

# **A Study on the Disaster Response for Shelters During the 1998 Flood in Dhaka City**

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## ***Abstract***

*Provision of emergency shelter for disaster victims is an important aspect of post-disaster response. This happens in Dhaka City through an informal and ad hoc process in the absence of any disaster plans. The present paper reports an evaluation of the process in the wake of the specific instance of the 1998 flood, and some managerial and operational issues associated with it. Problems are identified based on field visits and a small survey, and some suggestions for improvement are given in conclusion.*

## **INTRODUCTION**

Shelter is recognized as a basic human right. While it may not be possible, under the prevailing political system, to ensure shelter for each citizen, it is nonetheless the responsibility of the government to create an environment where most people can fulfill this basic need. The government has a more direct responsibility to provide emergency shelter though, when environmental disasters render people homeless temporarily.

Disasters may physically destroy or damage homes. Or, in some cases, the environment of an area may degrade to an uninhabitable level in the aftermath of a disaster. In yet other cases, the government may force residents to leave their homes to ensure public safety in anticipation of an impending disaster. In any case, the government have to provide alternative arrangements for shelter until the displaced residents can return to their own homes.

When we speak of these alternative arrangements, we mean not only an enclosed space protecting the inmates from the elements of weather, but also the basic services and utilities that people need for a healthy life in a livable environment. The minimum of such provisions should include potable water supply, sanitation and medical facilities. Other supplies may be required depending on the specific situation.

Providing shelter for disaster victims is an important task in disaster management. Disaster management is a complex process that can be conceptualized as consisting of four non-linear, overlapping stages (Maheshwari, 1997): (i) preparedness, (ii) response, (iii) recovery, and (iv) mitigation.

The act of shelter provision takes place in the response phase, but this is ideally done by local/central government agencies according to a disaster plan prepared in advance in the preparedness phase. Disaster plans should spell out, among other things, designated emergency shelters with adequate capacity and within reasonable distance for each residential neighborhood.

The present paper looks into the response from different quarters to the temporary homelessness of victims of the 1998 floods in Dhaka City. Floods periodically affect Dhaka City and the hazard of other forms of disasters also exists. However, there are no disaster plans to mitigate and cope with the effects of disasters. In the absence of a disaster plan in Dhaka, it is not clear who is responsible for the arrangements of temporary shelters and provisions for city dwellers who fall victim to disasters. Yet numerous shelters were opened in the city during the 1998 floods (as well as during previous instances of disasters) providing temporary relief to a large number of victims who had to leave behind their homes. In the present study, the process and different aspects of shelter provision and management have been investigated and measures for overcoming identified drawbacks have been suggested.

The objective of the study was to understand, in the light of the 1998 floods, how temporary shelter is provided to disaster victims in Dhaka City in the absence of any disaster plans. The specific objectives of the study were to: (i) identify who take the initiative to set up emergency shelters, (ii) identify who take the responsibility to operate, manage and provide services to the shelters; and (iii) assess the problems associated with the present informal system of emergency shelter provision from the point of view of the operators, shelter seekers and the authorities of the premises. It is expected that the insights drawn from the study would help formulating the emergency shelter aspect of a much needed disaster plan for the city.

The authors visited a number of shelters while they were in operation. Key figures in the bodies responsible for the premises where the shelters were set up, or owners, in case of private property, were interviewed. Data on the location of shelters and number of shelter seekers were obtained from the Dhaka City

Corporation (DCC). A random sample of 51 shelters out of a total of 301 in the list were selected for a small scale questionnaire survey to obtain information on the management and operational aspects of the shelters. The respondents of the survey were the key figures i.e., owners of private residences, heads or senior teachers of educational institutions, managers of industrial establishments etc. It was recognized that a survey of the shelter seekers could give a better understanding of the issues at hand, but since they had already started to return to their homes by the time our survey could be launched, such a survey was not done.

### **THE SHELTER SEEKERS**

The flood of 1998 was arguably the worst in Dhaka City in recent times in terms of duration. However, some of the city areas that were inundated in the preceding serious flood of 1988 were spared this time. This was due, in part at least, to the flood protection embankment that has been built since the last flooding. In any case, the people most affected—those who fall victims first and are relieved last—are mostly from the lowest socio-economic tiers of society. The competition for land forces them to live on the most vulnerable land. People who flock to the shelters come from this level of society. Victims from better socio-economic backgrounds shun the shelters because of psychological barriers and lifestyle differences across class divisions.

Those who took refuge in the shelters included many members of the same family. The number of resident families as well as the total number of people was known for 251 shelters. Analysis of that data revealed a mean family size of 5.61. Male-female ratio for adults in the 297 shelters for which the breakdown by sex of the resident population was known tilted slightly in favor of females by 1:1.05, although for Dhaka as a whole, the ratio is 1.3:1 (BBS, 1997). This may be due to male members of families staying back to guard their homes and belongings, or the relative ease for single males to arrange alternative shelter elsewhere.

### **SPATIAL DISTRIBUTION OF SHELTERS**

Figure 1 shows the distribution of the 301 shelters in the DCC list among the 90 wards in the city. A total of 2,38,413 persons sought refuge in these shelters, as of 20 September 1998, according to the same source. Census data on ward populations were not available since the ward boundaries in 1998 were different from what they were during the last population census in 1991. There were 90 wards in 1998 instead of the 75 that were in existence during the last census. In a recent study, the population of 75 wards was redistributed into 90 wards through

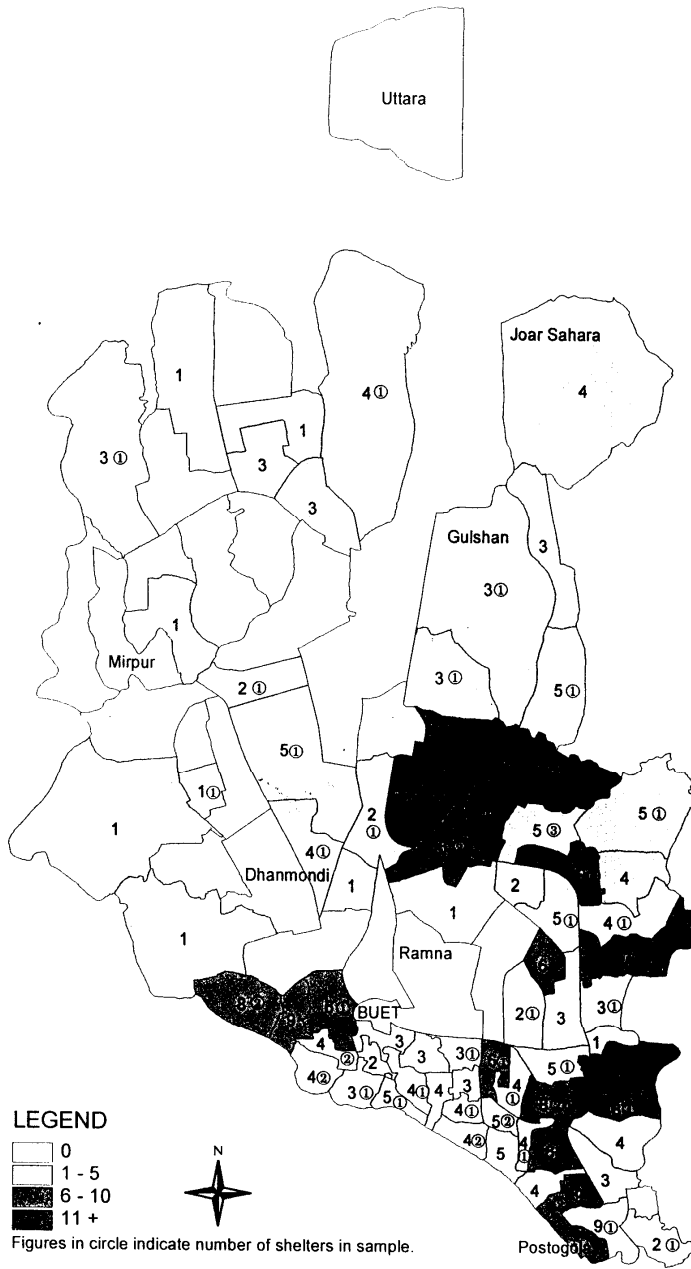
GIS-based areal manipulation, with manual adjustments for areas with highly heterogeneous population densities (Management Sciences for Health, 1996). The new ward populations were then projected for 1997. We have used these figures to calculate the ratio of shelter seekers in each ward. This may serve as an indicator for comparison of the relative impact of the flood on the residents in different wards, at least in terms of shelter, as shown in Fig. 2. The figure shows that the worst affected wards were in the east and south-east of the city. The refugee-to-population ratio was lower in the central wards, which are generally located on somewhat higher grounds, and in the west thanks to the flood protection embankment. It must be borne in mind, though, that many of the refugees in a shelter in a certain ward may come from outside that ward. During our visits to the ward, we have seen people staying in shelters that were not closest from their homes. In many cases the nearest shelter had already filled up and they had to move further on to find refuge. In some cases the shelter seekers decided to stay in shelters far from their homes because they were nearer to their places of work. While visiting a shelter in the Shukrabad area, we encountered a family that had just arrived from distant Barisal. Also, many 'floating people', who were not victims of the 1998 floods in the proper sense, found temporary refuge and other free benefits in the shelters.

### **ORIGINAL USE OF SHELTER BUILDINGS**

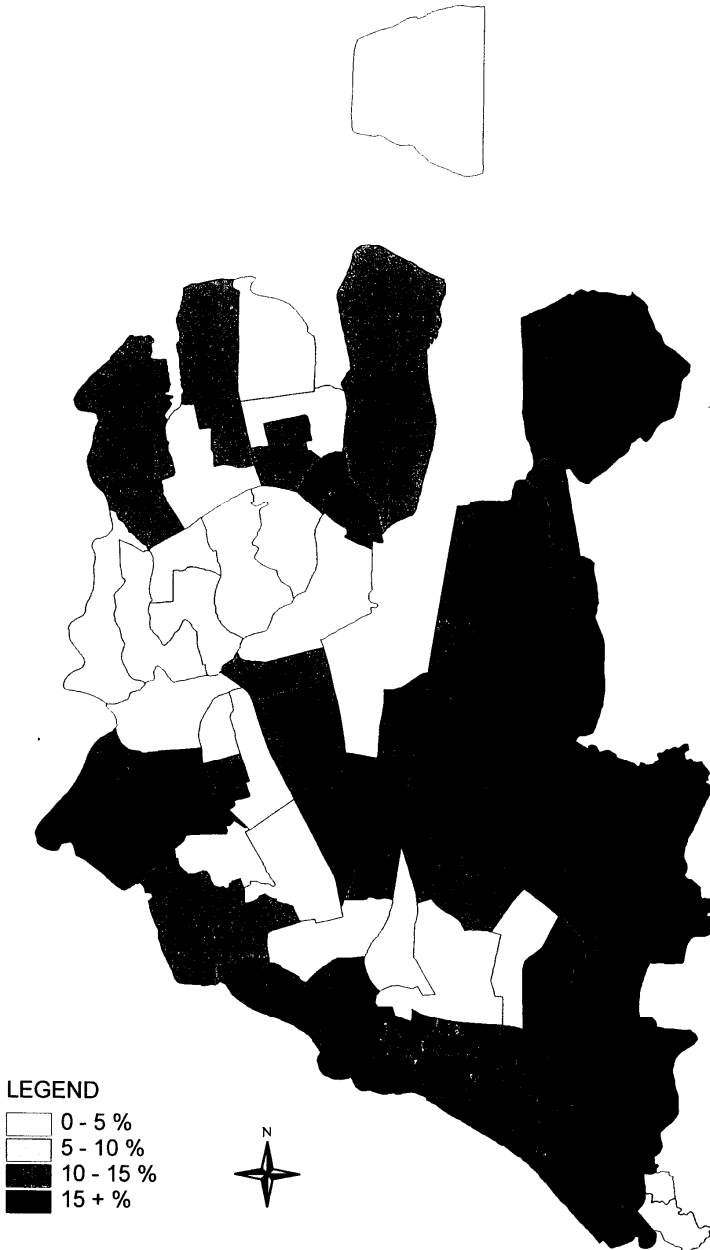
One of the primary matters of interest was where the shelters had been set up. It was found that the overwhelming majority of the shelters (76.7 percent) were located in buildings of educational institutes such as schools, colleges and *madrasahs* (see Table 1). These are convenient locations for emergency shelters because they can provide large spaces indoors, and usually outdoors as well, under public or communal ownership and/or management. Among the educational institutes, 60.6 percent are non-government. Only one, Jagannath University, is for tertiary education. Twelve community centers, owned by the DCC, provided shelter to the flood victims. The private residences and commercial buildings that acted as flood shelters were mostly under construction and therefore not in use when the flood occurred.

### **THE SAMPLE SURVEYED**

As stated earlier, 51 shelters were randomly selected for a small questionnaire survey regarding the operational and management aspects of the shelters. The original use of the shelter buildings are given in Table 2. As expected the majority of the shelters were educational institutes. The two shelters included in the 'Other' category were a club and a market. The spatial distribution of the sample is shown in Fig. 1.



**Figure 1: Distribution of shelters among the 90 wards**



**Figure 2: Wards categorized by ratio of refugees to total population during the 1998 flood**

**Table 1: Original use of building(s) used for flood shelters**

Original Use of Shelter	Number	%
School	200	66.4
College	28	9.3
<i>Madrasah</i>	3	1.0
Community Centre	12	4.0
Residence	20	6.6
Office	6	2.0
Factory	5	1.7
Institution/Hospital	3	1.0
Other	24	8.0
<b>Total</b>	24	8.0

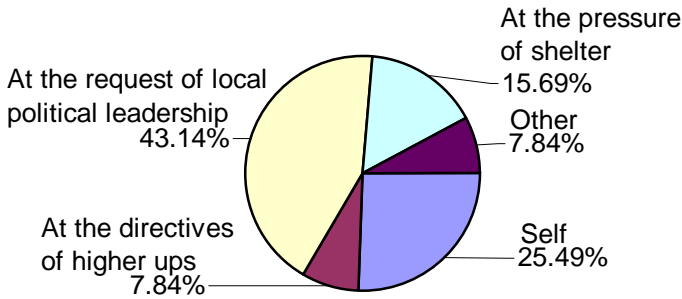
*Source: Calculated from DCC data.*

**Table 2: Original use of buildings of sample shelters**

Original Use of Shelter	Number	%
Educational Institute	40	78.4
Community Centre	2	3.9
Residence	4	7.8
Office	1	2.0
Factory	2	3.9
Other	2	3.9
<b>Total</b>	51	100.0

**INITIATIVE TO OPEN SHELTERS**

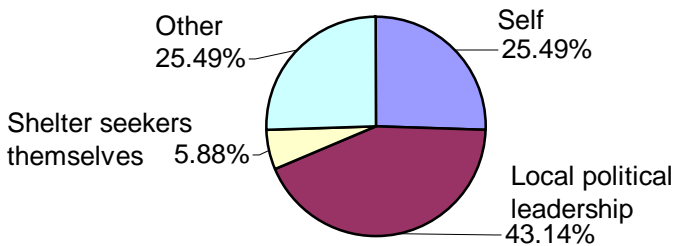
The authorities or owners of the buildings used as shelters, depending on their original use, were asked to indicate who took the initiative to open a flood shelter in their respective buildings. The respondents were presented with a set of given answers as shown in the legend of Fig. 3. 39.22 percent of the respondents informed that the shelter was opened at the request of local political leadership. Although the word ‘request’ was given in the questionnaire, discussions with many respondents suggested that in the given context they were rather obliged to heed to those requests. ‘Request’ may therefore be considered as a euphemism rather than taken in its literal sense. 7.8 percent of the respondents cited directives from higher authorities and 15.7 percent pressure of shelter seekers as the reason for opening the shelter. Almost a quarter (25.5 percent) did so at their own initiative out of a sense duty.



**Figure 3: Initiative to open shelters**

### OPERATION AND MANAGEMENT

The shelters, which were opened at the request of politicians, were mostly operated by them either directly or indirectly. Shelters run by them numbered 22 in the sample surveyed (see Fig. 4). The respondents were involved in overall management of 12 shelters. Some of the shelters were managed almost entirely by NGOs (falling under the ‘Other’ category in the chart).



**Figure 4: Party responsible for operation and management of shelters**

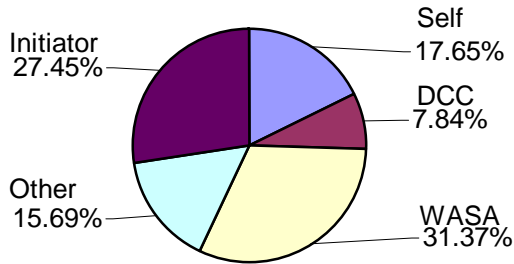


Visits to the shelters revealed dismal conditions in most of them. Most of the shelters lacked minimum facilities like adequate water supply and were full of filth and squalor. The toilets were particularly filthy and unhygienic. The shelters did not have the resources to cope with the maintenance of the premises with large numbers of round-the-clock inmates. DCC provided some cleaning services on an irregular basis. The shelters looked after by some NGOs were in relatively better shape. CARE, for example, took responsibility for food, water (Fig. 5) and toilet facilities for 15 shelters around the city that were well maintained. They supplied food and water on a regular basis and installed extra toilets as necessary. Medical teams from DCC, the Army, NGOs and other organizations provided inoculation against diseases and other preventive and curative treatment.



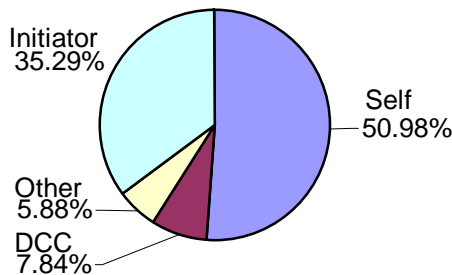
**Figure 5: Provision for water arranged by an NGO at a flood shelter**

In about three-fourths of the surveyed cases (37 out of 51 cases, to be precise) the shelters were not opened out of the free will of the respondents. We were therefore interested to know how those who took the initiative to open the shelters supported them. As far as the provision of potable water was concerned, the responsibility was borne by the party that took the initiative to open the shelter in exactly 14 cases (Fig. 6). However, thanks to WASA and other agencies, the party represented by the respondent had to bear the responsibility in only 9 (17.64 percent) cases.



**Figure 6: Provision of water**

Most of the shelters had not enough sanitary facilities to cope with a large resident population, since they were not designed that way. Half the shelters had to manage with their own insufficient facilities (Fig. 7), resulting in overflowing toilets or sewers and unhygienic conditions and filth (Fig. 8). Many residents found it more convenient to relieve themselves elsewhere, further exacerbating the situation. The situation was better in shelters where extra temporary toilets were installed (Fig. 9). When the initiator of the shelter did not take the responsibility for cleaning, it was mostly left to the respondents to manage the job with their own resources as shown in Fig. 10. This involved not only the employment of sweepers and cleaners, but also the procurement of sterilizing agents, bleaching powder etc.



**Figure 7: Provision of sanitation**



**Figure 8: Poorly maintained, unhygienic toilets**

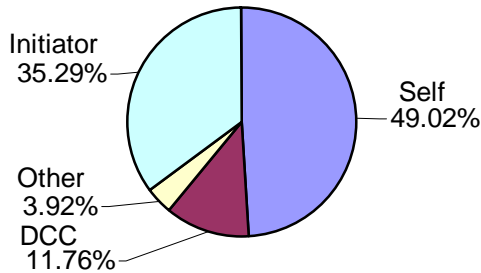


**Figure 9: Temporary toilets installed in one shelter**

## **RELIEF SUPPLIES**

Thanks to their accessible urban locations, the shelters received abundant supplies of relief for the victims of flood. Relief material came from many different sources: the government, local government (DCC), NGOs and other sundry sources (mainly different social or community-based organizations,

business firms etc.). The most common relief material was food and medical supplies, received by all shelters from one or more of the four categories of sources. Food was the most common material donated by the public (47 cases), followed by medical supplies, presumably with a fair share of ORS (34 cases), clothing (24 cases) and potable water (20 cases). Food and medical supplies also topped the list of relief goods from government and NGO sources. There was virtually no coordination in the distribution of relief from different sources. In some shelters, supplies were not regular according to complaints from the inmates and published reports, while in some other centers (or at certain times) the supplies were rather generous and lavish (Sarker *et al.*, 1998). While food was the most common donated item, many families were found arranging their own meals. They had temporarily lost their homes only, not their livelihood.



**Figure 10: Provision of cleaning service**

## CONCLUSIONS

Dhaka City has no disaster management plans according to which shelter-related response can be directed and coordinated. Yet numerous emergency shelters were set up based on spontaneous and ad hoc decisions. Although these shelters provided succor to a large number of people whose homes were engulfed by the flood, there were problems that requires attention. As stated earlier, many shelter seekers had to take refuge far off from their homes because adequate shelters were not available nearby. Relief distribution in the shelters was arbitrary, inequitable and not always matching needs. Management and maintenance in many shelters were far from satisfactory, because of lack of skills, resources or the will on the part of the owners/managers of the premises. The premises where the shelters were set up suffered considerable loss in terms of both environmental degradation and damage of building and furniture. Most owners/managers

bitterly complained about this aspect irrespective of whether they opened up their premises willingly or not. Surprisingly though, 70% of all respondents in our survey declared their willingness to offer their premises for emergency shelter if the need arises in future. We can thus be assured that if another disaster strikes this capital city, disaster shelters would spring up again in different parts where the victims would huddle together for sometime until their homes are fit for habitation.

However, in order to instill some discipline, order, coordination and predictability, there must be some prior planning. This planning should be done in the context of an overall disaster plan with a wider range addressing not only shelter provisions, but also other key issues such as lifelines, traffic, law-and-order etc. A cell in the local government (DCC) can be trained and entrusted with the coordination job with representations from concerned government and non-government agencies as required. The shelter-related recommendations are as follows:

- (i) Possible emergency shelters should be identified and designated, based on hazard and risk mapping of the city. The mapping can be done with GIS giving the probable number of homeless victims under different scenarios for different neighborhoods. The space available in the shelters must match the needs assessed in the GIS analysis.
- (ii) The public must be made aware of the designated shelters as a measure of preparedness, and the opening of shelters must be promptly announced publicly.
- (iii) Admission to the shelters should be strictly based on need and location of residence of admission seeker. Voters' identity cards may be used to determine if a person is from the locality of the shelter and thus eligible to take refuge there.
- (iv) The authorities responsible for the premises must have instructions on how to manage the shelters and their inmates. Standardized registration and record keeping of shelter seekers and their losses and needs should be enforced. Some compensation should be forthcoming for both the time and effort, and especially for the damage to the premises.
- (v) All relief material and services to the shelters should be channeled through the cell so that they can be dispatched to the shelters in a coordinated manner and in accordance with assessed needs.
- (vi) There should be a stock of water tanks, dispensers, etc. that can be easily dispatched and set up at the designated premises when they start functioning as shelters.

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