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<tr>
<td>Flood</td>
<td>1995</td>
<td>12,656,066</td>
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<tr>
<td>Flood</td>
<td>1993</td>
<td>11,469,537</td>
</tr>
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Killed People

<table>
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<tr>
<th>Disaster</th>
<th>Date</th>
<th>Killed (no. of people)</th>
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</thead>
<tbody>
<tr>
<td>Storm</td>
<td>1985</td>
<td>138,862</td>
</tr>
<tr>
<td>Storm</td>
<td>1985</td>
<td>15,000</td>
</tr>
<tr>
<td>Storm</td>
<td>2007</td>
<td>4,279</td>
</tr>
<tr>
<td>Epidemic</td>
<td>1982</td>
<td>2,698</td>
</tr>
<tr>
<td>Flood</td>
<td>1988</td>
<td>2,270</td>
</tr>
<tr>
<td>Flood</td>
<td>1987</td>
<td>2,058</td>
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<tr>
<td>Epidemic</td>
<td>1991</td>
<td>1,700</td>
</tr>
<tr>
<td>Flood</td>
<td>1984</td>
<td>1,200</td>
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<tr>
<td>Flood</td>
<td>2007</td>
<td>1,150</td>
</tr>
<tr>
<td>Flood</td>
<td>1998</td>
<td>1,022</td>
</tr>
</tbody>
</table>

Figure 2.3: Overview of natural disaster in Bangladesh [source: reliefweb]

Figure 1.4: Losses from top 10 natural disaster in Bangladesh [source: reliefweb]
socio-physical interfaces on earth and multiple dimensions of vulnerability compounded by such factors as population density and poverty. [Penning-Roswell, 2010] Within the country, one of the most vulnerable regions is the 700 km of coastline in the south of Bangladesh which forms the lowest mass of land and is more susceptible to tropical cyclones with tidal surges and floods. Because of the funnel shape of the coastal region, this area is always the first to be hit by the disturbances formed in the Bay of Bengal. [Karim 2005]

On November 15th of 2007, Cyclone Sidr hit the southwestern coast of Bangladesh with a wind speed of 250 kph (155 mph) triggering a tidal surge of 5 metre (15 feet). The category 4 cyclone was the most severe and destructive disaster in the country in 15 years. [Reuters] Despite many lives being saved from the cyclone through the country’s improved early warning systems and cyclone shelters, which is the product of years of disaster mitigation strategies [see Appendix 1 for disaster management system in Bangladesh], around 3,500 people were killed, tens of thousands injured and 2 million people displaced. The lives of approximately eight and a half million people were affected by the disaster, at least one-third of whom needed emergency assistance in terms of food, drinking water, sanitation, shelter and livelihoods. [Lyons, 2010] The country’s accountancy institute reported that $4.4 million worth of damages was caused by Sidr and Bangladesh had asked for $1 billion from the international community for the purpose of rebuilding the coastal region. [Lyons, 2010] However, among all the estimated losses, housing was by far the most affected sector, which was twice that of the agricultural sector. [Hakim, 2009] According to a conservative estimate, the total value of the loss of housing stock was $199.71 million, with a loss of 11.5 percent shelters in some districts. [Lyons, 2010] Table 1 gives an idea of the scale of the problem. The response of the international community to the plight of Sidr has been very generous and swift. An amount of $126 million had been allocated by the Government of Bangladesh and various donor agencies for repairing 622, 247 partially damaged houses and as of February 2009, more than 100,000 houses have been reconstructed by different humanitarian actors and the process is still ongoing with the involvement of more organizations on the scene. [Lyons, 2010]

Table 1: Housing situation after Sidr (source: Flinn, 2009)

| Number of houses fully destroyed | 565,000 |
| Number of houses built by agencies by end of 2008 | 40,000 (approx. 7%) |
| Number of houses self-built, assuming 66% self-recovery | 373,000 |
| Number of families without adequate shelter early 2009 | 152,000 |
Figure 4.5: Areas affected by Sidr [source: IFRC]

Figure 3.6: Houses devastated by Sidr [source: ActionAid]
1.1.3 The research question

Only a few years back, the reconstruction process of shelters devastated by disasters was predominantly undertaken by the affected communities themselves. For example, only 17% shelter reconstruction after the devastating cyclone in 1970 which killed half a million people was done with outside assistance whereas 83% was rebuilt by the affected communities. [Hakim, 2009] The situation has now changed with more and more humanitarian organizations becoming involved in shelter assistance after disasters. The year 2007 saw unsurpassed level of money being allocated for shelter reconstruction owing to cyclone Sidr and a total of 78 humanitarian agencies were involved in post-Sidr housing projects varying in their choice of delivery, design and materials. This gives rise to the following research question:

What is the nature of the shelter assistance after Sidr and what is the perception of the beneficiaries about it? How does this outside assistance influence people's capacity to recover for themselves? What are the things that went wrong and how can they be avoided in the future?

With this purpose, a review of several of these shelter projects was conducted. Of all the districts in the coastal zone, the most severe damage occurred in Bagerhat with 118,899 houses destroyed. [Lyons, 2010] Sharankhola, one of the 9 upazillas (sub-districts) of Bagerhat, was one of the worst hit and consequently became the hub of most NGO activities. Therefore, a study on shelter projects in Sharankhola was expected to reveal the trend of post-disaster shelter assistance.

1.2 Aims and objectives

1.2.1 Research Aim

The research aims to evaluate five shelter-projects from the viewpoint of the beneficiaries in order to identify some key issues with the purpose of providing the development sector
with a comprehensive understanding and practical suggestions for bringing the changes required for improved long-term results.

1.2.2 Research Objectives

The main objectives of the research can be broken down as follows:

- To understand the viewpoint of the beneficiaries about shelter assistance and the shelter design.
- To identify whether and how beneficiaries have dealt with the recovery process and how it has been influenced by the type of shelter assistance.
- To come up with possible recommendations for organizations involved in providing post-disaster shelter assistance to avoid the common mistakes and on how to promote sustainable development through shelter assistance after disasters.

1.3 Relevance and significance of the study

As the humanitarian sector gets more involved in post-disaster housing, more and more projects are undertaken responding to the shelter needs after a disaster. But there is often no time to look back at the projects that are being completed and to learn from them to avoid repeating the same mistakes. Follow-ups, when undertaken, are often intended only for donor satisfaction and studies on beneficiaries’ perception of shelter assistance are relatively low in number. The value of this study is that it brings out the voices of the beneficiaries about some shelter projects and makes a comparison between them in order to find out the best practices which are believed to be helpful for similar projects in the future.

1.4 The research process

1.4.1 Research design

This research can be categorized as ‘social research’ and combines both qualitative and quantitative approaches. The overall design of the research can be illustrated as an ‘onion’ with
different layers with data collection and analysis at the core. [Saunders, 2007] Figure 1.7 shows the different aspects of a research and how they relate to the research philosophy. Among all the different kinds of options, the highlighted methods are the ones chosen for this study.

![Research Onion Diagram](image)

*Figure 5.7: The research onion [source: Saundres, 2007, with modification by the author]*

It can be noted that the study does not follow a deductive approach for testing a hypothesis. Rather, data is collected first to understand the nature of the research interest, upon the analysis of which the propositions are made, making the process an inductive one. A combination of different methods was used in the study. The given time for carrying out the research makes it impossible to observe changes over an extended period of time, rather many different aspects needed to be observed simultaneously in a cross-sectional manner.

### 1.4.2 Methodology

This study is based on both secondary and primary data, with a heavy emphasis on the latter.

*Secondary data:*

Collection of secondary data was important to demonstrate awareness of the current state of knowledge in the subject area, its limitations and how the research fits into the wider context. This was done through desktop research and literature review which covers the issues of
disasters, vulnerability, shelter and development. A major source of literature was the various humanitarian practice guidelines and reports from both the development and donor community. Online libraries and resource centres focusing on shelter (e.g. the Shelter Centre library and the Emergency Shelter Cluster website) proved to be immensely helpful for the study, as did the various recent publications available online on thematic journals.

*Primary data:

Field work carried out in Bangladesh between May 28-June 28 of 2010 comprises the major source of primary data for the research. Questionnaires with semi-structured interviews were carried out on 25 households in the upazilla (sub-district) of Sharankhola under the district of Bagerhat. [Appendix 2] Five households were selected from each different organization and residing in the same type of housing. The sampling of the organizations as well as the households operated on a non-probability basis and can be identified as purposive-sampling. Field observation and photographic survey contributed to the overall understanding of the situation, while tools such as the spider-diagram were used to determine the socio-economic changes of the households. The focused group discussions that sprung up every time during the surveys were also a very important part of the process.

*Figure 6.8: Photos from household survey

Key informant interviews were carried out with different staff members of the NGOs selected for the study, as well as from other local NGOs, along with architects and academicians to get a comprehensive view of the shelter situation in the country. These interviews were conducted in person in Dhaka, Khulna and Bagerhat and were semi-structured and exploratory in nature. [Appendix 3]
1.5 Research scope and Limitations

1.5.1 Scope

The study is essentially about post-disaster shelter reconstruction and concentrates mainly on the reconstruction efforts that took place after Cyclone Sidr caused widespread destruction in southwest Bangladesh. Although it is based on shelter, the focus is not on technical issues but rather on more qualitative aspects such as the process of decision making, cultural acceptance, livelihood opportunities, and so on. The study puts more emphasis on the accounts of the beneficiaries in reviewing the shelter projects than that of any other stakeholders involved in the sector.

1.5.2 Limitations

The major challenges faced during the collection of data were the short time available for the fieldwork and the time of the year it was conducted. It being the monsoon season, heavy downpour most of the time made the fieldwork very hard, especially with the road condition in Sharankhola being very dangerous. This had an affect on time available on a day and consequently the number of household surveys had to be cut down to 25 from the originally intended minimum of 30, although a smaller number provided the opportunity to explore the issues more in depth. Again, the households sometimes had to be chosen based on accessibility only as this was such a huge factor. In the absence of a place for overnight stays in Sharankhola, the surveys had to be conducted being stationed at Bagerhat, which meant long hours of travel each day to and from Sharankhola including crossing of a river-ferry.

![Images showing the conditions faced during the survey: Bad condition of the roads, Continuous rain, Crossing the ferry.]

Figure 7.9: Some limitations faced during the survey
The availability of the interviewees also proved to be an issue, and some of the intended interviews had to be cancelled because of the interviewee being away from Bangladesh or the failure to manage time for interview over the telephone or online.

### 1.6 Organization of the study

The study is organized into the following five segments:

<table>
<thead>
<tr>
<th>Chapter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Chapter 1: Introduction</strong></td>
<td>The first chapter gives an introduction to the research idea and sets the context of disasters and shelters in general and moves on to describe the situation in Bangladesh in particular. It clearly sets out the aims and objectives of the study and the methodologies used for achieving them. The focus of the study and the constraints faced by the author is also laid out in order to present a transparent understanding of the research process.</td>
</tr>
<tr>
<td><strong>Chapter 2: Background</strong></td>
<td>A general idea about post-disaster shelter is presented in this chapter, with regards to the different types of shelter assistance corresponding to different phases of the disaster cycle. The key considerations for a shelter project are brought up with an attempt to find out what can be the defining characteristics of a successful one. The various dilemmas faced by organizations and practitioners in providing shelter assistance in post-emergency situations are also highlighted for a broader understanding of the scenario.</td>
</tr>
<tr>
<td><strong>Chapter 3: Case Studies</strong></td>
<td>In the third chapter, the process and outcomes of the fieldwork is illustrated. This explains the sampling of the households and the research questions. The tales of 25 different households from 5 different organizations are then documented according to the various responses to the questionnaires. Other issues that came up through the open ended questions and focused group discussions are also discussed.</td>
</tr>
<tr>
<td><strong>Chapter 4: Analysis and Discussion</strong></td>
<td>Based on the content of the previous chapter, a critical review of the 5 shelter projects is carried out, while other significant themes are looked for through data analysis. Apart from the responses of the beneficiaries, the standpoints of other stakeholders in the process are also discussed through the information derived from key-informant interviews.</td>
</tr>
<tr>
<td><strong>Chapter 5: Conclusion</strong></td>
<td>The concluding chapter provides a brief summary the findings. A set of possible recommendations is arrived at for the organizations working with post-disaster shelter for a better shelter response in future emergencies.</td>
</tr>
</tbody>
</table>
1.7 Ethical considerations

The interviewees from the households were clearly informed beforehand about the intention of the research so as not to give rise to any false expectations. It had to be noticed that most of the earning members of the households interviewed work on a daily basis and therefore, special attention was given so that the interviews do not hamper the daily livelihood or household activities of the people. The right not to take participation in the interview was respected and no photograph was taken without the explicit permission of the subject.
CHAPTER TWO:

BACKGROUND
CHAPTER 2: BACKGROUND

2.1 Shelter

There has been much discussion about what the term ‘shelter’ or ‘housing’ actually means and the question continues to generate different opinions among the people and organizations involved in the shelter sector. The Sphere Project and many other guidelines about shelter thus avoid any specific definition. However, Corsellis and Vitale [2005] defines shelter as:

“...a habitable covered living space, providing a secure, healthy living environment with privacy and dignity for the groups, families and individuals residing within it.”

There seems to be a general understanding of shelter as an ongoing process, which is dependant upon the level of need, available resources (material, financial, land, etc.) and legal issues. [Saunders, 2004] This idea was developed by John Turner (1972) in his ‘housing as a verb’, with the suggestion that housing is not only the built physical structure, but also a continuous course of action during which period people are comfortable in and around the structure and commented that “housing is not what it is, but what it does”. This was later incorporated into post-disaster situations by Ian Davis [1978] who maintains that ‘shelter must be considered as a process, not as an object’, implying that providing a structure consists of multiple overlapping tasks in order to meet specific needs covering livelihoods, communities and the wider environment. [Leon, 2009] Although ‘housing’ has come to be accepted as a form of action, the term ‘shelter’ still fails to reflect that by itself and therefore, sometimes inhibits understanding of the shelter sector. [Saunders, 2004]

2.2 Disasters and Shelter Assistance

A disaster happens when a community is vulnerable to a particular hazard through its social, economic, physical, political and environmental conditions. Figure 2.1 illustrates the disaster cycle. In reality, these different phases of the cycle do tend to overlap and may not necessarily
lead back to a disaster if the community is completely removed from its initial vulnerability to the hazard.

There has been a tendency, for the sake of clarity, to break down the period after a disaster and the associated shelter options into three distinct categories:

2.2.1 Emergency Phase and Emergency Shelters:

The period immediately after a disaster during which the primary concern of the affected people is survival is termed as the emergency phase, whereas emergency shelters are places where affected people live temporarily when they can not reside in their previous homes, until they can move toward a better option. [UNHCR, 2005]

Post-disaster emergency shelter can be distributed to individual families as part of non-food items (NFIs) or be erected in large numbers on camp sites. Plastic sheeting is the most widely used shelter component in relief operations, which may or may not come with framing materials such as bamboo or wooden posts. In the absence of local materials, tents are often used for this purpose. Pre-fabricated or specially engineered shelter units have proven to be ineffective in large scale emergencies and are now discouraged because of their high unit cost and transport problems and by the time they are shipped to the emergency area, other arrangements are usually already in place. [UNHCR, 2006]
2.2.2 Recovery Phase and Transitional Shelters:

The recovery phase is supposed to support the affected population so that the need for emergency shelter is minimized and more durable housing solutions are sought after as soon as possible. Many agencies go for transitional shelters in this phase, which comprise a broad range of shelter options made of semi-permanent material, and are designed to last for 2-3 years. This is done with the intention that people has somewhere to live with a better sense of security and dignity while reconstruction for a more permanent house is underway. Transitional shelters rose in response to bridge the gap between emergency shelter options and permanent housing. As it is often the case that reconstruction and resettlement of people in the buffer zone, as in IDP camps, requires several years for completion, transitional shelters provide the basic housing facilities for them. [OCHA, 2008]

Figure 2.3: Different types of transitional shelter solution

However, transitional shelters are considered by many as too limiting as “they encourage a focus on short term needs alone and invariably short-life shelter solutions resulting in shelter needs reemerging six months or more after the initial relief intervention.” [Saunders, 2004] Among the critics of transitional shelter approach is Ian Davis who in his Shelter After Disaster suggests three options for post-disaster reconstruction and points out filling the gap with temporary solutions as the least preferred one, the other two being improving and strengthening the housing that survived the event and accelerated reconstruction of permanent housing. In his opinion, “when offered the choice, people put temporary housing very low on the preference list." [Davis, 1978]
2.2.3 Reconstruction Phase and Durable Solutions:

In the reconstruction phase, durable solutions to housing are looked for. Durable solutions mean housing options that are sustainable in the long run and have the scope for incremental development. These housing solutions are different for population differently affected by disasters. For example, people who were not displaced, and those who were displaced but returned to their original piece of land may have different options available to them, and so may the people who decided to resettle in the region they moved to, or the ones who relocated to a different region.

![Model village by PMSSS in Devanampattinum, India](source: www.webwork.org) ![Permanent housing by Centas SED in Galle, Sri Lanka](source: www.artwork.org)

Figure 2.4: Different types of permanent housing solutions

These phases and types of shelter clearly overlap in reality. There is a tendency within both the governments and the humanitarian organizations to categorize their support to populations affected in this phases and accordingly handover their responsibility. However, it is of utmost importance that these responses are looked at and implemented as a continuous effort and takes place within a broader strategic framework. [OCHA, 2008]

2.3 Shelter: From Relief to Development

The main purpose of providing shelter assistance to people affected by disasters must be reducing their vulnerabilities. Therefore, a shelter project can only be successful if it is able to do so.
But as can be seen from the ‘disaster-development nexus’ in figure 2.5, disasters can have both positive and negative impacts on development and vice-versa. Firstly, sustainable development can reduce vulnerability by taking into consideration the interactive relation between disasters and socio-economic development. Likewise, disasters can also provide opportunities for sustainable development in ways which are otherwise overlooked. On the contrary, disasters can obviously hinder the normal progress of development with extensive loss of lives and resources. But again, poorly planned development programs can increase vulnerabilities, or even create them in a place where they did not exist before. [Barakat, 2000]

The same goes with shelter and how it affects vulnerabilities of people. As the UN [2006] points out, “...vulnerability is often reconstructed along with the housing”, and “Poor decision-making can result in a return to the vulnerabilities that resulted in the disaster in the first place.” [Corsellis and Vitale (eds) 2008], or even create new vulnerabilities where they did not exist at all.

On the other hand, a well-thought out housing can reduce people’s vulnerability to disaster to a large extent. Moreover, disasters also offer unique opportunities to ‘Build Back Better’, because,
Disasters often create a political and economic atmosphere wherein extensive changes can be made more rapidly than under normal circumstances. The collective will to take action is an advantage that should not be wasted. [UNDRO, 1992]

2.4 What makes a good shelter project?

In order to reduce vulnerabilities and enhance capacities of the people concerned, a shelter project must go beyond providing a roof overhead and consider a range of wider issues. It must also strike “a balance between affordability, technical feasibility and quality of life. [Hayes, 2010]

In the initial phase of a project, it is required to make some major decisions regarding:

2.4.1 Beneficiary identification:

A disaster may affect a large population, but usually only a small percentage gets any sort of formal shelter assistance. [Flinn, 2009] This makes the identification of beneficiaries a crucial issue for any shelter project. The selection and verification of beneficiaries can be a key tool in engaging the community. The collective decision of the whole community regarding who is eligible or not to receive assistance requires the involvement of all sectors. This is essential not only to make the process equitable and impartial but also to develop a sense of ownership in the community. If the outcome is not accepted by all, potential conflicts may arise which can delay or terminate the project or even alienate some sections of the community. [Lyons, 2010]

2.4.2 Cost vs. quality:

Budget is most certainly a very critical factor for any shelter project and is often cited as the cause for not achieving certain design standards. Such assumptions as “there is no way that we can build a tsunami-proof house” inhibit the efforts to come out with a proper solution.

Money also gives rise to the question, Is it better to build lots of cheaper houses, or less houses to a higher quality? After a disaster under emergency circumstances, there is a human argument to cover as many beneficiaries as possible, as well as pressure from the donors. There is also a time-pressure to build fast. All these, along with rushed decisions, can often result in a low quality of the project. Flinn [2009] suggests that
under these conditions, it is optimum to consult with the community whether they think it is better to cover every affected person in the community or only the most vulnerable. He also argues that, “in transitional or core house construction, there is a strong argument for more robust structures built for fewer people.” He also thinks that in such cases where there is capacity to rebuild for only some of the affected households, it is of utmost importance that the design improvements can be understood and copied by the local builders, who will eventually be the ones to help the remaining households with the reconstruction process.

2.4.3 Procurement method:

Decisions regarding what will be the most appropriate procurement method for delivering shelter assistance need to be found out. This involves checking out the local availability of skills and labors. It might be necessary to import skills from elsewhere if the required skills are not already present in the area. Assistance can also be in the form of trainings on improved building techniques. It is important that the process does not take people away form their normal livelihood activities, if not provide such opportunities.

Figure 2.6: Different ways of providing shelter assistance [source: www.shelterhaiti.org]
2.4.4 Type of housing:

Decisions regarding the type of housing assistance to be provided can be challenging. Whether it is going to be transitional shelters or permanent housing is something that needs to be finalized quite early in the project cycle. This has to come out from the initial needs assessment of the beneficiaries and has to be tailored to the capacity of the implementing agency and the funding available. [Flinn, 2009]

2.4.5 The design process:

Considerations as to who decides the design solution are something critical which determines the whole process of the design. Does a single person make the design decisions, or is it done with the help of the affected people? Is it an architect or an engineer who provides the technical expertise, or is it a team of built environment professionals from different backgrounds? Do the team members have enough idea about the local practices? These are some issues that need serious considerations. Unfortunately, ‘large, centrally planned and contractor-built housing is still the standard approach to post-disaster reconstruction [Spence and Kelman, 2004], in which case proto-type designs are devised in the headquarters of an organization without proper relevance to the context. The end-users need to be recognized as an active part of the design process, and not as passive recipients, because they are the ones who are fully aware and conscious of their own needs and aspirations. [Hayes, 2010] Although community participation is widely encouraged by NGOs, policy makers and scholars alike, in reality the desired level of participation is hardly achieved. [Davidson, 2007] There needs to be a balanced way of combining the technical experts and the community members.

2.4.6 Shelter ‘Plus’

People affected by disasters do not only lose shelters, but also the means of generating income, dignity, security and self-esteem. The combination of these factors leads to their status of vulnerability. If livelihood ‘comprises the capabilities, assets (including both material and social resources) and activities required for a means of living’, it is
logical for housing to be considered as one of the many assets that contributes to livelihood. It is therefore relevant to place the shelter projects within the context of a wider framework of livelihoods development.

2.5 What makes a good house?

After the process, the success of a shelter project depends to quite an extent on the design of the house itself. As Blacker [2006] puts it,

An appropriate response when reconstructing housing environments following a disaster is one that delivers solutions that optimize the design (its functionality and configurations) and manufacture (materials) of the build in terms of ecology, economy and social needs. [Blacker, 2006]

The basic purpose of a house is to provide weather-proofing and protect the inhabitants from the elements. In addition to that, it needs to provide temperature control so that it is not too hot in the summer or too cold in the winter. Sufficient level of ventilation and illumination is also required for physical comfort. Along with these, sources of clean water and sanitation must be integrated with the design. The house must provide the inhabitants with a sense of both mental and physical security. The desired level of privacy will ensure that people can live with a sense of dignity.

The issue of culture and tradition needs to be given proper attention. All too often shelter responses are driven by technology and with limited engagement with culture and society. [Gates, 2005] For any housing solution to be sustainable, it needs to be relevant to local practice so that the inhabitants do not have to put in extra effort to modify their usual lifestyle. After the earthquake in Pakistan in 2005, some agencies who had previously achieved good results with insulated tents in regions like Kosovo and Northern Iraq, were very prompt to deliver 2000 such tents imported from Turkey to the affected families. But these winterized tents became overheated in summer and many of these were later used as storage space or animal stables. [Shelter Centre, 2009]

A good design will provide space for daily livelihood activities. This can be a space for kitchen garden or keeping livestock, a corner for sewing machine or space for making handicrafts. In
ODP’s (Owner Driven Programs) in Sri Lanka, home-based livelihood activities were incorporated where beneficiaries had a free hand with the design. Livelihood provisions such as small grocery shops, barber saloons, tailoring, etc. were prioritized by the beneficiaries. [Lyons, 2010]

The design of the house must be flexible, ‘meaning that occupants can adjust their own shelter to meet their own needs’. [Leon, 2009] Care needs to be taken so that the structure does not require extensive maintenance which would create an added financial pressure on the occupants. This issue of adaptability is further emphasized by the Sphere Project [2004]:

‘as emergency shelter responses typically provide only a minimum level of enclosed space and material assistance, affected families will need to seek alternative means of increasing the extent or quality of the enclosed space provided. The form of construction and the materials used should enable individual households to incrementally adapt or upgrade the shelter or aspects of the design to meet their longer-term needs and to undertake repairs using locally available tools and materials.’

![Image](image.png)

**Figure 2.7: Some functions of shelter [www.shelterhaiti.org]**

### 2.6 The minimum standards

There is a need for a consensus about the minimum standards that have to be followed in all shelter projects. The Sphere Project, which is based on the existing knowledge of a broad network of practitioners, provides a set of key indicators and such minimum standards and is
followed by many in the humanitarian sector. The 2004 edition discusses Shelter and Settlement under six divisions; that of strategic planning, physical planning, covered living space, design, construction and environmental impact. The key indicators of the three most relevant to this study are shown in table 2.

**Table 2: Key indicators regarding covered living space, design and construction: Sphere Project 2004**

<table>
<thead>
<tr>
<th>Covered Living Space</th>
<th>Design</th>
<th>Construction</th>
</tr>
</thead>
<tbody>
<tr>
<td>• The initial covered floor area per person is at least 3.5m²</td>
<td>• The design of the shelter and the materials used are familiar where possible and culturally and socially acceptable</td>
<td>• Locally sourced materials and labour are used without adversely affecting the local economy or environment</td>
</tr>
<tr>
<td>• The covered area enables safe separation and privacy between the sexes, between different age groups and between separate families within a given household as required</td>
<td>• The repair of existing damaged shelters or the upgrading of initial shelter solutions constructed by the disaster affected population is prioritised</td>
<td>• Locally derived standards of workmanship and materials are achieved</td>
</tr>
<tr>
<td>• Essential household activities can be carried out within the shelter</td>
<td>• Alternative materials required to provide temporary shelter are durable, practical and acceptable to the affected population</td>
<td>• Construction and material specifications mitigate against future natural disasters</td>
</tr>
<tr>
<td>• Key livelihood support activities are accommodated where possible</td>
<td>• The type of construction, materials used and the sizing and positioning of openings provide optimal thermal comfort and ventilation</td>
<td>• The type of construction and materials used enable the maintenance and upgrading of individual household shelters using locally available tools and resources</td>
</tr>
<tr>
<td></td>
<td>• Access to water supply sources and sanitation facilities, and the appropriate provision of rainwater harvesting, water storage, drainage and solid waste management, complement the construction of shelters</td>
<td>• The procurement of materials and labour and the supervision of the construction process are transparent, accountable and in accordance with internationally accepted bidding, purchasing and construction administration practices</td>
</tr>
<tr>
<td></td>
<td>• Vector control measures are incorporated into the design and materials are selected to minimize health hazards</td>
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CHAPTER THREE:

CASE STUDIES
Chapter 3: Case Studies

3.1 The study area

The upazilla of Sharankhola lies at the southern most part of Bangladesh and has a population of 130,000 distributed over 4 unions. Since it was one of the worst-affected regions following the transit of Cyclone Sidr, it became the centre of many NGO activities. In fact, the number of aid organizations per capita is higher in this upazilla than any other in the country. [TWG, 2008] The location of the surveyed projects comprises of ward 5, 6 and 9 under the union of Rayenda.

![Figure 3.1: Location of project area](http://bagerhatinfo.com/sarankhola.php)

<table>
<thead>
<tr>
<th>Sharankhola: Quick Facts</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Location</strong></td>
</tr>
<tr>
<td><strong>Area</strong></td>
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<tr>
<td><strong>Administrative</strong></td>
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<tr>
<td><strong>Population</strong></td>
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<tr>
<td></td>
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<tr>
<td><strong>Religion</strong></td>
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<tr>
<td><strong>Literacy rate</strong></td>
</tr>
<tr>
<td><strong>Livelihoods</strong></td>
</tr>
</tbody>
</table>

Table 3: Quick facts about Sharankhola

[http://bagerhatinfo.com/sarankhola.php]
3.2 The shelter projects

The 5 shelter projects selected for this study come from 4 different NGOs, namely Brac, Muslim Aid, Care and NCCB, with the latter providing two different kinds of shelter projects with different housing solutions which will be termed as Type-A and Type-B. The projects were chosen because of their diverse approach toward providing shelter assistance in terms of the type of houses, design and choice of materials. The houses from Brac and Muslim Aid can be categorized as permanent housing as they are built of brick masonry, while still having significant difference in their designs and procurement methods. On the other hand, the houses from Care and NCCB are of a semi-permanent nature, with Care using walls of bamboo mats and NCCB using CGI sheets for walls. The two types of shelter projects from NCCB differ in a sense that one follows the concept of ‘core shelter’, whereas the other is provided with a veranda. In fact, the majority of the agencies involved in post-Sidr reconstruction followed this method of ‘core shelter’, which is the construction of a small house with one room having strong cyclone resistant structure built on a high plinth above the normal maximum flood line to which verandas, storage spaces and more rooms can be added later on as time progresses. [Hakim, 2009]

Table 4: The shelter projects

<table>
<thead>
<tr>
<th>Project No</th>
<th>Implementing Organization</th>
<th>Project Funded by</th>
<th>Start of the project</th>
<th>Time taken to complete one house</th>
<th>Type of Housing</th>
<th>Procurement Method</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Brac</td>
<td>Oxfam</td>
<td>Winter 2009</td>
<td>15-20 days</td>
<td>Permanent</td>
<td>Donor-driven</td>
</tr>
<tr>
<td>2</td>
<td>Muslim Aid</td>
<td>Muslim Aid core funds</td>
<td>June 2008</td>
<td>1 month</td>
<td>Permanent</td>
<td>Cash and ODR</td>
</tr>
<tr>
<td>3</td>
<td>Care</td>
<td>USAID &amp; DEC</td>
<td>July 2008</td>
<td>2-3 days</td>
<td>Semi-permanent</td>
<td>Donor-driven</td>
</tr>
<tr>
<td>4</td>
<td>NCCB (Type-A)</td>
<td>Diakonie Katastrophenhilfe</td>
<td>May 2008</td>
<td>1 day</td>
<td>Semi-permanent</td>
<td>Donor-driven</td>
</tr>
<tr>
<td>5</td>
<td>NCCB (Type-B)</td>
<td>Diakonie Katastrophenhilfe</td>
<td>April 2008</td>
<td>1 day</td>
<td>Semi-permanent</td>
<td>Donor-driven</td>
</tr>
</tbody>
</table>
Plate 1-A: Description of the House: Brac

Characteristics:

1. One room with a front veranda
2. Plinth: earth infill, cement plastered surface, stair with 4 steps
3. One wooden door in the front
4. 4 wooden windows with wooden bars
5. Wooden poles and frame in the veranda
6. Structure and walls: brick masonry
7. Hipped roof of CGI sheet
8. Plastered outer wall surfaces, no plaster in inner surfaces
9. Wooden roof truss system
Plate 1-B: Description of the House: Muslim Aid

Characteristics:

1. Two rooms with a front veranda
2. Plinth: earth infill and surface, brick layer on the sides with cement plaster stair with 3/4 steps
3. Three wooden doors, two in the front, one at the back
4. 3 wooden windows with wooden bars
5. 4 brick columns in the veranda
6. Structure and walls: brick masonry
7. Hipped roof of CGI sheet
8. Wall surface varies according to the owner’s taste and affordability
9. Wooden roof truss system
Plate 1-C: Description of the House: Care

Characteristics:

1. Two rooms with bamboo partition
2. Front veranda partially enclosed by bamboo mat walls
3. Plinth: earth infill and surface, stair with 3/4 steps
4. One wooden door with two swings in the front
5. 4 wooden windows with no bars
6. 4 concrete columns in the veranda
7. Structure: Concrete, walls: bamboo mat
8. Extra bamboo poles for supporting the windows
9. Gabled roof of CGI sheet
10. No cross-bracing
11. Steel roof truss system
12. Provision for rain-water harvesting
Plate 1-D: Description of the House: NCCB Type A

Characteristics:

1. Two rooms with CGI partition
2. Veranda in the front with 3 concrete pillars
3. Plinth: earth infill and surface, stair steps vary
4. One CGI door in the front
5. No windows
6. Structure: Concrete, walls: CGI sheet
7. Gabled roof of CGI sheet
8. Wooden roof truss
9. No cross-bracing
Plate 1-E: Description of the House: NCCB Type B

Characteristics:

1. One room
2. No veranda
3. Plinth: earth infill and surface, stair steps vary
4. One CGI door in the front
5. No windows
6. Structure: Concrete,
7. Walls: CGI sheet
8. Gabled roof of CGI sheet
9. No cross-bracing
10. Wooden roof truss
3.3 Results from household surveys

Five households under each of the five housing projects were chosen for the study, making 25 households in total. [Appendix 2] The household questionnaires start with collecting basic information of each household in terms of name of the owner, age, the number of people living in the house and the livelihood activities of the earning members. The question of religion is also included to see if there has been any discrimination toward the religious minority. Then it goes on to discover what their previous houses were like in terms of spatial arrangement and use of materials. Their involvement in the decision making process at every step ranging from designing to implementation is also looked into.

Qualitative issues such as likeability, adaptability, cultural appropriateness, etc. are explored in details for the major part. Finally, their hopes regarding their houses are documented and an attempt is made to get an idea of what socio-economic impact these projects have had on the households. A sample questionnaire is provided in appendix 4.

3.3.1 General information

It is important to have some knowledge of the formation of the interviewed household in order to get a comprehensive view. Most of the households surveyed were in the name of the female-head of the house and only 5 (20%) were in the name of male-heads. When asked if this was due to the gender policies of the NGOs to ensure equity or give preference to the more vulnerable, the households replied that there was no such policy and the organizations took the names of whoever was available in the house when making the list of beneficiaries.

The beneficiaries come from a variety of age groups and their age ranges from 18 to 70, with most of them ranging between 21 to 40 years (60%). From a religious point of view, only 5 of the households are from Hindu background whereas the rest are Muslim (80%).

The number of family members and the number of people actually living in the house proved out to be different with 13 households comprising of nuclear families and the rest with extended families. In most of the cases (32%), there are 5 persons using the homestead,
followed by 4 (24%) and 6 (16%). Extremes are also seen with one household consisting of 8 people and another two comprising of couples only.

3.3.2 Livelihood activities

The livelihood activities of the households interviewed were diverse in nature. However, in 5 of the cases, the livelihood options were severely affected by Sidr. These people who previously used to have such businesses with shrimp farming, fishing, betel-nuts, woods, etc. or used to run a grocery or barber shop of their own are now left with the choice of becoming day-laborers. Working as day laborers was the source of income for 8 families, whereas 5 were working in saloons as barbers, 3 were rickshaw-van pullers on a contractual basis and 3 were fishermen. Two of the families owned small shops of their own. In the case of an aged couple, no one was engaged in any income-generating activities and lived on what their six children provided them with from outside.

Figure 3.2: Some of the supporting livelihood activities of the people
In almost all the cases, the principal earning member of the household was a male, be it the male-head of the family, the son or the daughter’s husband, except for one where, in the absence of a working male (the husband, who used to run a tea stall, having died before the cyclone), the female took Care of the family by working as a housemaid. However, some of the families had supporting activities as an extra source of income or for self-sufficiency, such as making fishing nets and fishing traps, which were mainly done by men and other activities such as making bamboo products, raising poultry or growing kitchen vegetables were mostly administered by the women.

3.3.3 Description of previous shelter

None of the families interviewed were displaced from their original site, which also means that only the families who had legal ownership of their land were the ones chosen for shelter assistance. Also, none of the families previously had a permanent house and all the houses were ‘kutcha’, that is, of semi-permanent nature. Mud was the common material for plinth and in 92% of the cases wooden frames or logs were used for the structure of the house while the rest used bamboo posts. Materials used for the wall were more diverse in comparison. Wooden walls were the most widely used (10 households), followed by walls of CGI sheet, golpata (a kind of leaves) and bamboo mats (each used in 4 households), whereas a combination of wood and CGI sheet was used in 3 cases. CGI sheet was most popular as a roofing material (14 households) followed by golpata in 9. Roofs were either ‘chouchala’ (hipped roof) or ‘dochala’ (gabled roof).

\[\text{Figure 3.3: Traditional housing practices in the region}\]
In terms of spatial arrangement, 7 different types were noticed. The most common arrangement consisted of one room with 2 verandas, one at the front and one at the back. Other arrangements with one room either had only one veranda at the front, or verandas on two adjacent sides or verandas on three sides. Houses with two rooms were much less prevalent (only 3 households) and could have one front veranda only or verandas on two opposite sides. Only one family had 3 rooms with two verandas. It is to be noted that verandas are very important elements according to the housing practice of the area and are often enclosed and used for sleeping and other purposes. Therefore a veranda is as much of an activity space as any room in the house. This means that house with a room and 2 verandas can be translated as a house having 3 rooms. In all the cases, the toilets were set apart from the house proper, whereas kitchen space was usually internally linked, although not considered as a part of the main house.
3.3.4 Decision making processes

Selection of beneficiaries

The local government had a major role in coordinating the relief and reconstruction efforts from different organizations. The beneficiaries from all the households confirmed that the primary list of beneficiaries was prepared by Bangladesh Army 3-4 days after Sidr devastated the region according to the condition of their houses. The different regions were then designated for different organizations so as to avoid overlapping of beneficiaries and minimize chaos. All the four NGO’s worked in conjunction with this list from the local government although at the same time conducting surveys of their own to check for bias and discrimination. However, only the families with proper ownership of their land were considered eligible for shelter assistance.

The design of the house

The beneficiaries were not consulted at all while deciding upon the design of their houses in any of the 5 different kinds of shelter project. The households interviewed said that they did not have any idea how their houses were going to look like and none had been involved in any participatory design exercises or asked about their preferences. No changes were made according to the requests of the households except for three cases from Brac where the position of the front door was changed. Even in the case of Muslim Aid, where owners had the freedom of buying their own materials, the provided design had to be strictly followed.
Implementation

The method followed by Muslim Aid was that of ‘Cash and Owner driven response’. The rest of the four projects were donor-driven and the families did not have the option of making any contribution in terms of budget, labor or materials. However, in all the cases the plinth was constructed by the families themselves, although according to the measurements of the concerned organizations. Moreover, in most of the cases the families provided labor some way or the other by working together with the laborers. No trainings were given regarding improved construction techniques in any projects, only Muslim Aid had a meeting with their beneficiaries in order to explain the process of construction.

3.3.5 Grievance mechanism

According to the interviewed families, there was no such thing as ‘grievance mechanism’ now or even at the time of reconstruction. However, in all the cases, there have been follow-ups once where the organizations mainly took the pictures of the families with their houses.
3.3.6 The qualitative indicators

Likeability and the feeling of 'home'

Although most of the families interviewed had various complaints, sometimes serious ones, regarding their houses, it was interesting to see that the majority (46%) said they were ‘happy’ about them, compared to the 5 households (20%) who were ‘not happy’. A significant portion (36%) of the households was somewhat ‘okay’ about their houses and said that they had to remain happy with this as they had no other options.

Another important issue that was looked into was whether these houses provide a feeling of ‘home’ and a sense of ownership to the families concerned. The answers to this inquiry revealed that 17 of the 25 families (68%) felt at home in their houses and considered them as their own, even if they did not have any voice in any of the stages of the decision making process. 20% could not bring themselves to call their houses their home yet, while 12% were still getting used to this changed situation.

When asked to make a comparison between the present houses and the previous ones, 12 families stated that their current houses are better than what they used to have and that they would choose to live in these over their former houses if given the option. On the other hand, 9 families preferred their former houses to the current ones and would rather live there if that was possible. 4 families were however undecided in their opinion as they thought both of these choices have their pros and cons.
Adaptability

Adaptability was measured by the ways people made additions or changes to the original design of their houses according to their needs and all the surveyed households have adapted to their houses in various ways. Additions of all kinds were found, from slight changes to radical transformations.

The most immediate change comes in the form of a mezzanine. As none of the organizations included this element in their designs, the families began making one with whatever material they had, usually with the remaining wooden planks from their previous houses. Although only 6 of the families have been able to construct a full mezzanine, as many as 15 have made partial mezzanines while only 4 have not been able to make any. There is a tendency among the people to cover these mezzanines with handcrafted pieces of fabric, sometimes made with patchworks and frills. In 9 of the households the ceiling was covered in this fashion whereas 14 were not. In 2 of the houses, where the families could not afford a mezzanine, a layer of plastic sheets was put below the CGI roof in an attempt to reduce the heat.

Turning the front veranda into a usable space is also a high priority for most of the households. Where possible, the veranda has been fully fenced, sometimes with doors and windows, to treat it like another room, although in most of the cases it has been partially fenced. The materials used for this purpose is usually the wooden planks or CGI sheets from previous homes. In some cases people invested in buying new materials for this purpose, ranging from simple jute sticks or bamboo slit frames to brick. Some also applied paints to the front façade or made carvings on wood. It was a common practice found in the surveyed households to take out the bamboo mats or CGI sheets from the toilets or remove the internal partition between the rooms and use them for fencing the verandas. Thus the majority of the toilets were found to be in a condition of neglect, often with plastic sheets or fabric surrounding the frame and with no roof or a proper door.
Figure 3.6: Different types of treatment of the mezzanine

Figure 3.7: Different treatments of the facade
Door and CGI roof removed from toilet for use in the veranda

Toilet upgraded by replacing bamboo mats with CGI sheets from previous house

Figure 3.8: Transformation of toilets

NCCB type-A houses, left one without veranda enclosure, right one has a fencing of jute sticks

Attempts of partial fencing in Brac houses, with CGI sheets and bamboo mats

One Muslim Aid house keeps the veranda as it was, while another starts enclosing with brick masonry

Figure 3.9: Various ways of enclosing the veranda

Figure 3.10: Different treatments of kitchens
Kitchens were an important manifestation of people’s adaptability as they were entirely self-built. These were also the places where people stayed during the construction period of their present houses. They were set apart from the main house and were semi-permanent in nature. Usually bamboo poles or wooden posts are used as pillars on a mud plinth and with thatched roof. In most of the cases they are open on all sides while sometimes being partially fenced with wood, bamboo mats, golpata, jute sticks or plastic sheets. Only one household had their kitchen fully enclosed on all sides. A part of the kitchen is often used for storing materials. Poultry or cowsheds, in case of the families who possessed them, were generally attached to or near the kitchen.

Additions also came in various forms. The families with NCCB’s type-B houses who were not originally provided with a veranda added a front veranda by themselves. Some of the Care and NCCB type-A houses had removed their internal partition as they thought it was hampering their natural movement. Some of the families had been able to add one extra room to their houses. It was interesting to note that where there was a provision of back door (Muslim Aid), the additions took place at the back, while in other cases it was mainly sideways. The added rooms are mostly of wooden frame and walls, sometimes combined with CGI sheets.

Two of the type-B houses from NCCB experienced complete transformation as they were completely demolished by the house-owners in order to be rebuilt with the help of loans and reusing the concrete pillars and CGI sheets of the original buildings. On the other hand, one house from each type of NCCB was found to be in an abandoned condition.
This is the daughter-in-law of Maryam (50). Maryam lost her husband long before Sidr and now lives with the family of her elder son (his wife and two kids) and her younger son. Previously they used to live in a house with one room and verandas on two adjacent sides. The house was built on a mud plinth and had a wooden structure and wooden walls. It had a hipped roof of golpata. After their house was completely destroyed by Sidr, they received shelter assistance from Brac. Privacy was a big problem as 6 persons had to live in one room. Therefore, they decided to add an extra room where the elder son’s family could stay. In the meantime, they are preparing to build a separate house.

Phase 1: Initial stage

Phase 2: Present condition

Phase 3: Future projection
Plate 2-B: Transformation stories: Nazma

This is Nazma (25). Her husband Badal Hawlader (35) is a mechanic. They live with their two boys and their mother in-law. Previously they used to live in a house with one room and a front veranda. The house was built on a mud plinth and had a wooden structure and wooden walls. It had a hipped roof of golpata. After their house was completely destroyed by Sidor, they applied for shelter assistance from Muslim Aid and managed the extra cash needed for the house. After completion, Nazma and her husband took loans to improve the house and has already made significant changes. Their dream is to be able to make a two-storied brick building in the future.

Used the kitchen for staying during the construction period
Initially provided with a pit latrine
They put in extra money to plaster the whole plinth with plaster

Phase 1: Initial stage

Did not alter the toilet, unlike many others
Partially enclosed the kitchen
Added one room at the back
Started enclosing the veranda with brick
Put parapet on both sides of the stairs and paved entry-path with brick chips

Phase 2: Present condition

Want to replace wood walls with brick walls
Want to finish the brick work and create a room

Phase 3: Future projection
This is Hanufa (45). Her husband Md. Sobhan Talukdar (60) is a daily laborer. They have two girls and a boy (aged between 10-20). Their previous house, which was destroyed in Sidr, consisted of one room with 2 verandas, built on a mud plinth and with wooden structure while the walls and roof were of golpata. Hanufa received shelter assistance from Care which has two rooms. She and her husband lived in one room at first and their children in the other. But as the girls have grown up, they need more privacy and that is why she decided to make an extra room for them. She also made quite a few internal changes and put an extended shade over the stairs.

Used the kitchen for staying during the construction period
Original design by Care

Initially provided pit latrine

Partially enclosed the kitchen

Removed one side of veranda partition and used it here

Toilet with bamboo mat walls

Internal changes:
Turned a window to a door, added an extra door, removed partition

Added another room with another front door

Used bamboo mats of toilet walls to reuse in the new room and covered it with plastic sheets

Phase 1: Initial stage
Phase 2: Reconstruction stage
Phase 3: Present condition
Plate 2-D: Transformation stories: Mrs. Tuli Begum

This is Mrs. Tuli Begum (30). Her husband Md. Sogir Hossain Akand (40) used to have forestry and fishing businesses before. After Sidr, he lost everything and now works in Dhaka as a daily laborer. They also lost their previous house of wooden structure and CGI sheet walls. They received shelter assistance from NCCB and Mrs. Tuli lives there with her 5 children (aged 2-15) while her husband visits on weekends. Mrs. Tuli has taken small loans from Brac and has made the veranda usable as it is too hot inside the room. She has also started making plans for adding two rooms. She also grows kitchen vegetables and raises poultry for supporting the family.

Initially provided with a pit latrine
Used the kitchen for staying during the construction period
Original design by NCCB

Phase 1: Initial stage
Built an wooden frame for making a new toilet with CGI sheets
Partially enclosed the kitchen

Phase 2: Present condition
Veranda enclosed with jute sticks
Entry door added
Temporary veranda for keeping construction materials
Plinth prepared for adding another room

Internal changes:
Partition removed and another door added

Phase 3: Future projection
Wants to add rooms to two adjacent sides

NCCB TYPE A
Plate 2-E: Transformation stories: Sheuli

This is Sheuli (30). Her husband Prafulla Chandrashil (40) is a barber. Their family consists of their 2 sons, their in-laws and a brother in-law. Previously they used to live in a big house with three rooms and two verandas on opposite sides. The house was built on a mud plinth and had a wooden structure and wooden walls. It had a hipped roof of CGI sheets. After their house was devastated by Sidr, they received shelter assistance from NCCB. But as it was not possible for 7 persons to live in one room without windows, they demolished the whole house in order to build a new one with the help of loan. They say now they are happy with the house, but unhappy to be in huge debt.

Phase 1: Initial stage

- Used the kitchen for staying during the construction period
- Original design by NCCB

Phase 2: Reconstruction stage

- Partially enclosed the kitchen
- The whole structure is pulled down
- Pillars are kept and later reorganized
- The plinth is extended on all sides

Phase 3: Present condition

A two-storied house is constructed reusing materials from the NCCB house along with new materials
Durability

When asked whether they think the house will withstand the next cyclone, only 9 of the households were confident about their house, whereas 6 thought that their houses were not that strong and will definitely be devastated if another cyclone like Sidr strikes again. The majority was, however, of a mixed opinion or thought these things are not in human control. Some were of the opinion that their houses probably can resist tropical storms but not cyclones, while others thought the structure itself will be standing even though the plinth might be washed away and the roofing sheets blown away. It is interesting to note that all 5 households from Muslim Aid were very confident about their houses whereas none of the Type-A households of NCCB was confident about theirs.

The present condition of the different components of the houses was also noted to gain an idea of the overall durability of the structure. The majority of the households (16) affirmed that nothing has been deteriorated since the completion of their houses, although 4 households from Brac were worried about the cheap quality of the mortar while some were concerned that the roof-frame was not made of strong wood and proper tar, which might cause trouble in near future. Two families from Care houses that the bamboo mats from the walls were not in a very good condition and would not survive another monsoon. Steel trusses from some of the Care houses had started to rust, whereas one family (NCCB Type-B) had to fix the wooden truss as it broke down. Significant complaints arose from the NCCB houses as families thought that they had used good quality CGI sheets in the walls but not for the roof, and that is why cracks have already formed. The metal screws have become rusty and in some of the cases, have also been uprooted, allowing rain water to drip in the house.
**Appropriateness**

**i. Physical comfort**

The indicators of physical comfort were determined by such factors as temperature control, ventilation, light and so on. Surprisingly, all of the 25 households surveyed said that it was too hot inside the house. The lack of proper ventilation was cited as the main reason for the extreme heat, while the use of CGI sheet in the walls was thought to be the major source of heat generation. Although the majority felt comfortable in winter, some households from Care complained that it becomes too cold at that time of the year as cold breeze is penetrating through the bamboo mat walls from all sides. Many expressed their dissatisfaction with not being able to use the verandas in times of rain as the roof overhang was not extended enough to keep the rain from wetting the plinth. In the case of a few households, water was dripping inside when it was raining either because of crack formations in the roof or through the holes with rusty screws. The level of illumination inside the rooms was observed to be very low in all the cases, even although only a few households mentioned it.

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**ii. Status**

Whether the houses had any influence on the social status of the families concerned was also an issue of interest. However this did not seem to be of much importance to the majority as 16 households (64%) believed that their position in the society remained unchanged despite the changes in their housing situation. Among the other 9 households, 3 saw the effect of the house upon their social status as positive, while the rest 6 were of an opinion that their dignity had been adversely affected by the kind of shelter assistance they received.
**iii. Privacy and Security**

Privacy proved to be a major concern as 60% of the households said that the houses did not offer adequate privacy for them. Conversely, it was not an issue for the nuclear families, although some mentioned that privacy was a problem only when they had guests visiting them over. The problem was acute in the Brac and NCCB type B houses which have one room only. The households were divided when it came to the question of physical security. 48% did not consider themselves secure enough against theft and robbery whereas 44% thought their assets and possessions were safeguarded by the house. The feeling of security was based basically on the provision of window bars and the type of material used for the walls.

![Security issues in the houses](image)

*Figure 3.11: Security issues in the houses*

**iv. Cultural sensitivity**

Cultural appropriateness is something that could not be determined through questionnaires or discussions and the author had to rely on personal observation and interpretation for this issue. The other factors of privacy and status also contribute to the understanding of cultural acceptance.
It is not that the organizations concerned introduced something totally alien to the community, in terms of the design, the choice of materials or the method of construction. Nonetheless, lack of sensibility to the housing practice of the region is noticed in all 5 housing types. For example, it came up through the discussions that the presence of a back door is essential for the house, even when there is no veranda at the back. People do not feel comfortable using the front door for going to the kitchen or toilet and this is perceived as something unacceptable. This factor was only considered in the houses from Muslim Aid.

It is also common practice to have a ‘macha’ or a mezzanine under the roof which provides storage space for the family and also provides an extra layer which helps reduce the heat generated by the roof. However, no such mezzanines were included in the design of any of the 5 housing types.

Both types of houses from NCCB do not provide any windows whatsoever and the front door works as the only opening of the house. This is not only culturally unacceptable but also shows no consideration to the health issues of the families.

**Socio-economic impact**

Issues of livelihood, health, education, provision for livestock, etc. were originally assumed to suggest different socio-economic impacts on the lives of the families interviewed. However they proved to be quite irrelevant as none of the organizations had incorporated these issues in the shelter projects. All NGOs had separate *livelhood rehabilitation projects* and the beneficiaries of housing projects did not receive any livelihood assistance as such, the same way as livelihood beneficiaries did not get any shelter assistance.[interviews] The projects concerned individual family houses only and not any community activity space such as clinics, primary schools, or just a simple gathering place.
A spider diagram was used for mapping six different kinds of assets of the families and to get an idea of their present and pre-Sidr socio-economic situation. The six forms of assets are financial capital, or the cash one has access to; physical assets, such as houses and household goods; human assets, or the skills and knowledge one possesses; political capital, or the voice one has in making decisions; natural assets, such as access to water, land, etc. and social assets, or the social networks and ties that can be called upon for support. [Lyons, 2010 Building Back Better]

![Spider Diagram](image)

**Figure 3.12: Mapping assets with Spider diagram for house# 3, Care**

The financial assets were found to be much lower than before for the obvious reason that the families had lost most of their belongings in Sidr. This was even truer for the 3 families who had taken loans for making adjustments to their houses as they were in serious debt and was finding it hard to repay their loans in time. The fact that many have lost their previous means of livelihoods and that job opportunities have decreased after Sidr is not helping the families to recover financially either. However, one positive aspect about the present houses was that they do not require regular maintenance unlike the former houses and that saves some money for the families.
The condition of physical assets varied according to families. Most of the families considered their present house to be more durable than the previous one and considered it as an important asset, although at the same time their household goods have reduced in number. A few of the families said that they were actually in a better position in terms of household goods as they received furniture and cooking pots from different relief activities which was more than what they needed. But the overall condition of physical assets was thought of as lower than before.

**Figure 3.13: Household items received in the emergency relief phase**

**Figure 3.14: Types of household possessions found in a house**
Human assets remained more or less the same, unless someone personally tried to gain knowledge about something, as no trainings or workshops were held for the families about disaster risk. Political assets were quite low before and the situation is not any better at present. Some feel that the local government authorities are not willing to hear their grievances as they think their responsibilities are over with the distribution of relief materials.

Utilities such as clean water and electricity were considered to be part of natural assets for this purpose. In 2 out of 5 shelter projects, there were provisions for clean drinking water through rain-water harvesting and water reservoirs, while families of 2 shelter projects had to walk quite a distance for collecting safe drinking water. Electricity was available in some areas which previously did not have access to it. The overall situation of natural assets is not lower, rather sometimes better than before.

Most of the families claimed that their social connections and the communal behavior have not gone through much change. Although sometimes there are some negative feelings working between people who received shelter assistance and those who did not, or between the families who received assistance from different organizations. The families with loans think their being in debt is affecting their social image and network.

At the time of Eid festival, everyone from this village got beef except us three families because we live in houses from another NGO.

Asma (23)
NCCB Type A
House#2

The people from the village union won’t help us now. They say that now that we’ve taken relief we shouldn’t ask for anything more.

Sobhan Talukdar (60)
Care House# 5

I can not lie. I have to say that I have more crockery and cooking pots now than before. They gave us many in the relief operations.

Meher Nigar (60)
Muslim Aid House# 4
Hopes and aspirations

Many issues came up while discussing the hopes and aspirations of the families centering their houses and what they would like to do as time progresses. They started from making little changes such as plastering the walls to the ultimate dream of building a two-storied brick house. Some (3) would like to start with applying plaster to walls (in case of brick walls) and to the plinth, especially at the sides to protect it from being washed away. Many (6) would like to change their mud plinths and rebuild with something more permanent. The ones who had not already created a mezzanine would like to do that in near future. Interestingly, the houses having bamboo mat walls wanted to replace them with CGI sheets, while those with CGI walls wanted to change them with wood or be able to make brick walls someday.

Half of all the households wanted to make extensions of various kinds. Creating a back door and building a veranda at the back seemed to be the most immediate need of these families, and they would like to make more verandas, one by one, and ultimately surround the core room with verandas on all sides. Some of the families wanted to create more rooms when possible, or simply to make the present rooms a little more spacious. A few families did not need to make
any extensions at present but have it at the back of their heads that it would be necessary to do so when their children grow up.

Five of the families wanted to build attached kitchen and toilet with permanent materials, while one needed a cow-shed. Two families were not happy with the semi-permanent nature of their houses and wanted to make ‘a proper building’ with brick masonry when money is available. Two other families held a vision of making a two-storied brick building as soon as they can save enough money. For four families, however, being able to repay their debt was of topmost priority rather than dreaming unrealistically.

However, six of the interviewed families did not have any specific wishes of bringing changes to their houses. It is, in their opinion, a luxury for them to think like that now and they can not envisage when they would be in a financially well-off position to do that.
CHAPTER FOUR:

ANALYSIS AND DISCUSSION
Chapter 4: Analysis and Discussion

This chapter is going to discuss the shelter projects more in depth focusing on the project backgrounds and putting in the point of view of the concerned NGOs. Based on the content of the third chapter, this view point is going to be compared against the views of the beneficiaries in order to find out the gaps in the project cycle. The key issues emerging from the analysis will be discussed in the latter part of the chapter.

4.1 Project 1: Brac

Project Background
BRAC, the biggest NGO in Bangladesh, constructed 400 core houses in Patuakhali and Barguna districts in response to the housing needs after Sidr supported by Oxfam America (OA) and Oxfam Novib (ON) which was completed in December 2009. However, after recognizing acute shelter crisis in some parts of Bagerhat even two years after the cyclone, Brac decided to construct 280 houses in those areas in the second phase. [Rae, 2009]

With every house, a toilet was provided with Brac’s own funding which is very basic in nature. Although there was no wash project combined with the shelter project, it seems that care was taken so that there was source of clean water available in close proximity of the houses, from tube wells or pond sand filters (PSFs) that Brac constructed with OA and ON. [Rae, 2009] In the households visited, there were tube wells for the community. Some had invented ways of catching rainwater being inspired by the Care houses.

Beneficiary Selection

Beneficiary selection was based on initial surveys conducted by BRAC, based on certain criteria (table 5) and the final list was agreed upon after discussions with local people, local officials and elected representatives. These criteria appeared to be maintained and the interviewed households were satisfied about the process. As, Maloti (35) says,
“However BRAC’s done a great job. They’ve given home to the ones who were most affected. They took many interviews.”

Table 5: Criteria for beneficiary selection, Brac

<table>
<thead>
<tr>
<th>Beneficiary selection criteria: Brac</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Original house was fully destroyed</td>
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<tr>
<td>• Family has no assets to build a house on its own</td>
</tr>
<tr>
<td>• An buildable plot is available</td>
</tr>
<tr>
<td>• Family does not own agricultural land</td>
</tr>
<tr>
<td>• No significant shelter assistance has been provided by another NGO</td>
</tr>
<tr>
<td>• Woman headed households (widow, divorced) and disabled prioritized</td>
</tr>
</tbody>
</table>

Design and Implementation Process

Kenny Rae, Oxfam America’s humanitarian response specialist, says that they agreed upon a house designed by Brac University because, "It was in line with traditional design, but has cyclone resistant elements including reinforced concrete corner pillars and a brick masonry foundation wall." [Heinrich, 2008] Beneficiaries did not have any direct input in the design process, and this lack of participation of beneficiaries in the first phase raised concerns and therefore in the second phase Brac responded by involving the house owners in paid labor for up to 15 days and by listening to minor design modifications like relocating windows or replacing a window with a door, often with extra money from the owners. In 3 out of the 5 houses interviewed, the placement of the door was changed from the middle to one corner, as with a door in the middle there was not enough space left for them to place a bed on either side. However none of the Brac households interviewed got the opportunity of providing paid labor although in most of the cases they worked along with the laborers. Moreover, the households had to provide meals for the laborers, even though Brac had directed them not to as they were already paid by the agency.
Design Issues

The houses by Brac are permanent in nature being constructed of brick masonry and concrete reinforced brick columns which add considerably to the strength of the structure. Unlike the other houses, it has a pukka cement floor and is less likely to get damaged due to flood water. The CGI roofing sheets are bolted instead of being nailed for the purpose of better wind resistance.

An evaluation report of Brac houses by Oxfam expresses concerns over poor quality of carpentry and rough brickwork [Rae, 2009]. This was reestablished by the findings from the surveys. There was a general dissatisfaction about the quality of wood in the roof trusses and the mortar in the brickworks which kept falling off the un-plastered walls. Only the first house was painted properly on the outer surface and the inner wall surfaces were also plastered and the other families complained that whenever Brac staff came to visit the place with donors, they only showed them the first house.

The report also states that “Beneficiaries were universally favorable about their houses.” This, however, did not seem to be the case with the interviewed households. Privacy was a problem
for most of the households there being only one room and not enough space to functionally divide the space into two. The placement of the door in the middle made it hard to place the furniture properly. The width of the veranda was viewed as too small to utilize it as an activity space and the roof overhang being insufficient made the situation worse in times of rain and scorching heat. The absence of a back door and a mezzanine was one of the major criticisms coming from the families. All the families complained that it was too hot inside the room. Concerns were expressed about the provision of lintel for the door only and not the windows. However, there was general satisfaction about the level of security and the durability of the structure.

The structure and layout of the house lacks flexibility and makes it challenging for the inhabitants to make future changes. In fact, among the 5 different projects, Brac houses had the least changes made to them, although a possible reason for this can be late execution of the construction.

4.2 Project 2: Muslim Aid

Project Background

As part of relief and rehabilitation program for Sidr, Muslim Aid provided shelter assistance in the form of permanent shelters, semi-permanent shelters and transitional shelters. The
permanent shelter project, which took place over 11 months from February to December 2008, was funded by Muslim Aid core funds and was concentrated on Sharankhola Upazilla of Bagerhat district (where 600 houses were planned under the project title 'Muslim Aid Shahjalal Village') and Mirzaganj Upazilla of Patuakhali district (where 400 shelters were planned), the two area designated by DMB (Disaster Management Bureau).

**Beneficiary Selection**

Muslim Aid conducted their own survey in their designated areas and checked the list against that from the local authorities. Special attention was given to the capability of the families to carry out the construction process and to afford the extra amount of money to be put in. For this reason, the project failed to reach the most vulnerable of the families affected in the disaster. The selected families, however, did not seem to have a clear idea about the selection criteria.

![Figure 4.3: Muslim Aid’s ways of disseminating information](image)

**Design and Implementation Process**

The major difference of Muslim Aid from the other NGOs is that they adopted a community based approach for the implementation process. Hammer International, an international engineering consultancy, was appointed by Muslim Aid to carry out the needs assessments and to recommend ‘the best suited shelter inventions’, which are said to be done through a series of participatory design exercises.[Muslim Aid, 2009]
The agreed design was then disseminated to the other beneficiaries through community meetings, beneficiaries group meetings, interagency coordination meetings, leaflets, Information board, beneficiaries’ pass books and beneficiaries’ files. There were trainings given to community leaders but the interviewed households attended the orientation program only where the process of construction was explained along with the duties and responsibilities of both the parties.

Figure 4.4: Steps followed in Muslim Aid’s participatory design exercises
Tk. 90,000 was given in total to the female members of the families in 4 installments, each after the successful completion of a particular activity. According to a report from Muslim Aid, ‘Tk. 10,000 was contributed by the beneficiaries mainly in kind and labour’, whereas all the interviewed families had to provide Tk. 30,000-35,000 in cash. In some cases, due to price-hike of the materials, this rose upto Tk. 70,000 (more than USD 1000) which put the families under tremendous pressure.

**Design Issues**

The Muslim Aid houses are permanent constructions with brick masonry and brick columns and thus offer more durability. The plinth is surrounded by a brick layer which reduces its chances of being washed away. The plaster on the upper surface is dependant upon personal affordability.

The provision of two rooms ensures better privacy for the families. Unlike the houses from other projects, these houses are provided with a back door which shows respect for cultural practice. There were no serious complaints from the families about the houses, apart from its being too hot inside the rooms, which is probably due to the CGI sheet roofing without any layers underneath. The families were overall happy about their houses as they thought these were much better than their previous houses, although at the same time maintaining that their social image had not been altered because of this.

The families however mentioned that they were pressurized to paint their houses by Muslim Aid even when they could not afford it. Some would have liked to make their verandas wider but were restricted to strictly follow the given measurements. Also, it came up in the discussions that Muslim Aid authorities had instructed the families not to make any changes as long as their office was still there in the region and told some of the families to break down their kitchen because ‘it did not look nice’.
The house, although being of a permanent nature, offers some flexibility for future adaptations mainly because of the back door. The rate of recovery seemed quite high in these families, as most of the families had already added another room at the back.

### 4.3 Project 3: Care

#### Project Background

CARE carried out their activities in response to Sidr in three phases. In the recovery and rehabilitation phase, which extended from March to December 2008, a total of 1,223 family shelters were constructed with the financial assistance from USAID and DEC. Rain Water Harvesting Plants (RWHP), the design of which was taken from DPHE (Department of Public Health and Engineering), were provided with all he houses for safe water for drinking and cooking. [Care, 2009]

#### Beneficiary Selection

Care relied on its PNGOs for the beneficiary selection process. PNGO staff collected a list of the most vulnerable households from the Union Parishad (local government) and verified it through door-to-door surveys by checking it against Care’s selection criteria (table...) before being
approved by Care’s Monitoring and Evaluation Unit. [Tod, 2008] There was not a clear idea among the surveyed households about the process of selection.

Table 6: Criteria for beneficiary selection, Care

<table>
<thead>
<tr>
<th>Beneficiary Selection Criteria: Care</th>
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</thead>
<tbody>
<tr>
<td>• Cyclone Sidr victim</td>
</tr>
<tr>
<td>• Poorest among the poor</td>
</tr>
<tr>
<td>• Women headed households including widowed, abandoned, or desolate women</td>
</tr>
<tr>
<td>• Physically disadvantaged and elderly people</td>
</tr>
<tr>
<td>• Households losing family members</td>
</tr>
<tr>
<td>• Pregnant or lactating women</td>
</tr>
<tr>
<td>• Ethnic or religious minority</td>
</tr>
<tr>
<td>• Not receiving FI or NFI from other projects</td>
</tr>
</tbody>
</table>

Design and Implementation Process

CARE’s initial strategy was to implement the project through partner NGOs (PNGOs). But having found out that they were overloaded with work from other organizations and had little experience in the construction sector, CARE looked for engagement from the private sector, who failed to produce reasonable quotes. CARE then decided upon ‘direct delivery’, meaning engaging directly with every step of the construction process themselves without the presence of another party. 20 houses were first built on an experimental basis and based on the lessons learned, which were mainly about procuring materials part by part and hiring different laborers for different parts of the construction, the other 1203 houses were built.

Although CARE talks about ‘engaging local community and beneficiaries’, this nature of engagement is not clear. As Abdul Wahed [Interview 11] puts it,

*Participatory process (PRA) was followed for beneficiaries selection, community were consulted for designing of shelters through FGD (Focus Group Discussion), ensured local culture and environment.*
Another independent evaluation report carried out on behalf of CARE affirms that CARE’s strategy had

“CARE-B along with most other non-government organisations concluded that the needs for relief (basic food and non-food items, water and temporary shelter) were so apparent that involvement of communities was not necessary.” [Tod, 2008]

The interviewed families also said that they were not informed beforehand about either the design or the implementation process.

**Design Issues**

The houses by CARE are of a semi-permanent nature with concrete pillars and bamboo mat walls. This makes them less durable but more culturally appropriate. The plinth is entirely built of earth and do not have any protecting layers of brick or cement. No cross-bracings were provided for better wind resistance, but extra bamboo poles were used for supporting the windows.

The creation of two rooms with a partition allows a level of privacy for the families. Cultural sensitivity is also noticed in the use of bamboo mats to surround the front veranda partially, which is the usual practice in the area, although the enclosed space was viewed by the families to be too small for carrying out any activity and in all the cases one side of the partition was removed.
Security was a huge concern for the families living in CARE houses as the windows had no bars and it was easy for burglars to cut in through the walls. The rooms were said to be too hot in summer, but also too cold in winter allowing cold breezes to pass in through the mats. There was also some discontent over the quick deterioration of the bamboo mats, which the families thought would not last another monsoon. The condition of the roofs was not very good either. Some of the nails and the steel truss had become rusty.

The layout of CARE houses is quite flexible to changes. All of the households had made some change or the other, both internally and externally. Many have removed the internal partition between the rooms and used it for enclosing the rest of the veranda, while some have transformed the windows into doors and added extra rooms. It was easier to make arrangements for extra doors into bamboo mat walls and that encouraged further extensions at the backside.

4.4 Project 4 and 5: NCCB

Project Background
‘Network on Climate Change, Bangladesh (NCC,B)’ was formed in 2005 by two local NGOs, namely Prodipan and Nabolok, with the support of ‘Bread for the World (BfW) Germany’ with an aim to reduce vulnerabilities of the poor to combat climate changes.

As part of their ‘Adaptation of Local People for Climate Change’ (ALPCC) project in the aftermath of Sidr, NCCB took up several projects concentrating on livelihoods and livestock as well as shelters. Their Post-Sidr Rehabilitation Program, funded by Diakonie Katastrophenhilfe (Germany), provided low-cost housing (around Tk.50,000 per house) in Sharankhola, Morrelganj, Bagerhat, Mongla and Koyra. The project went on for 3 years starting from July 2008. [Interview 10]

Although toilets were provided with each house, the access to clean water was something that was not looked into. In both of the cases, the families did not have any source of clean water and had to travel quite a distance to collect safe drinking water from tube wells.
Beneficiary Selection

NCCB took the help of their member organizations Nabolok and Prodipan for selecting the beneficiaries. Although they were provided with a beneficiary list from the local government authorities, they doubted the appropriateness of it and conducted their own surveys against their own criteria.

Design and Implementation Process

According to the NGO coordinator of NCCB, their local architect was responsible for the two kinds of shelter design that the organization came up with (who also designed the housing projects of Prodipan and Nabolok) and in doing this, the architect followed ‘UN standards’. Therefore, there was no involvement of the beneficiaries in the design process. However he pointed out that they were ‘free to work alongside the laborers, but without pay’. There was no mechanism for feeding back complaints but NCCB invited some of their beneficiaries to the seminars they held during the project period for their comments.

Design Issues

The difference between the two kinds of layout from NCCB is that Type-A has a front veranda and two rooms while Type-B has one room only with no veranda. Like the CARE houses, the plinths are made of earth without any protecting layers. These are also semi-permanent structures, with concrete pillars and CGI sheet walls and roof.

Their quality of workmanship is questionable as 5 houses were completed within a day by 10-12 laborers. The inadequate spacing of the columns was something the families worried about and all the families had inserted more bamboo poles in between the columns. No form of cross-bracings was used. There was also a huge gap left between the wall and the plinth and the families had to use wooden planks or bamboos to seal it. In some cases, the only opening for the door was left open without the door being attached. It is not clear how this design followed any standards, as they were like without any windows. This means that there is no provision for ventilation, temperature control or illumination, which makes the houses extremely
uncomfortable to live in. In fact, two of the houses were almost left abandoned (one from each type) while the families were thinking about reconstructing their house at another place using the CGI sheets and pillars from this one. What is more, two families from Type-B houses, not being able to live in those houses, took huge amounts of loans and reconstructed the whole building their way.

![Images of the two abandoned houses]

**Figure 4.5: View of the two abandoned houses**

The houses have some sort of flexibility in a sense that the columns are just inserted in the mud plinth and most of the houses changed their placements, although this is not very promising against a cyclone because they are not tightly anchored with anything. Cutting CGI sheets and making openings for windows was also a tough job for the families, in addition to the fact that that would reduce the strength of the sheets. The families with the Type-B houses probably had the least level of satisfaction compared to those from the other houses.
4.5 Comparative discussion

The discussion above reveals that there is a gap between an NGO’s perception and beneficiaries’ perception of a housing project and all the projects have their pros and cons. For example, among the agencies involved in post-Sidr reconstruction, Muslim Aid has been praised for their durable and well designed houses by both the beneficiaries and other NGOs. Although they have been criticized by some NGOs for not being able to reach the most vulnerable, they were the pioneering organization to take up ‘Cash and ODR’ strategy and went through an elaborate process of community involvement from the design to the implementation phase. This definitely sets an example for others who want to engage in participatory processes in future projects. Brac and Care would also rank high if compared to others in the field; Brac for providing a durable solution within a moderate budget to the most vulnerable and Care for coming up with a decent layout with locally used material. However, the design mistakes could be avoided if their engagement with the community was stronger.

Most of the agencies had provided ‘core shelters’, sometimes with a veranda. The type-B houses from NCCB are similar to the government contracted houses, which have been called ‘metal boxes’ by some NGOs and widely criticized for not maintaining basic health considerations. [Rae, 2009] Apart from using CGI sheets in core shelters, some organizations like UNDP and Islamic Relief used bamboo mats. There were also double-storied solutions, like the houses from Rupantar, but were very few in number because of their high cost. [Interview 3]
CHAPTER FIVE:

CONCLUSION
Chapter 5: Conclusion

This chapter puts forward the key observations found from the household surveys and interviews with the local NGO staffs about post-Sidr housing projects. Based on the findings, an attempt is made to provide some recommendations for the NGOs involved in post-disaster housing.

5.1 Key Observations

5.1.1 Institutional Level

There is not much institutional knowledge building

Very often, the technical knowledge required for a building project does not exist within an NGO and expertise is bought from outside for a certain project and for a certain duration. When the project timeline is over, the engineer or architect goes back and sometimes there is not much effort put into learning from his or her experience. Therefore, the valuable experiences are often lost with the termination of the project.

This lack of knowledge management was also identified in a paper from CENDEP,

‘Everybody’s on short term contracts. They’re employed normally for the project ... they do lessons learning exercises and they’ll go out and look at the job and write a report and write a section called lessons learnt. They’re in a file. The lessons are learnt on a bit of paper. It’s in a cupboard. So there’s no institutional knowledge building’ [Cage et al, 2009]

There is no local building codes regarding post-disaster housing

BNBC (Bangladesh National Building Code) covers the rules and regulations concerning construction in the urban areas. It does not provide any guidelines regarding constructions in the rural areas and also not about housing in a post-disaster situation. That is why there are as many different shelter designs as there are organizations. Post-disaster housing is a special case and minimum standards need to be established for this purpose. Sphere standards provide
a broad outline for such shelter projects which need to be interpreted and specified to the local context. There also needs to be a central regulating body to check whether the different shelter projects conform to those standards. Although several of post-Sidr housing projects did not fulfill the minimum Sphere standards, there was nothing done about it in the absence of a proper regulatory framework.

**There is a communication gap between the NGOs and the beneficiaries**

There is a considerable gap between how NGOs perceive their projects and what the beneficiaries think about them. NGOs might claim their projects to be participatory while the families did not get to participate in any of the decision making processes. Even when complaint mechanisms were in place, people were not aware of them. This means that there are certain loopholes in the project cycle that needs to be addressed.

**People have more trust in NGOS than the Government**

Although people hold various complaints against different NGOs, they seem to have a better trust in them than the government authorities. The local government is perceived as being corrupt and being partial to their own political parties. Some were of the opinion that if it was not for the NGOs, they would not have had anything. This faith in NGOs is something that can be used for the good of both the beneficiaries and the concerned NGOs.

**Shelter and livelihood are seen as two separate issues**

The NGOs have different programs for livelihood rehabilitation and shelter rehabilitation and the beneficiaries of these programs do not overlap. Not only did this projects did not incorporate any livelihood activities, but also the beneficiaries were denied opportunities to take part in any other livelihood projects. This raises questions about the sustainability of the projects in the long term. Many of the families reported that they were happy when it came to shelter, but very unhappy when it came to food.

**Trainings are not given much importance**

Only Muslim Aid had it in their agenda to provide trainings to some local craftsmen and community leaders about how to manage a project. The other NGOs did not regard trainings as
something essential. The EDM coordinator of Rupantar [Interview 3], a local NGO and Oxfam’s local partner, summarizes the situation like this:

*People do not want trainings under such unfavorable circumstances; they just want homes, a place to live in. Trainings are for normal times.*

**Local architect does not always mean better designs**

Engaging local architects and engineers in a shelter project is generally highly encouraged as they are supposed to have a better understanding of the local context and are thought to produce solutions that are locally relevant. But there can be exceptions too. The interviewed staffs from NCCB and their member NGOs thought very highly of the design produced by their own architect and were proud of themselves not having to seek for external expertise like some other NGOs, although it does not make sense how a metal house without windows can be culturally sensitive.

**Those who get shelter assistance are denied of other benefits**

Many of the families who were forced to change their means of livelihood after Sidr were doing poorly financially. As they were provided with shelter assistance, they were denied the opportunities to take part in other projects from the same or other NGOs. This had put them under pressure to resort to taking loans and made them financially vulnerable. To avoid this, the different programs undertaken by an NGO must have internal coordination between them so that the different beneficiaries get equal opportunities.

**Some materials are never explored**

Although post-Sidr housing projects are quite diverse in their choice of materials, they are still limited to a number of materials. As has been seen from the study about the previous shelter conditions of the interviewed families, wood is the most widely used material for walls and this is an option that was not explored by any NGOs. Also CGI sheet was universally used as roofing material while golpata is something that is used widely in the region for roofing purposes. The possibilities of these alternative materials must be looked more into.
5.1.2 Household Level

The household surveys reveal that little design decisions can have big impacts. The key findings regarding design issues are discussed below. [Figure 5.1 and 5.2]

**A minimum of two rooms ensure a certain level of privacy for the different members of a family.** This does not require much effort, as a partition of bamboo mats or CGI sheet effectively divides the space. This would imply the provision of an extra door between the rooms, and that can be discouraging for the NGOs in terms of cost. But leaving an opening for the door can be an option as the families themselves can make arrangements with curtains or whatever is available to them.

**Only one door is not acceptable.** It is not usual for the people living in the region to use the front door for going to the kitchen or toilet. Also, people usually entertain formal guests in the front veranda, and it is not comfortable for the female members to use the front door at those times. A back door ensures the privacy needed for the family and also opens up possibilities for future extensions.

**There is a need for a mezzanine.** Using a mezzanine is a common practice in the southern region which allows the families to store household materials. In situations when flood water exceeds the plinth height, mezzanine offers the only safe place for saving the valuables. This also works as an insulating layer and considerably reduces the extreme heat generated by the CGI sheet roofs. There is also an aesthetic value to this as people do not want the roof truss to be visible and tend to hide them with decorated fabrics.

**Windows are a must, not optional.** The Sphere Handbook mentions that there must be adequate level of ventilation and illumination. [Sphere Project, 2004] This is a very broad way to put it and in the absence of proper indicators, it is really difficult to measure whether the conditions inside a room conform to the minimum standards. More tangible indicators are needed for organizations so that the practice of providing no openings can be avoided. For example, if it is made mandatory in the building codes to provide two openings in two different faces of a room, this will ensure proper cross-ventilation and a certain level of comfort.
Windows must have bars. Windows without bars pose a security problem for the families and keeps them from using the windows altogether. Iron bars are the most secure form of protection for the windows, and if not possible, at least wooden bars should be provided.

The placement of doors must allow enough furniture space. It is usual for the families not to use single beds but large ones where many people can sleep together. These beds are also used for dining purposes for the whole family. While deciding upon the optimum placement of doors, the dimensions need to be considered so that furniture can be comfortably arranged.

The dimensions of the veranda must be such that one bed can be placed comfortably. As is the practice in the region, all families would eventually want to enclose the verandas and use it as another room. Therefore, the dimensions of the veranda should allow smooth conversion into an activity space.

It is better to have a layer of brick or cement plaster around the mud plinth. If this is done with a little effort, this can benefit the families in the long term. This protects the plinth from being washed away in flood water or getting damaged in the monsoon. This also reduces the effort a family has to put for the regular maintenance of the mud plinths.

Bolt it, not nail it. Bolting the CGI roof sheets to the roof truss system improves their wind resistance considerably and reduces the chance of the sheets being blown away.

Roof overhang must be sufficient to provide protection from sun and rain. As was seen in many cases, if the roof overhang is inadequate, this makes the verandas unusable and also keeps people from enjoying the benefits of windows. Some had to add extra sheets of CGI to the existing roof, sometimes without proper fixations, which makes this a very risky practice.

The orientation of the house is very important for physical comfort. As was seen in some of the cases, the families had requested the NGOs to place the veranda in the west of the house, but to no avail. That would have acted as a protecting layer against the heat and made the rooms cooler. It is better to avoid one façade of the house facing the west, and particularly the longer façade, to avoid the direct sun. This is all the more applicable if the house has CGI sheet walls.

There needs to be a scope for incremental development. It is a natural tendency of people to continuously try and upgrade their houses using any material at their disposal. Therefore, while
providing permanent housing solutions, it is very important to make future projections about possible extensions and to make sure that they can be done with minimum effort.

Figure 5.1: Some do’s and don’ts for designing post-disaster shelter in southern Bangladesh
Figure 5.2: Some do’s and don’ts for designing post-disaster shelter in southern Bangladesh
5.2 Who can learn from this experience?

The findings which came out from the study are nothing new and have been talked about over and over again by the various sectors involved in post-disaster housing. Nevertheless, it is surprising how these basic issues are often not incorporated into practice and are sometimes overlooked altogether. The problem was aptly put into words in one of the CENDEP Building Relevance papers:

‘The practice needs to think, they need to stop for reflection, the risk of the practice is to reinvent the wheel, to replicate what Ian Davis said 30 years ago, what John Turner has been saying for 40 years, so what now, what’s the novelty, what’s different?’ [Cage et al, 2009]

Therefore, what is of utmost importance is to turn the lessons learned into practice.

What does it imply for the NGOs?

It is necessary for the NGOs to learn from their own projects and from each other. Not every aspect of a post-disaster housing project needs to be done only after a disaster happens. As the southern coast of Bangladesh regularly experiences storms and cyclones, there must be a database already in place about the existing building practices in the region. This way the organization does not have to go through this process all over again and can make quick decisions about design solutions with the help of the beneficiaries. It is also very important that an NGO is able to understand its own capacities and in the absence of adequate experience seek for expert advice.

<table>
<thead>
<tr>
<th>NGOs</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Keep a data-bank of the housing practices in the areas prone to disasters</td>
</tr>
<tr>
<td>• Recognize own capacities</td>
</tr>
<tr>
<td>• Take lessons from own projects and that of others</td>
</tr>
</tbody>
</table>
What does it imply for the Government?

Bangladesh has a very elaborate early warning and disaster management system in place. Because of this and the cyclone shelters, the number of lives lost has been reduced dramatically. However, this does not mean the vulnerability of people has reduced and the number of lives affected by disasters remains more or less the same. Although a great many number of shelters are destroyed due to disasters, there is not a proper working framework to coordinate and guide the shelter activities after an emergency.

- **Government**
  - Provide a working framework for post-disaster shelter activities in the country
  - Include post-disaster housing standards into the national building codes
  - Nominate a regulating body to monitor the standards

What does it imply for the shelter practitioners?

There is a vocabulary gap between the local shelter practice and the emerging language of shelter in the global arena. It would be helpful for everyone if attempts are made to bridge this space. The new lessons from Shelter Centre and the UN Shelter Cluster must be incorporated into the local practice for a better understanding and improved results.

For a shelter project, it is up to the shelter practitioner to produce a balanced housing solution within the budget available that will respond to the needs of the beneficiaries. It is also the practitioner’s decision when and where to compromise. The following checklist, based on the findings from the household level, can act as a guideline for providing housing with a certain level of comfort in the southern coast of Bangladesh.
CHECKLIST: 10 things for a better house

✓ The plinth height is well above the normal maximum flood level.
✓ The roof overhang is enough for protection from rain and sun.
  ✓ Veranda is wide enough for placing a bed.
  ✓ There is provision for two rooms.
✓ There are two windows on different sides of a room.
  ✓ There is a front door and a back door.
  ✓ There is provision for a mezzanine.
✓ The longer façade of the house is not west-facing.
  ✓ Windows have bars.
✓ CGI sheet roof is bolted to the roof truss system.

5.3 What’s next?

It is encouraging that some positive signs are already visible in the post-disaster shelter scene in Bangladesh. The government is participating in the Emergency Shelter Cluster of the UN and a shelter coordination team has been set up in the country. [IFRCRCS, 2007] Also, some of the NGOs like Oxfam and Rupantar who had previously been involved with emergency shelter only, have made policy changes and are incorporating transitional shelter activities in the aftermath of Aila, a cyclone that occurred in 2009. Some NGOs, after carrying out evaluations of their shelter projects, are trying to make the necessary changes. For example, the houses of Caritas, which used to consist of one room and no veranda, have been changed to two rooms with a veranda after the evaluations. [Interview 5] Sidr was the first major disaster where NGOs got involved with extensive shelter activities in the country and now improvements are noticed in the shelter responses after Aila. For a better shelter response in the future, it is important that all the actors act responsibly with regards to their standpoint and cooperate with each other.
APPENDICES
Appendix 1: Disaster Management System in Bangladesh

Bangladesh has a comprehensive structure for disaster management with a major focus on early warning systems and disaster preparedness, which has gained appreciation from the international community. The Ministry of Food and Disaster Management is responsible for the organisation of all disaster management initiatives. Bangladesh Meteorological Department (BMD) has a central role in weather forecasting and issuing early warnings. (Karim, 2005). However, there seems to be a lot of overlapping of policies and structures in the whole system. For example, there are three different bodies only for the purpose of coordination on the national level and also, there are so many different programs running parallel to one another for the purpose of disaster reduction, that effective coordination can be difficult.

![Diagram showing key actors and bodies in the disaster management system in Bangladesh](image_url)
### Appendix 2: List of Interviewed Households

<table>
<thead>
<tr>
<th>#</th>
<th>Name</th>
<th>Spouse</th>
<th>No of People living in the house</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Brac</strong></td>
</tr>
<tr>
<td>1</td>
<td>Maloti (35)</td>
<td>Passed away</td>
<td>5 (herself, her father, her 3 boys aged 12,10,9)</td>
</tr>
<tr>
<td>2</td>
<td>Zamina (50)</td>
<td>Husband was absent</td>
<td>2 (themselves)</td>
</tr>
<tr>
<td>3</td>
<td>Nurjahan Begum (40)</td>
<td>Abdul Karim Hawlader (45)</td>
<td>4 (themselves, 1 girl &amp; the wife of their son)</td>
</tr>
<tr>
<td>4</td>
<td>Maryam (50)</td>
<td>Passed away</td>
<td>6 (herself, elder son with wife &amp; 2 children, younger son)</td>
</tr>
<tr>
<td>5</td>
<td>Bakul (22)</td>
<td>Alamgr Gharami(30)</td>
<td>4 (themselves, 2 girls aged 10 &amp;2)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Muslim Aid</strong></td>
</tr>
<tr>
<td>1</td>
<td>Taslima (30)</td>
<td>Zakir Khalifa (35)</td>
<td>6 (themselves and 4 children aged 3-10)</td>
</tr>
<tr>
<td>2</td>
<td>Nasima (40)</td>
<td>Rustam Hawlader(42)</td>
<td>5 (themselves and 3 children aged 15-25)</td>
</tr>
<tr>
<td>3</td>
<td>Enamul Huq (35)</td>
<td>Jasmine Nahar (25)</td>
<td>4 (themselves, their daughter aged 6 &amp; his mother)</td>
</tr>
<tr>
<td>4</td>
<td>Meher Nigar (60)</td>
<td>Majid Gharami (80)</td>
<td>6 (themselves, 1 daughter, 2 sons, 1 with his wife)</td>
</tr>
<tr>
<td>5</td>
<td>Nazma (25)</td>
<td>Badal Hawlader(35)</td>
<td>5 (themselves, 2 boys aged 4yrs &amp; 10 days, mother-in-law)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Care</strong></td>
</tr>
<tr>
<td>1</td>
<td>Shaheda (70)</td>
<td>Passed away before Sirt</td>
<td>6 (herself, her daughter with husband and their 3 kids)</td>
</tr>
<tr>
<td>2</td>
<td>Senara Begum (26)</td>
<td>Md. Kalam Hawlader(37)</td>
<td>5 (themselves and 3 children aged 14, 11, &amp; 9)</td>
</tr>
<tr>
<td>3</td>
<td>Sabina (20)</td>
<td>Amir Hossain (26)</td>
<td>5 (in-laws, themselves &amp; 1 child)</td>
</tr>
<tr>
<td>4</td>
<td>Aklima (35)</td>
<td>Md. Hanif Akand (40)</td>
<td>5 (themselves and 3 girls aged 16, 10 &amp; 4)</td>
</tr>
<tr>
<td>5</td>
<td>Hanufa (45)</td>
<td>Md. Sobhan Talukdar (60)</td>
<td>5 (themselves and 2 girls &amp; a boy aged 10-20)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>NCCB Type-A</strong></td>
</tr>
<tr>
<td>1</td>
<td>Mrs. Tuli Begum (30)</td>
<td>Md. Sogir Hossian Akand (40)</td>
<td>7 (themselves, 5 children aged 2-15)</td>
</tr>
<tr>
<td>2</td>
<td>Asma (23)</td>
<td>Nazrul Islam (29)</td>
<td>4 (themselves, 2 daughters aged 5 &amp; 2)</td>
</tr>
<tr>
<td>3</td>
<td>Morjina (30)</td>
<td>Abdul Jalil Munshi (42)</td>
<td>7 (themselves, 5 children aged 5-17)</td>
</tr>
<tr>
<td>4</td>
<td>Md. Ashraf Ali (60)</td>
<td>Parul (40)</td>
<td>5 (themselves, 2 sons &amp; a daughter aged 10-17)</td>
</tr>
<tr>
<td>5</td>
<td>Shahinoor (18)</td>
<td>Abdur Rahman (25)</td>
<td>3 (themselves &amp; a daughter aged 2)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>NCCB Type-B</strong></td>
</tr>
<tr>
<td>1</td>
<td>Bakul (45)</td>
<td>Shudhir Chandrashil (55)</td>
<td>2 (themselves)</td>
</tr>
<tr>
<td>2</td>
<td>Sheuli (30)</td>
<td>Prafulla Chandrashil (40)</td>
<td>7 (themselves, in-laws, brother in-law &amp; 2 sons aged 10 &amp; 15)</td>
</tr>
<tr>
<td>3</td>
<td>Tarun Chandrashil 25</td>
<td>Shankari Rani (20)</td>
<td>4 (themselves, 1 daughter aged 4 &amp; brother in-law)</td>
</tr>
<tr>
<td>4</td>
<td>Arunshul (33)</td>
<td>Sharna Rani (26)</td>
<td>4 (themselves, 2 daughters &amp; a brother)</td>
</tr>
<tr>
<td>5</td>
<td>Jagadish Shil (55)</td>
<td>Kusum Shil (45)</td>
<td>8 (themselves, 2 sons and their wives with a kid, 1 daughter)</td>
</tr>
</tbody>
</table>
## Appendix 3: List of Key Informant Interviewees

<table>
<thead>
<tr>
<th>Name</th>
<th>Sex</th>
<th>Position Held</th>
<th>Organization</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Abdus Sobhan</td>
<td>Male</td>
<td>Public Health Engineer, Humanitarian Department</td>
<td>Oxfam</td>
<td>Interviewed in person on 06.06.2010 in Dhaka, Bangladesh</td>
</tr>
<tr>
<td>Mohammad Aminur Rahman</td>
<td>Male</td>
<td>Research Associate, Post Graduate Programs in Disaster Management</td>
<td>Department of Architecture, Brac University</td>
<td>Interviewed in person on 08.06.2010 in Dhaka, Bangladesh</td>
</tr>
<tr>
<td>Faruque Ahmed</td>
<td>Male</td>
<td>Program Coordinator, EDM Program</td>
<td>Rupantar</td>
<td>Interviewed in person on 13.06.2010 in Khulna, Bangladesh</td>
</tr>
<tr>
<td>Gazi Manjurul Alam</td>
<td>Male</td>
<td>Program Coordinator, Climate Change Focal Point</td>
<td>Nabolok</td>
<td>Interviewed in person on 13.06.2010 in Khulna, Bangladesh</td>
</tr>
<tr>
<td>Michael Biswas</td>
<td>Male</td>
<td>Regional Director (Khulna Region)</td>
<td>CARITAS</td>
<td>Interviewed in person on 13.06.2010 in Khulna, Bangladesh</td>
</tr>
<tr>
<td>Ohidul Islam</td>
<td>Male</td>
<td>Branch Manager (Sharankhola Branch)</td>
<td>Muslim Aid</td>
<td>Interviewed in person on 14.06.2010 in Sharankhola, Bagerhat, Bangladesh</td>
</tr>
<tr>
<td>Golam Mostafa</td>
<td>Male</td>
<td>Area Manager (Sharankhola Region)</td>
<td>Friendship</td>
<td>Interviewed in person on 14.06.2010 in Sharankhola, Bagerhat, Bangladesh</td>
</tr>
<tr>
<td>Buddhadeb Haldar</td>
<td>Male</td>
<td>Branch Manager (Sharankhola Branch)</td>
<td>Nabolok</td>
<td>Interviewed in person on 15.06.2010 in Sharankhola, Bagerhat, Bangladesh</td>
</tr>
<tr>
<td>Ms. Tanziba Huq</td>
<td>Female</td>
<td>Project Engineer</td>
<td>Brac</td>
<td>Interviewed viate telephone by Nawzish Ali on</td>
</tr>
<tr>
<td>Abdul Wahed</td>
<td>Male</td>
<td>ERP Coordinator, ALPCC</td>
<td>NCCB</td>
<td>Interviewed by Nawzish Ali on 15.06.2010 in Sharankhola, Bagerhat, Bangladesh</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Interviews conducted by e-mails through Sophie Jopling in July and August, 2010</td>
</tr>
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## Appendix 4: Sample Household Questionnaire

### Basic Information:

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
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</thead>
<tbody>
<tr>
<td>Name</td>
<td></td>
</tr>
<tr>
<td>Age</td>
<td></td>
</tr>
<tr>
<td>Profession (Before/After)</td>
<td></td>
</tr>
<tr>
<td>Family Members</td>
<td></td>
</tr>
<tr>
<td>Religion</td>
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</table>

### Description of Previous shelter

<table>
<thead>
<tr>
<th>Site</th>
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<tbody>
<tr>
<td>Structure</td>
<td></td>
</tr>
<tr>
<td>Roof</td>
<td></td>
</tr>
<tr>
<td>Plinth</td>
<td></td>
</tr>
<tr>
<td>Wall</td>
<td></td>
</tr>
<tr>
<td>Others</td>
<td></td>
</tr>
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</table>

### How was your dwelling affected by the cyclone?

<table>
<thead>
<tr>
<th>Has there been any disasters before or after?</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>When and by who were you provided assistance in shelter afterwards?</td>
<td></td>
</tr>
</tbody>
</table>

### Shelter Assistance

<table>
<thead>
<tr>
<th>When</th>
<th>Who</th>
<th>What Kind</th>
</tr>
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<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Decision Process</td>
<td>Selection</td>
<td></td>
</tr>
<tr>
<td>------------------</td>
<td>-----------</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Design</td>
<td></td>
</tr>
<tr>
<td>Implementation</td>
<td>Labor</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Budget</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Material</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Training</td>
<td></td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Issues and Indicators:</th>
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<tr>
<td><strong>Likeability</strong></td>
<td>Not happy</td>
</tr>
<tr>
<td></td>
<td>Happy</td>
</tr>
<tr>
<td></td>
<td>Very happy</td>
</tr>
<tr>
<td><strong>Does it feel like Home?</strong></td>
<td>Yes</td>
</tr>
<tr>
<td></td>
<td>A little</td>
</tr>
<tr>
<td></td>
<td>No</td>
</tr>
<tr>
<td><strong>Adaptability</strong></td>
<td>Original Design</td>
</tr>
<tr>
<td></td>
<td>Present Condition</td>
</tr>
<tr>
<td></td>
<td>addition</td>
</tr>
<tr>
<td></td>
<td>change</td>
</tr>
<tr>
<td></td>
<td>repair</td>
</tr>
<tr>
<td></td>
<td>recovery</td>
</tr>
<tr>
<td><strong>Durability</strong></td>
<td>Protection against the next disaster</td>
</tr>
<tr>
<td></td>
<td>Condition of the different components</td>
</tr>
<tr>
<td><strong>Appropriateness</strong></td>
<td>Cultural</td>
</tr>
<tr>
<td></td>
<td>Environmental</td>
</tr>
<tr>
<td></td>
<td>Status</td>
</tr>
<tr>
<td></td>
<td>Privacy</td>
</tr>
<tr>
<td></td>
<td>Security</td>
</tr>
</tbody>
</table>
### Socio-economic Impact:

<p>| | |</p>
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<th></th>
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</thead>
<tbody>
<tr>
<td>Livelihood</td>
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</tr>
<tr>
<td>Health</td>
<td></td>
</tr>
<tr>
<td>Education</td>
<td></td>
</tr>
<tr>
<td>Livestock</td>
<td></td>
</tr>
<tr>
<td>Communal Behavior</td>
<td></td>
</tr>
</tbody>
</table>

| Has there been any follow-up? |               |
| Is there a complaint mechanism? |               |

### Mapping Assets: Spider Diagram

- Political
- Human
- Natural
- Physical
- Social
- Financial
Appendix 5-A: Sample Interview Summary

Abdus Sobhan  
Public Health Engineer  
Humanitarian Department,  
Oxfam  
06/06/2010

Oxfam has been here in Bangladesh since 1971, but DRR activities began only 15 years back. Oxfam has 3 departments, which are Humanitarian, Gender and Policy and Advocacy.

He has been with Oxfam for the last 2 years and is involved with projects related to SIDR only.

Oxfam has recently changed their policy regarding post-disaster housing. Earlier, they used to provide emergency relief only to disaster victims and their involvement with shelter was in the form of providing ‘Emergency Shelter Kits’, but now they are moving toward providing Core Housing as well. At this moment they have an on-going project in Shyamnagar of Satkhira district as a response to housing needs after Cyclone Aila of 2009. In this case, they are following the standard design provided by ECHO. Although he questions the durability of the houses in terms of resisting the wind pressure of cyclones and flood levels. He thinks Muslim Aid, Care and Caritas follow their own designs.

Around 3000 ‘Emergency Shelter Kits’ were given during the first 4-6 weeks, which is considered as the emergency phase, after SIDR in Khulna region. Their local partners in distributing the shelter kits there were two NGOs called Rupantar and Uttoron. A typical shelter kit from Oxfam would include 1 or 2 sheets of plastic, 2 or 3 bamboos, and fixing equipments such as rope, etc. whereas some other NGOs might have included in the early recovery phase (6 months) CGI sheets and bamboo mats.

An evaluation was carried out by Oxfam after 6 months of the beneficiaries of the shelter kits, and as a result of which they have decided to change their shelter policy. Recipients of shelter kits were denied help by other NGOs. This is also due to the fact the Union Parishad designated different areas for different NGOs to avoid overlapping of relief beneficiaries.

When selecting beneficiaries, Oxfam puts emphasis on finding out the most vulnerable. Usually people who are hard core poor, people with disability, households that are female-headed or have girls to be married off are a priority on their list. Livestock is not a concern for them.

Their shelter projects are completely donor-driven and they get most of their donations from ECHO, Unicef and Oxfam Affiliates, Australia.
Appendix 5-B: Sample Interview Summary

Faruque Ahmed  
Program Coordinator  
EDM Program  
Rupantar  
13/06/2010

They have worked with Oxfam after SIDR, who had refused to get involved in post-disaster housing. Oxfam places much importance on low-cost sustainable solutions. They think what the other NGOs are doing are not durable at all and will not withstand the next disaster; therefore, it is better not to do anything than making houses that will fall on you the next time a disaster hits. Moreover, those houses are culturally unacceptable (a whole family having to share one room only) and not environmentally viable (sometimes with no windows). Some of these houses are already in bad condition after the tropical storm Reshmi in 2008.

After SIDR, Rupantar got various offers from INGOs to become partners in shelter projects, but they turned them all away as they were not happy with the designs. On the other hand, Rupantar has developed a design of their own with their in-house engineer which they think can be an example for other organizations. Unfortunately they failed to get a donor funding their project and so instead, they raised Tk 2,10,000 with a day’s salary of all their staff. With this money they built 2 houses in Southkali for 2 widows. They were built under their full supervision. They are very proud of their houses, as those 2 houses were the only ones in the area which did not go under flood water after Aila.

No trainings were given while those houses were built, as at such unfavorable circumstances people do not want training; they just want homes, a place to live in. Trainings are for normal times. But as to complaint mechanism, they had complaint boxes while on relief operations. They always work with the local government, ie, the Union Parishad.

He thinks the big donors are very much biased when it comes to deciding how much money to donate to different countries. For example, after the 2004 Indian Ocean tsunami, Tk. 1,00,000 was allocated for each new house in Indonesia whereas only 30,000-40,000 per house after SIDR.

Apart from working with Oxfam in the first 15 days after the disaster in emergency relief (food, drinking water, plastic sheets, etc), Rupantar also worked with other INGOs in the first 1 month in house repair programs. The scheme was to give each affected family Tk. 10,000 along with CGI sheets, screws and other tools. But there have not been any follow-ups so far.
Appendix 5-C: Sample Interview Summary

Michael Biswas
Regional Director
CARITAS Khulna Region
13/06/2010

Caritas has provided a total of 28,000 houses as part of their shelter program after SIDR, of which 600 are in Dhanshagar union of Saronkhola. They work in partnership with the local government. TNO office is where the chairman of Union Parishaad is stationed at and from where all post-disaster works are brought under government coordination.

They were very keen on ensuring transparency in the selection of beneficiaries and used PRA methods. They also took the beneficiary list from the local government and other sources and combined it with their own. After coming to a conclusion, they hung up the list on a notice board so that the community could decide if it was appropriate and asked people to visit the program committee within 2 days if they had any complains. They were also given trainings regarding how the houses can help in reducing their risks in disaster. Brochures with pictures were also handed out so that people knew the basics of construction and not be fooled by the laborers.

The housing project started 6 months after the disaster took place and was completed after 1.5-2 months in 2008. Their houses comprise of a core of 18’x10’ which is divided into 2 rooms and a veranda in front which is 6’x18’. The pillars of the veranda are 4”x4” and the others are 5”x5”. They have an earthen plinth, a roof of CGI sheets over wooden truss and walls of bamboo mats with wooden cross-bracing. The plinths were done by the beneficiaries themselves under the supervision of Caritas. Sanitary pit latrines are provided with each house.

Catholic Relief Service works as the donor for Caritas. A foreign architect from CRS came out with the design for their housing projects after consulting with local engineers. Caritas has different designs for different regions. Previously their houses used to be of one room only of 16’x10’ with no veranda, but after evaluations they decided to turn it into 2 rooms of 18’x10’ with a veranda to make it more culturally appropriate. Each house was given a token and the condition was that they can not sell it or give it to anyone else, and if they do decide to sell their house, the Union Parishaad will act as the arbitrator in that matter and their decision will be final.

Apart from shelter projects like this, they were also involved in emergency relief and distribute plastic sheets as part of NFIs (non-food items). They also had house repair programs where households were given cash, bamboo and CGI sheets. These were given in two phases so that people can use the cash wisely. There were also livelihood restoration projects where people were given sewing machines, rickshaw-vans and livestock, but these recipients did not receive houses.
### Appendix 6: Tables showing results for the qualitative indicators

<table>
<thead>
<tr>
<th>Brac</th>
<th>House # 1</th>
<th>House # 2</th>
<th>House # 3</th>
<th>House # 4</th>
<th>House # 5</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Likeability</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Are you happy in this house?</td>
<td>OK</td>
<td>Happy</td>
<td>Not happy</td>
<td>Happy</td>
<td>Happy</td>
</tr>
<tr>
<td>Is it better than your previous house?</td>
<td>Confused</td>
<td>Better</td>
<td>Much worse</td>
<td>Better</td>
<td>Much better</td>
</tr>
<tr>
<td>Does it feel like home?</td>
<td>A little</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td><strong>Durability</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Protection against next disaster</td>
<td>✓</td>
<td>✓</td>
<td>x</td>
<td>~</td>
<td>~</td>
</tr>
<tr>
<td>Condition of the components</td>
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<td>unchanged</td>
<td>unchanged</td>
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<tr>
<td><strong>Appropriateness</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Comfort</td>
<td>too hot, too hot, veranda unusable in rain</td>
<td>too hot, can't sleep at night</td>
<td>too hot, too hot, but no problem with rain</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Privacy</td>
<td>x</td>
<td>~</td>
<td>x</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>Security</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>x</td>
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<th>House # 3</th>
<th>House # 4</th>
<th>House # 5</th>
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<tbody>
<tr>
<td><strong>Likeability</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Are you happy in this house?</td>
<td>Happy</td>
<td>Happy</td>
<td>OK</td>
<td>Happy</td>
<td>Happy</td>
</tr>
<tr>
<td>Is it better than your previous house?</td>
<td>Much better</td>
<td>Much better</td>
<td>Better</td>
<td>Better</td>
<td>Better</td>
</tr>
<tr>
<td>Does it feel like home?</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td><strong>Durability</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Protection against next disaster</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Condition of the components</td>
<td>unchanged</td>
<td>unchanged</td>
<td>unchanged</td>
<td>cracks have formed in the roof</td>
<td>unchanged</td>
</tr>
<tr>
<td><strong>Appropriateness</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Comfort</td>
<td>too hot, not enough ventilation, ok in winter</td>
<td>hot, ok in winter</td>
<td>extremely hot, so can't close the doors</td>
<td>hot, ok in winter</td>
<td>hot, ok in winter</td>
</tr>
<tr>
<td>Status</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Privacy</td>
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<td>✗</td>
<td>✗</td>
<td>✗</td>
<td>✔</td>
</tr>
<tr>
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<td>✔</td>
<td>✔</td>
<td>✔</td>
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<td><strong>Likeability</strong></td>
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<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Are you happy in this house?</td>
<td>OK</td>
<td>Happy</td>
<td>OK</td>
<td>OK</td>
<td>OK</td>
</tr>
<tr>
<td>Is it better than your previous house?</td>
<td>Better</td>
<td>Better</td>
<td>Better</td>
<td>Worse</td>
<td>Worse</td>
</tr>
<tr>
<td>Does it feel like home?</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>A little</td>
<td>No</td>
</tr>
<tr>
<td>Protection against next disaster</td>
<td>~</td>
<td>~</td>
<td>~</td>
<td>~</td>
<td>~</td>
</tr>
<tr>
<td>Condition of the components</td>
<td>the bamboo mat walls have deteriorated</td>
<td>unchanged</td>
<td>unchange d</td>
<td>the screws in the roof have become rusty along with the steel truss</td>
<td>the bamboo mat walls have deteriorated</td>
</tr>
<tr>
<td><strong>Durability</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Comfort</td>
<td>too hot</td>
<td>too hot, ok in winter, water dripping</td>
<td>too hot, not enough ventilation</td>
<td>too hot, too cold in winter as wind enters from all sides</td>
<td>too hot, too cold in winter as wind enters from all sides</td>
</tr>
<tr>
<td><strong>Appropriateness</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Status</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Privacy</td>
<td>✗</td>
<td>✗</td>
<td>✗</td>
<td>✔</td>
<td>✗</td>
</tr>
<tr>
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<td>✗</td>
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<td>✗</td>
<td>✗</td>
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<table>
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<tr>
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<th>House # 5</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Likeability</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Are you happy in this house?</td>
<td>Happy</td>
<td>Happy</td>
<td>Happy</td>
<td>OK</td>
<td>OK</td>
</tr>
<tr>
<td>Is it better than your previous house?</td>
<td>Confused</td>
<td>Better</td>
<td>Worse</td>
<td>Confused</td>
<td>Worse</td>
</tr>
<tr>
<td>Does it feel like home?</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>A little</td>
</tr>
<tr>
<td>Protection against next disaster</td>
<td>✗</td>
<td>✗</td>
<td>✗</td>
<td>✗</td>
<td>✗</td>
</tr>
<tr>
<td>NCCB Type B</td>
<td>House # 1</td>
<td>House # 2</td>
<td>House # 3</td>
<td>House # 4</td>
<td>House # 5</td>
</tr>
<tr>
<td>-------------</td>
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<td>-----------</td>
</tr>
<tr>
<td><strong>Likeability</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Are you happy in this house?</td>
<td>Not happy</td>
<td>Not happy</td>
<td>Not Happy</td>
<td>Not happy</td>
<td>Not happy</td>
</tr>
<tr>
<td>Is it better than your previous house?</td>
<td>Worse</td>
<td>Worse</td>
<td>Confused</td>
<td>Much worse</td>
<td>Much worse</td>
</tr>
<tr>
<td>Does it feel like home?</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td><strong>Durability</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Protection against next disaster</td>
<td>✓</td>
<td>~</td>
<td>x</td>
<td>~</td>
<td>~</td>
</tr>
<tr>
<td>Condition of the components</td>
<td>truss broke down, had to change it</td>
<td>unchanged</td>
<td>many wholes in the roof</td>
<td>unchanged</td>
<td>unchanged</td>
</tr>
<tr>
<td><strong>Comfort</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>hot</td>
<td>hot</td>
<td>hot, water dripping</td>
<td>extremely hot because of CGI sheet</td>
<td>hot</td>
</tr>
<tr>
<td>** Appropriateness**</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
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<td>x</td>
<td>x</td>
<td>x</td>
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Appendix 7-B: Photographic tour: Muslim Aid House# 5
Appendix 7-C: Photographic tour: Care House# 5

![Photographic tour: Care House# 5](image-url)
Appendix 7-D: Photographic tour: NCCB Type A House# 1
Appendix 7-E: Photographic tour: NCCB Type B House# 2
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