

## Field Research in Disaster Management: Voice from North Western Bangladesh

### Abstract:

Bangladesh is one of the most disaster vulnerable countries within the globe. A series of discussion has already made in nationally, regionally and globally regarding disaster management. The present paper is different from the academicians or experts point of view. This paper try to present the grassroots voice who are directly affected by climate change and live with disaster risk. Disaster vulnerable communities have developed their own mechanism for sustain them and creating coping strategies for adopting with climate change. In northwestern part of Bangladesh is facing different disaster due to geographical characteristics. *Char* (isolated island from main land), flash food, cold wave, draught and river erosion are the common disaster phenomenon in north western Bangladesh. As a result of such types disaster occurs *Monga* (famine like situation)-which is directly linked with food insecurity.

In peoples practice on disaster management, in combination with peoples experience, culture, local context, myth and livelihoods patterns. In many cases, myth or culture has directly contributed effective disaster management process but in some cases there is no co-relation in between myth, culture and disaster management. Through this field research, try to understand regarding existing myth and culture and incorporate with appropriate community based disaster management process-which creating community ownership for effective disaster management process. No doubt, community ownership is one of the pre-condition for any extension program and it has proven that without endorsement of community values, sustainability is always question mark. Through this paper, the author will try to present the field research findings on peoples own disaster management process and integration in between community based disaster management and peoples own practice-which has finally creating most time fitting and enabling disaster management process of North western Bangladesh.

*Key Word: Char, Monga, Peoples own practice on disaster management, Community managed disaster management, north western Bangladesh*

### 1 Introduction

Bangladesh is one of the most disaster vulnerable countries within the globe. A series of discussion has already made in nationally, regionally and globally regarding disaster management. The present paper is different from the academicians or experts point of view. This paper try to present the grassroots voice who are directly affected by climate change and live with disaster risk. Disaster vulnerable communities have developed their own mechanism for sustain them and creating coping strategies for adopting with climate change. In northwestern part of Bangladesh is facing different disaster due to geographical characteristics. *Char* (isolated island from main land), flash food, cold wave, draught and river erosion are the common disaster phenomenon in north western Bangladesh. As a result of such types disaster occurs *Monga* (famine like situation)-which is directly linked with food insecurity.

### 2 Disaster Management and Indigenous Knowledge: Review of Literature

In recent times many quality studies have been conducted on issues of food security strategy, chronic poverty, agricultural policy, crop diversification, rural micro-finance, people's participation, changing rural power relation, local resource mobilization, women's empowerment, rural livelihood, etc. But, no mention worthy attempt has yet been made to examine the Indigenous Knowledge in Disaster Management in Bangladesh Country context.

Since the early 1980s, the terms 'vulnerable' and 'vulnerability' have been increasingly used in the literature relating to disaster. Liverman (1989) identifies literally dozens of authors using these

and related terms such as resilience, marginality, susceptibility, adaptability, fragility and risk (Wisner in Bohle 1993). Westgate and O'Keefe (1976) and Winchester (1992) have defined vulnerability as the degree to which a community [is] at risk from the occurrence of extreme physical or natural phenomena, where risk refers to the probability of occurrence and the degree to which 'socio-economic and socio-political factors affect the community's capacity to absorb and recover from extreme phenomena'.

At the same time, the understanding on disaster risk reduction (Disaster Risk Reduction) has improved significantly since the early nineties, with prime landmarks for the movement being the Yokohama Strategy and the subsequent Hyogo Framework for Action (HFA). Against these developments the appreciation for indigenous knowledge has remained primarily anecdotal. There are many references to incidences of local people predicting impending earthquakes or cyclones by observing natural signs such as animal behavior, changes in characteristics of ground water sources, and abnormal weather phenomena, but fewer documented and verified evidences. One of the very few documented pieces of work in this area is 'Community Monitoring and Preparedness for Disasters' (COMPRED; formerly the United Nation Global Programme for the Integration of Public Administration and the Science of Disasters). (ISDR, Indigenous Knowledge, Disaster Risk Reduction, Policy Paper (2009)

### **3 Conceptual Framework**

In this study, - *Char, Monga, Community managed disaster management, north western Bangladesh and indigenous knowledge* would be specially analyzed.

#### **a. Char:**

*Char* is a tract of land surrounded by the waters of an ocean, sea, lake, or stream; it usually means any accretion in a river course or estuary. It includes all types of bars including both lateral (point-bars) and medial (braid-bars). In the dynamics of erosion and accretion in the rivers of Bangladesh, the sand bars emerging as islands within the river channel (island chars) or as attached land to the riverbanks (attached chars), often create new opportunities to establish settlements and pursue agricultural activities on them (Banglapedia, 2006). Once vegetated, such lands are commonly called in local Bangla language as 'Chars' (Small islands) in Bangladesh.

Char is more than that in main land. Family Planning services are not existent in Chars. Chars are picturesque but there is hardly any infrastructures such as road, tourist lodges, electricity, sanitation, drinking water, schools and medical facilities.

#### **b. Monga**

*Monga* is a seasonal food and nutrition insecurity in both spatial and temporal context. It is strongly related to seasonal food insecurity in Northwestern Bangladesh. During the Bangla month of *Kartik* i.e. mid-October to mid- November, marginal and landless farmers face an economic crisis. This crisis stems from lack of non-agricultural employment opportunities, since agriculturally it is a lean season. This yearly incident is called *Monga*, a near- famine situation that results in severe food crisis for the people of the Northern part of Bangladesh.

During *Monga* period, the landless agriculture laborer becomes unemployed due to unavailability of non-agricultural activity. Due to this seasonal unemployment, food stocks run out and job opportunities dry up and as a result, thousands of people go without adequate food for months.

### c. Community Managed Disaster Management

Community-based disaster management can be seen as risk reduction programs designed primarily by and for the people in certain disaster-prone areas. Disaster mitigation using government and institutional interventions alone is insufficient because they pay little attention to addressing the community dynamics, perceptions, or priorities. At the same time, local communities are often either unaware of these formal disaster management interventions or they find the interventions inappropriate due to the lack of recognition of community's vulnerabilities and capacities, or they lack the external resources or technical support to supplement their own initiatives and capacity.

Just as every individual, family, organization, business, and public service within a community will be affected by a disaster; each has a role to play in managing disaster. Looking at it practically, the multitude of actions that must be taken to implement an effective disaster management program requires the participation of the entire community.

### d. North Western Bangladesh:

Rangpur division is the North-western part of Bangladesh which has completely separated by Teesta -Jamuna Rivers from the rest of the country. This part is bounded by West Bengal of India on the north, Rajshahi division on the south, Assam and Meghalaya state of India and Dhaka division on the east and West Bengal of India on the west. North-western part of Bangladesh consists of 8 districts of Rangpur division. These districts are Rangpur, Dinajpur, Kurigram, Gaibandha, Nilphamari, Panchagarh, Thakurgaon and Lalmonirhat. This study is exclusively focused on Gaibandha district- one of the most vulnerable districts to disaster in Bangladesh.



Figure 1: North western part of Bangladesh

**e. Indigenous knowledge:**

Indigenous knowledge is the knowledge held collectively by a defined community (Walker et al.1991). The term ‘indigenous’ is synonymous with ‘traditional’ and ‘local’, differentiating this knowledge from that developed by formal science in institutions such as universities and government research centers. Warren and Cashman (1988) define indigenous knowledge as “ – the sum of experience and knowledge of a given ethnic group that forms the basis for decision making in the face of familiar and unfamiliar problems and challenges”<sup>1</sup>.

In the context of disaster, indigenous knowledge has developed in communities over the years to cope with natural events and challenges in the own environment. Most of the cases indigenous knowledge is closely linked to the lifestyle and livelihood of people, especially in rural areas where human interaction with nature is more prominent. However, in recent year a close relationship is developed between indigenous knowledge and disaster.

**4. Disaster Vulnerabilities in North-Western Bangladesh**

The North western Bangladesh is situated in the Teesta and Jamuna basin, and contains many tributaries of these. Topography and climate make the area ecologically vulnerable to destabilizing variations including floods, river erosion, drought spells, and cold waves, all of which occur more frequently and intensely than in other regions. Amidst these compelling conditions, the local economy shows little diversification and is heavily dependent on agriculture – which yields only one or sometimes two annual harvests, in contrast with three crops per year in more fertile and benign parts of the country. In this setting, local employment is limited from September through December in average years. As the landless and poorest survive on agricultural wage labor, their opportunities and ensuing incomes drop in this period, and they become trapped in what is called *Monga* – a cyclical phenomenon of poverty and hunger.

<sup>1</sup> Millat-e- Mustafa, M. (2004) *Development in Bangladesh*

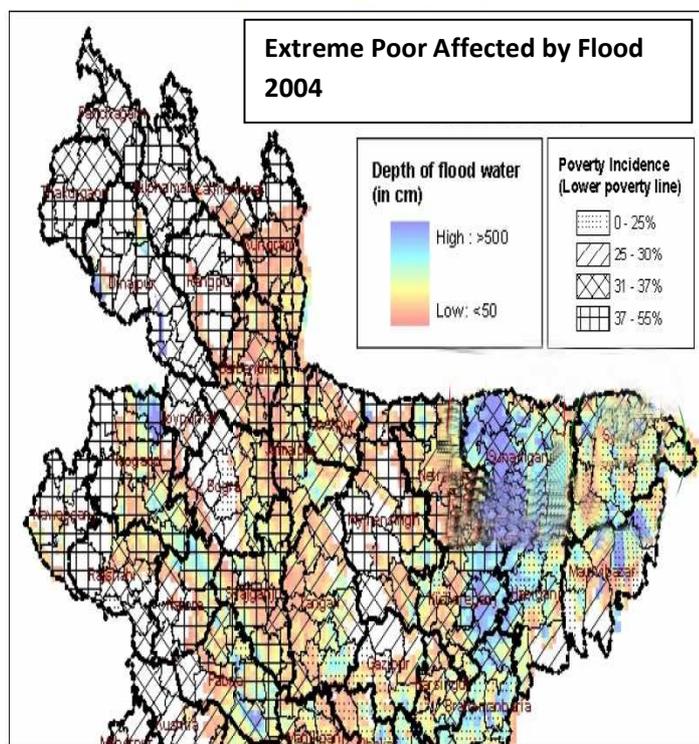


Figure 2: **Extreme Poor Affected by Flood 2004**  
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## **5 Methodology**

The present study is primarily a social-anthropological one. Most social researchers who made village studies preferred to collect information through intensive field work.

In the present research, in order to understand the indigenous disaster management practices- which have almost, link with local culture, values and myths. The researcher lived with people under study area and observed their lives and livings closely.

### **5.1 Selection of Village**

The Northwest region of Bangladesh is a slightly stopped plain at the foot of the Himalayan mountain range. It is bound in the east by the Jamuna River. The other main river is the Teesta, which crosses the area in the north. The Northwest is a food-surplus area, where agriculture is the principal source of employment. Despite this, a large percentage of the population remains food-insecure. This is primarily the outcome of poor food-access resulting from unequal land distribution, low agricultural wages, and the impact of natural disasters.

Considering the highly disaster prone and climate vulnerable area three (3) Char villages- Dighabarir char, Belker char and Tarapur char- has selected from Sundargonj Upazila under Gaibandha districts- which is one of the major disaster vulnerable area of north western Bangladesh.

### **5.2 Data Collection**

Data were collected mainly in three phases,

- (i) Focus Group Discussions (FGDs)
- (ii) Dialoged sharing with elder people
- (iii) Physical site Visit.

As a social-anthropological researcher, the researcher used the following data collection methods for understanding the reliable picture of the indigenous knowledge on disaster management.

### **5.3 Seasonal Calendar**

To understand different seasonal patterns and disaster phenomenon, the researcher conducted a seasonal calendar exercise. After identifying different occupational informant groups (based on occupation at destination) from the survey, three to four seasonal calendar exercises were conducted with different occupational groups. The main purpose of this exercise was to identify disaster vulnerability and climate change adaptation.

### **5.4 Secondary Data**

The Researcher continued to gather secondary data throughout the research-period looking for material provided by NGOs, Governments, Research Institutes and websites.

## **6 Field Findings Presentation**

### **6.1 Indigenous knowledge and myths on flood preparedness:**

People of char lands of North Western Bangladesh have learnt to live, cope with and reduce the risks from various natural disasters especially flood through the indigenous knowledge they have inherited from the time tested experiences of generations and internalized through a process of socialization. Field study has revealed that certain indigenous prediction capacity possessed by the local people always helped them to anticipate disasters and take necessary precautions. The indigenous predictions are even more important as it was revealed during field study with the *Char* people that they are not well acknowledged with the modern technology as well as forecasting.

Many *Char* dwellers say that they can predict the occurrences of upcoming disasters. It is important to notice that, all of the target people belonging to the older generation, i.e. 50 years and above. The indigenous knowledge, particularly the one related to natural hazards, is transmitted through the male line and preserved by the older generation. They use several indicators for predicting disasters like flood, tornado, drought, cold wave, dust storm and river bank erosion and these indicators are categorized as follows:

#### **Some selected Example of Indigenous Practice on disaster management**

The indigenous knowledge on disaster management is based on keen observation of the behavior of animals, birds, insects, vegetation, trees, winds, clouds etc.

**a. Indigenous Practice of disaster management Considering Animal behavior: Ant, Animals, Birds and Fish:**

**Case 1:**

**Event: Ant**

**Story:** If red ants are climbed unitedly on the roof of houses/ tress with eggs on their backs, there is a possibility of flood within few days.

**Reasons for practice:** Traditionally people believe that red ants cannot tolerate water and they have a strong smelling capacity. For these reason, they try to migrate from their own habitat to dry and high area. Seeing the behavior of ants people of the Char areas try to prepare themselves to cope with the upcoming disaster. Most of the cases such type of indigenous precautions help Char people and can survive from disasters.

**Case 2:**

**Event: Dragonfly**

**Story:** Islanders uses another indigenous knowledge for weather forecasting. They observe the habits of dragonfly to know when it will rain or where will be sunshine. People explained that the abundance of dragonfly in the month of *Asar* (mid- June to mid- August), flood will hit of that year.

**Reasons for practice:** Generally, female dragonfly deposits her eggs in water or places them inside the stem of an aquatic plant. Eggs hatch within one to three weeks under favorable climatic condition. So that islanders applied their indigenous concept if they found huge amount of dragonfly.

**Case 3:**

**Event: Waterfowl**

**Story:** People believe waterfowl (locally known as *Dahuk*) can predict flood through their behavior. Commonly, people believe that the cry of waterfowl on dry land/ a mound in *Asharh* (June–July) indicate the flood of that year. People can assume the water level seeing waterfowl's crying position from the ground.

**Reasons for practice:** Waterfowl lives near bank of river. So if they assume flood occurrence they will come in dry place which is an indication of flood.

**Case 4:**

**Event: Owl -birds**

**Story:** The indigenous methods used to predict flood includes lay eggs of owl (locally known Pacha and in this poem Godi Sali).

*Uttare dogmog, pocchime ban  
Godi Sali dim pare pathorer soman*

In English, it means,

“Cloud found in north, flood in west  
Owl lay eggs as like as stone”

**Reasons for practice:** Normally owl lays eggs at its standard size. But if eggs of owl are harder than normal time and bigger than its standard size, then people can assume there will be a possibility of flood. People believe that to survive its generation owl lays such eggs that will not destroy by disaster.

#### Case 5:

##### **Event: Abnormal behavior of certain animals**

**Story:** *Char* people use a variety of methods to predict any occurrence of hazards using their indigenous knowledge. They can assume seeing the anomalies behaviors of stark, cow, dog, hen etc. The common indigenous practices are given herein:

- If stark is entered in room in *Asharh* (June–July), it is an indication of tornado
- If cows/ dogs wail continuously at night, it indicate flood of that year
- If hen raise at the roof of house in night, there has a possibility of flood of that year.

**Reasons for practice:** People explained that abnormal behavior of stark, cow, dogs or hen- is an indicator of disaster. Generally, cow/ dog never wail at night. But they have strong smelling capacity and can guess before hazard hit.

#### **b. Indigenous Practice of disaster management considering wind direction, weather and other celestial phenomena:**

##### Case 1:

##### **Event: Wind direction**

**Story:** Among the *Char* community of the study area, the study found there is a wide variety of indigenous knowledge, which greatly influences the way people react to natural disaster. Strong belief among the *Chars* communities that hydrological hazards are acts of God. And they can easily guess upcoming disasters seeing the seasonal weather condition or wind direction. The *Char* community has a *khoner bochon* (old proverb) that has been used in weather observation for flood forecasting. The *khoner bochon* is passed on generations in the whole community. The *khoner bochon* states:

*“Bhadro mashe pocchima bao  
Verenda Bari diye bai nao”*

In English, it means,

*“Wind blows from west during Bhadro (August- September)  
Boats will run above the high land”*

**Reasons for practice:** Normally, *Bhadro* (August- September is characterized by bright day, grey sky and comfortable weather and wind blows from south. In some exception cases, if wind blows from west in *Bhadro*, in indicates high flood of that year. *Verenda* (local name) is a one type of plant which is recognized as Castor Bean (Botanical name: *Ricinus Communis*). This is an annual plant and cannot tolerate water and it grows in dry and high lands. From the indigenous practice, people believes that if wind blows from west in the month of *Bhadro*, then the level of flood water rises high and flooded Castor Bean. Such type assumptions help *Char* community to prepare themselves to face disasters.

In addition to these, regarding the wind direction, the islanders believe that a wind blow from north in *Srabon* (July- August) has more chances to happen a flood. It is because, huge amount of water release from the Himalayas as a result of snow melt resulting flood of that year.

### Case 2:

**Event:** Weather condition

**Story:** Weather is a great phenomenon of occurrence disasters considering the indigenous knowledge which is very much helpful for people particularly *Char* community who lives in a vulnerable situation. People believe that any occurrence of foggy weather except *Poush* (December–January) there has a possibility of flood of that year.

**Reasons for practice:** Bangla calendar year is traditionally divided into six seasons: *Grisma* (summer), *Barsa* (rainy), *Sarat* (autumn), *Hemanta* (late autumn), *Shhit* (winter) and *Basanta* (spring). Each season comprises two months. *Shhit* spreads over the months of *Poush* and *Magh*. *Shhit* is characterized by cooler, foggy and dry condition which is exception than other season. So that foggy condition except *Poush* indicates that huge amount of water of water vapor exists which will fall as rain on to the earth.

### Case 3:

**Event: Celestial phenomena**

**Story:** A rainbow is a type meteorological phenomenon that cases a spectrum of light. Rainbow caused by sunlight always appear in the section of sky directly opposite the sun. *Char* community uses another *khoner bochon* for weather forecasting. The *khoner bochon* states:

*Pochim Patila tar*  
*Khal bil ekaker*

In English, it is translated:

“Line in west sky  
Everything will go under water”

**Reasons for practice:** There is close relationship between rainbow and weather. Over the period, aged person accepts it as true that if rainbow is found in west, it indicates water and water in everywhere.

## c. Indigenous Practice of disaster management considering crops:

### Case 1:

**Event: Crops**

**Story:** In *Chars*, community has an old proverb relating with bumper production crop that has been used for disaster forecasting. The abundance of jackfruit and tamarind during harvesting season is signs of flood or nor'wester. The proverb states:

*“Ama dhan*  
*Khathale ban*  
*Tatule tufan”*

In English, it means,

“Bumper production of rice indicates bumper mango  
Bumper production of jackfruit indicates high flood  
Bumper production of tamarind indicates nor'wester”.

**Reasons for practice:** In *Char* areas the bumper production of certain crops like paddy, jackfruit and tamarind indicated the prevalence of certain phenomena. People of *Chars* are highly cautions about disasters. From generation to generation they have found that

bumper production of specific crops is an indication of disaster. For example, mango prefers very hot, very humid to cool and dry, to very hot and arid climatic condition and if such type weather exhibits in a year, then it is also an indication of bumper production of paddy. Similarly, jackfruit cannot tolerate drought and production depends on high rainfall. So that, high production of jackfruit indicates, there is a possibility of flood of that year. For tamarind, dry weather is very important during the period of fruit development. So bumper production of tamarind indicates nor'wester of that year. Nor'wester is one type of thunderstorm that generally blows over Bangladesh usually in April-May from a northwesterly direction, locally known as Kal-baishakhi (Banglapedia, 2006).

#### **d. Indigenous Practice of disaster management considering fish with respect to bank erosion:**

##### **Case 1:**

**Event:** Fish and bank erosion

**Story:** Fish abundance also indicates river bank erosion. Abundance of Dwarf goonch (local name: *Baghair*; scientific name: *Bagarius bagarius*) also indicates river bank erosion.

**Reasons for practice:** Generally, *Baghair* fish prefers earthworms and they gathered where earthworms are found in abundant. Earthworms live in loose and fertile soil, which is prone to erosion. So that seeing the gathering of *Baghair* in river, people assume there will be a possibility of erosion of that area.

#### **7. Recommendation**

- Indigenous practices are prevalent due to a need to mobilize disaster management actions at grass roots level. It is the local community that is hit by disasters and therefore its members must directly understand local disaster risk and undertake measures to mitigate the consequences of impending disasters. So that integration of modern knowledge with indigenous knowledge; and involving community members in the dissemination process can contribute to building confidence and pride, which ultimately leads to empowerment.
- This study is done through anthropological aspects. Therefore, it is necessary to study indigenous knowledge following the natural science approach which will helps to integrate indigenous knowledge in both anthropological and natural science aspects.

#### **8 Conclusion**

The indigenous knowledge is passed on through hundreds of years and from generation to generation by the community. These are based on practical experience and have been in use for a long time. In Char areas where people have no access to modern technology, indigenous knowledge for weather forecasting based on observation of certain natural phenomena play an important role in savings themselves. To address disaster risk reduction, setting holistic approach is very important as well as to have a successful disaster risk reduction, community based approach is very important for creating community ownership-which is one of the major pre-condition for sustainable disaster management process.