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A Study on Cyclone Recovery and Rehabilitation of Hizla Upazila in Barisal District of Bangladesh: A Case of Cyclone Sidr

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Keywords: *cyclone sidr, assessment, damage and losses, recovery and rehabilitation.*

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A Study on Cyclone Recovery and Rehabilitation of Hizla Upazila in Barisal District of Bangladesh: A Case of Cyclone Sidr

Abu Hassan [α], Md. Moniruzzaman [σ], Md. Ohidur Zaman [ρ] & M. Hasinur Rahman [ω]

Abstract- Since independence in 1971, Bangladesh has endured almost 200 disaster events – cyclones, storm surges, floods, tornadoes, earthquakes, droughts and other calamities. The cyclone Sidr is the superset cyclone in Bangladesh. The study has been conducted at Hizla Upazila in the Barisal district of Bangladesh. Natural disasters are increasing day by day according to the opinion of the participants of the study. The local government does not act systematically as per government rules. Damage and losses assessment was not systematic according to standing orders on disaster. The dwellers of the study area continue their livelihoods very miserable after Sidr. The farmer lost their all crops and crops value was 45,75,362 dollar. The fisherman lost their net, fish and boat and their wealth value was 35735 dollar. 39 education institution fully and 66 education institution partially were damaged. But all sectors cannot recover properly from their losses. Some national or international NGO and Bangladesh government provided relief like dry foods, seeds, fertilizer, rice and old clothes etc. Relief was not sufficient for the dwellers in the study area. The study area has no Disaster Management Committee or no Red Crescent members to recover from the impacts of natural hazards during the disaster period.

Keywords: cyclone sidr, assessment, damage and losses, recovery and rehabilitation.

I. Introduction

Bangladesh is one of the most disasters prone and particularly the worst flood-affected countries of the world. About one tenth of the global tropical cyclone occurs in the Bay of Bengal (GOB, UNDP, World Bank, 1993).Therefore, about one-third of the country is flooded almost every year. It is one of the most densely populated countries in the world, with more than 1000 people per square kilometer. As Cyclone hits almost every year, the people who live in the coastal regions as well as in the Coastal Chars areas are suffering from different types of social, physical and environmental problems.

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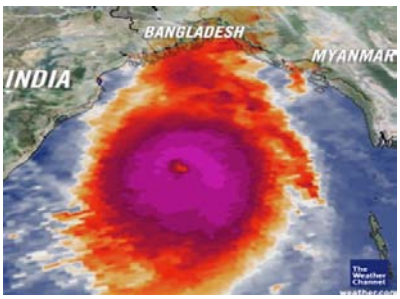
Sidr was the strongest named cyclone in the Bay of Bengal. It is known as super cyclonic Storm Sidr. The fourth named storm of the 2007 North Indian Cyclone season, Sidr formed on November 9, an area of disturbed weather developed southeast of the Andaman Islands, with a weak low-level circulation near the Nicobar Islands (Wikipedia, 2008) and gradually strengthened to reach peck one minute sustained winds of 260 km/h. The storm eventually made landfall in Bangladesh on November 15, 2007. The cyclonic storm of hurricane strength, Sidr was one of the 10 fiercest cyclones that hit the region of Bangladesh in the 131 years between 1876 and 2007. Almost 9 million people in 30 southern districts were affected by the cyclonic storm. Current figures report a death toll of 3,406 people, with a further 871 missing, over 55,000 injured (Assaduzzaman, 1986). Of the 30 districts affected, the government has classified four as the "worst" affected – Bagerhat, Barguna, Patuakhali and Pirojpur and eight districts as "moderately" affected - Khulna, Madaripur, Shariatpur, Barishal, Bhola, Satkhira, Jhalakathi, and Gopalganj.



Source: weather.com

Figure-01: Cyclone Sidr

On the other hand, according to the calculation by the Local Consultative Group, the total number of houses damaged was estimated at 1,522,077. Extensive damage to roads (8084 km), bridges/culverts (1687), protection embankments (1875 km) and public buildings, including 2,240 educational institutions destroyed and another 11,490 partially damaged(Islam & Neliam, 2010). Electricity and communication were knocked out. Roads and waterways became intransitive. The cyclone caused contamination of drinking water sources, in particular wells and ponds, which were

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spoiled by debris and leaves, as well as dead human bodies and animal carcasses. Many ponds were inundated by saline water brought by the tidal waves. Sanitation infrastructure was destroyed or damaged.

Table 01: Synopsis of cyclone Sidr

Formed	November 11,2007
Enter to Land	November 15,2007
Dissipated	November16,2007
Highest winds	215 km/h (130)
Lowest pressure	944 hPa(mbar)
Damage	$ 450 million (2007 USD)
Area Affected	Bangladesh and West Bangla, India

Source: Banglapedia, 2008

The selected study area is situated in Barisal city and is vulnerable to tidal inundation, cyclone, storm surges and monsoon floods under the coastal area of Bangladesh. The people of the area faced different kinds of the problem by natural hazards like Cyclone, storm surges, river bank erosion, water logging and heavy rainfall etc. Climate change puts extra burdens on the social and economic challenges that the poorest people already face.

The main objective is to assess damage and losses in the HizlaUpazila.

The specific objectives of the research are (i) To describe the processing of assessment system damage, losses and need (ii)) To explore damage and losses assessment in the study area, (iii) To assess recovery and rehabilitation programs during/post-disaster period, (iv) To assess disaster preparedness activities.

II. Methodology

The study has been conducted at HizlaUpazila in Barisal. The selected area is divided into six unions. About 40 In-depth Interview has conducted among six chairmen, male and female Local government member of the study area, Thana Nirbahi Officer of HizlaUpazila, Upazila Agriculture Officer, Upazila Fisheries Officer, Secretary of all of Union Parishad and Manager of BRAC. Three FGD has conducted among dwellers of the study area (three unions out of the six unions). Secondary data was collected from different organizations like Disaster Management Bureau (DMD), Compressive Disaster Management Program (CDMP), UpazilaNirbahi Office, Upazila Agriculture Office, Upazila Fisheries office, all Union Parishad of HizlaUpazila, Environment and Population Research Centre(EPRC), Bangladesh Statistical Bureau (BBS), Central library of JagannathUniversity, Central library Dhaka, Public Library and BRAC. Secondary data was collected from different websites related to the department of environment, disaster and government. The database was created using the data collected from the field. The data was analyzed by using Micro Soft Excel. The results are presented in tabulated forms. Arc GIS 9.2 software was also used for preparing map purpose.

III. Result

a) *Describe processing of assessment system damage, losses and need*

Damage, losses and need assessment is very important activities in post disaster period for local government/disaster management committee. It has rules and regulation what is responsibilities and how asses of damage, losses and need by local government, disaster management committee and relevant sector. Everybody have to follow Standing orders on disaster. TNO have to arrange meeting with Local government, disaster management committee and relevant sector and discussed about the situation affected area and damage, losses and need. After that local government /disaster management committee assess what kinds of wealthdamage and losses, what kinds of relief need in post disaster period and how much wealth damage and losses and how much wealth need in post disasterperiod. The assessment processing system was not appropriate at standing order of Disaster Management. The local government assesses the damage and losses by going to door to door in the study area. They used white paper for writing down of damage, losses and needs and submitted to Chairman like Report. Some member said that straight line papermade by own self and use for assessment how many wealth damage, losses and needs item. Most of the member said that they do not get any kinds of Form from TNO or Chairman to calculate for DLNA. After that Union Porishad Chairman submitted it to TNO. But they do not use D Form for assessment damage, losses and need and they do not know how they will fill up the D Form. It takes to get all information easily by D Form.

b) *Explore damage and losses assessment in the study area*

i. *Affected family*

An estimated that 22454 family houses were fully damaged, 3221 family houses partially damaged by Sidr in HizlaUpazila.797 fisheries family lost their net and boat,34134 farmer lost their crops and others,2315 handicraft families lost their only basic needs by Sidr.

Table 2.1: Affected Families by Sidr

Sector	Number of Family
Fully damaged House	2245
Partially damaged House	3221
Fisheries Family	797
Farmer	34134
Handicraft Family	2315

Source: Project Implementation officer (PIO) in HizlaUpazila

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ii. *Damage and Losses on Agriculture sector*

The study area is agriculture prone area. About 75% people are directly or in directly depended on agriculture sector. Different type of crops like paddy, jute, chili, lentil, banana and soabinetc is grown in the area. At estimated 11,588 tone crops damaged by Sidr in 2007 and losses of money 45, 75,362 dollar (Details table 2.1).

Table 2.1: Losses of Money on Agriculture Crops

Name of Crops	Damage of Production (Tones)	Losses of Money (Doller)
Paddy	7550000(7550)	90600000(13,13,043)
Vegetables	1316000(1316)	18424000(26,70,145)
Banana	1125000(1125)	16875000(2,44,565)
Papaw	570000(570)	5700000(82,609)
Betel leaf	225000(225)	5625000(81,522)
Variety pulse	760000(760)	11400000(1,65,217)
Lentil	42000(42)	1260000 (18,261)
Total	11588000(11588)	149884000(45,75,362)

Source: Agriculture office of HizlaUpazila

iii. *Fisheries Sector*

The study area is riverincountry. The study area stands beside the Meghna and the Naiabangani.6.18% peoples depends on fisheries sector. 266.23 acres small and big ponds were damaged by Sidr, 997 boats were partially damaged and 3986 kg net were partially damaged by Sidr. According to fisheries office of Hizla Upazila minimum 35735 dollar was lost during disaster period in Sidr(Details table 2.2).

Table 2.2: Damage Fisheries Sector and Losses Money

Description	Damage Fisheries Sector	Losses of Money (dollar)
Small Ponds	679 (218.61 Acres)	6000000.00 (86957)
Large Ponds	75 (47.62 Acres)	307200.00 (4452)
Boat	997	63760.00(924) (Repairing cost)
Net	3986 (kg)	103610.00 (1502) (Repairing cost)
Total		24,65,710.00 (35735)

Source: Fisheries office of HizlaUpazila

iv. *Infrastructure Sector*

An estimated 2245 houses were fully and 3221 houses were partially damaged, 16 km road were fully and 186 km road were partially damaged in the study area by Sidr. 16 culverts were partially damaged, 5km embankments were fully damaged,36 education institutionswere fully and 66 education institutions were partially damaged by Sidr in the study area (Details table 2.3).Most of the people used ponds water for bathing, washing and cooking but all of the ponds were flooded by water. TW is main source for drinking water but TW was partially damaged by Sidr. Sanitation condition was very poor and most of the sanitation was fully damaged by Sidr in the study area.

Table 2.3: Damaged infrastructure sector of the Area

Sector	Damaged	
	Fully	Partially
House	2245	3221
Road	15 (km)	186 (km)
Culvert	-	16
Embankment	5 km	-
Education institution	39	66

Source: Project Implementation officer (PIO) in HizlaUpazila

c) *Assess recovery and rehabilitation programs post disaster period*

Recovery and Rehabilitation programs arevery important programs in post disaster period. This program depends on damage and losses assessment report from local government. After that TNO communicated with higher-level of government authorities.

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i. *Agricultur sector*

Agriculture is main income source of the study area. Most of the crops were damaged by Sidr. The Republic of Bangladesh, Chains government and FAO helped recover from Sidr. At estimated 25 power pump,30 power tiller and 20 power maria machine provided by Chain government among the farmer in the study area. According to Project Implementation officer (PIO) of HizlaUpazila reported 1250 farmers used that materials got from Chain government. Each famer got 8 kg TSP fertilizer from Chain government. 130 kg different type seeds provided by FAO and 4016 kg different type seeds provided by Bangladesh government(Details table 3.1). 195 kg different type fertilizers provided by FAO and 2129 kg different type fertilizer provided by Bangladesh government (Details table 3.1).

Table 3.1: Recovery Status on Agriculture Sector

Relief items	Quantity	From Country /Organization	Remarks
Power Pump	25	China Government	Harinathpur=8,Guabaria=8,Borjalia=9
Power tiller	30		Harinathpur=9,Guabaria=9,Borjalia=12
Power MariyMachin	20		Harinathpur=6,Guabaria=6,Borjalia=8
Seeds	130 (kg)	FAO	Paddy=20, Maze=20,Falon=20,muge=50,Water Mallon=20
	4016 kg	Bangladesh Government	Hybrid Boro=1125,Upsey Boro=1500,Vegetables=391
Fertilizer	195 kg	FAO	Ureia=77,TSP=64,MPO=54
	2129 kg	Bangladesh Government	Ureia=870, TSP=70,MPO=549
	10000 kg	China Government	TSP=10000

Source: Project Implementation officer (PIO) in HizlaUpazila

ii. *Relief items*

Different type international organizations like save the children, Red Crescent and national organizations like BRAC, Bangladesh Army and Bangladesh government distributed relief items among the study area peoples. According to Project Implementation officer (PIO) of HizlaUpazila reported that Save the Children provided rice among 6500 families and each family was got 30 kg rice, BRAC provided among 2050 families and each family was got 20 kg rice, Red Crescent provided among 700 families and each family was got 5kg rice and Bangladesh army provided among 1000 families and each family got 5 kg rice. Save the children provided pulse among 6500 families and each family got 9kg pulse, BRAC provided pulse among 2050 families and each family got 5 kg and Bangladesh Army provided among 400 families and each family got 1 kg. About 300 bottles and 0.30 tone of safe drinking water provided among 1500 families by BRAC. Save the Children provided oil among 6500 families and each family got 2 kg, BRAC provided oil among 2050 families and each family got 2 kg (Details table 3.2).

Table 3.2: Provide relief food items among the area people

Relief items	Number of family	Provided Country /Organization	Remarks
Rice	6500	Save The Children	Each family get 30 kg
	2050	BRAC	Each family get 20 kg
	700	Red Crescent	Each family get 20 kg
	1000	Bangladesh Army	Each family get 5 kg
Pulse	6500	Save The Children	Each family get 9 kg
	2050	BRAC	Each family get 5 kg
	700	Red Crescent	Each family get 5 kg
	400	Bangladesh Army	Each family get 1 kg
Oil	6500	Save the Children	Each family get 2 kg
	2050	BRAC	Each family get 2 kg
	700	Red Crescent	Each family get 1 kg
	-	Bangladesh Army	One Cartoon provide in the area
Salt	6500	Save The Children	Each family get 1 kg
Saline	2050	BRAC	Each family get 2Pack

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	1850	Bangladesh Army	8 Cartons and 150 Bags
Biscuits	2050	BRAC	-
	450	Bangladesh Army	-
Safe drinking water	1500	Bangladesh Army	300 Bottles & 0.30 tones

Source: project implementation officer (pio) in hizlaupazila

iii. *Cyclone shelter*

15 cyclone centres was established before Sidr. 18 cyclone centers were established after Sidr by Bangladesh government (Details table 3.3).

Table 3.3: Number of cyclone Centre in HizlaUpazila

Name of Union	Number of cyclone Centre		
	Before	After	Total
Harinathpur	3	4	7
Borjalia	3	4	7
Guabaria	2	3	5
Mamonia	2	2	4
Dulkhola	3	3	6
Guabaria	2	2	4
Total	15	18	33

Source: Project Implementation officer (PIO) in HizlaUpazila

iv. *Daily necessary items & Money*

According to Project Implementation officer (PIO) of HizlaUpazila reported that78696 Dollar provided among 2055 families for repairing house by Bangladesh government.18696 dollar provided among 129 families by chief advisor own fund.15000 BGF card distributed among 15000 families, 875009 kg BGF rice and 71000 GR- rice provided among the study area peoples (Details table 3.3).

Table 3.4: Distributed Daily necessary needs items and money among the study area peoples

Distribution items	Quantity
BGF Card	15000
BGF Rice	875009 (kg)
GR- Rice	71000 (Kg)
Blanket	804
Haricane	327
Pot	40
Sari	146
Oldcloth	1500
Tin	130 (among 65 families)
Money (For repairing house)	54,30,000.00 (78696 Dollar) (among 2055 families)
Money from Chief Advisor	1290000.00 (18696 Dollar) (among 129 families)

Source: Project Implementation officer (PIO) in HizlaUpazila

d) Assess Disaster preparedness activities

The study area is natural disaster prone area. But disaster preparedness activities were very poor of the area. There were no communications local governments with general people. But one chairman out of the six chairman said that he was announced with hand mike among the dwellers and shifted general dwellers to safety place. Cyclone centre was not sufficient. In spite of few cyclone centres, it was very difficult to reach cyclone centre because most of the cyclone centre beside the river and there were no road to go cyclone centre. The dwellers did not want to go security place because they have house, domestic animals and birds.Some dwellers kept faith on Allah.Sanitation system was not good in the cyclone centre. Safe drinking water was very crises in the cyclone centre.Some dwellers thought cyclone centre was not security place because there was not separate room for female or children. The study area has no ward disaster management committee. Red Cross member

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was not available in the area.Alarming system was very poor. They do not get any alarm from local administration.The dwellers did not reserve any kinds of food for future. But some dwellers valuable maters like gold and money deposited under the soil with polithian.

IV. Discussion

Bangladesh is among the world's most disaster-prone countries and the frequency of natural disasters has increased in recent years. Since independence in 1971, the country has endured almost 200 disaster events – cyclones, storm surges, floods, tornadoes, earthquakes, droughts and other calamities – causing more that 500,000 deaths and leaving serious impacts on quality of life, livelihoods and the economy. The cyclone Sidr is the superset cyclone in Bangladesh. Bangladesh is also one of the world's poorest and most densely populated countries, where poverty often compels families to settle in areas that are particularly disaster – prone, such as coastal areas and lands newly emerged from riverbeds (char-lands). The local government member contribution had not systematic per government rules according to standing orders on disaster. Most of the member reported any kinds of decision have taken by only local chairman. Damage and losses assessment system was not systematic according to standing orders on disaster. The chairman influenced to assess damage or losses on member most of times for writing their relative or support party peoples. When all member submitted their report to chairman, the chairman would write report by own view. As a result the actual information or data did not arise of the area. Most of the families were attacked by Sidr. The dwellers of the study area continue their livelihoods very miserable after Sidr. The farmer lost their all crops and crops value was 45,75, 362 dollar.The fisherman lost their net, fish and boat and their wealth value was 35735 dollar. 39 education institution fully and 66 education institution partially were damaged. But all sectors cannot recover properly from their losses. Some national or international NGO and Bangladesh government provided relief like dry foods, seeds, fertilizer, rice and old cloths etc. Relief was not sufficient for the dwellers in the study area. Generally fisheries sector did not get any kinds of help from Government or NGO. It would like to mention that 18 cyclone centre built up after Sidr. Disaster preparedness activities were very weak in the study area. The study area has no Disaster Management Committee or no Red Crescent members to recover from the impacts of natural hazards during disaster period. As a result local administration cannot strong contribution in pre, during and post disaster period for dwellers of the study area.

V. Conclusion

Disaster management process in this country is not strong enough. The local level management system which is known as Ward Disaster Management Committee (WDMC), is very weak. The government has to make strong ward disaster management committee. Female ward commissioner has to be included in the committee. The government has to take arrange training program regularly for local government and disaster management committee to improve their ability. The government should focus on the strong alarming system of the area. Local government administration, Local chairman, member and Ward disaster management committee should take responsibility in the pre-disaster period. More and more tress has to plant to protect super cyclone. The government has to include disaster-related topics in primary and secondary level books.

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