

Disaster Management through Indigenous Wisdom: Voice from the People of Erendabari Char

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Abstract

The geographical location and its land characteristics make Bangladesh one of the most disaster-prone countries of the world. This country is frequently hit by natural disasters like floods, river bank erosion, cyclone, droughts and tornadoes. Besides, this country is also highly vulnerable to earthquakes, arsenic poisoning, water logging, salinity, storm surge, etc. Island Chars in Bangladesh are geographically dislocated from the mainland and the people of these areas have been living with disasters for long. People from the extreme poor segment live in Chars and are vulnerable to disasters. But the people of the Chars have their own mechanisms to cope with disaster which have formed over numerous generations of habitation and practised long since. The present study tries to identify and reveal the indigenous myths and beliefs that exist in the community and finally establish a linkage with scientific knowledge. In most cases the Char people are ignorant about scientific prevention and survival strategies and therefore they have to rely on their indigenous wisdom. Hence the implication of indigenous knowledge is very useful as a means of survival of Char people.

Keywords: *Indigenous knowledge, Disaster management, Chars, vulnerability, coping strategies.*

Introduction

Due to its geographical location and its land characteristics, Bangladesh is recognised as one of the most hazard prone countries of the world. Bangladesh is frequently hit by natural hazards like floods, river bank erosion, cyclone, droughts and tornadoes. Besides, this country is also highly vulnerable to earthquakes, arsenic poisoning, water logging, salinity, storm surge, etc. Each and every year people have to face one or more hazard which turns into disaster. The people of Bangladesh are well adjusted to different disasters and find out the best methods for coping with them.

Chars are geographically dislocated from the mainland. Bangladesh is known as a riverine country. The geographical location of Bangladesh in the downstream section of the Ganges, the Brahmaputra and the Meghna basins (GBM Basins)—covers a combined total catchment area of about 1.7 million sq. km extending over Bhutan, China, India and Nepal.

More than 200 rivers flow through this country and 57 rivers come from a foreign country. Out of 57 rivers, 54 flow from India and 3 from Myanmar. These rivers have created several Chars by depositing sediment carried from upstream. Bangladesh is one of the most populous countries of the world. More than 140 million people live within 147,570 sq. km boundary. Seven per cent (7%) of Bangladesh's total area is occupied by rivers and the total length of those rivers is approximately 24,000 km. This figure indicates the need for land for the shelter of people. Due to the lack of land and others factors people live in Chars that are extremely vulnerable to natural hazards.

Indigenous knowledge refers to the unique traditional knowledge existing within and developed around the specific conditions of women and men indigenous to a particular geographic area. (Louise, 1998)

Indigenous knowledge is closely associated with the people's cultural belief and practices. Therefore, it cannot be easily understood from outside. It can be revealed by studying the songs, stories, proverbs, dance, myths, cultural values, beliefs, rituals, community laws, local language, agricultural practices, institutions of the people, etc. (Dekens,2007). Observation, interview and focus group discussion are well-known methodologies of research.

1.2 Objectives of the Study

The following are the objectives of the study:

- To find out and accumulate the indigenous knowledge that have been practising from the male line as an indication of disaster event and coping mechanisms for disaster risk reduction.
- To analyse the indigenous knowledge and find out the reasons for practising indigenous knowledge.
- To recommend the adaptation mechanisms and best practices for disaster risk reduction.

Methodology of Data Collection

This study has followed some socio-anthropological methods. Both primary and secondary data were collected from the field and different sources like books, websites, statistical data, etc., respectively. In order to collect the best information from the people regarding their myths, beliefs and practices for disaster management, the researcher needs to observe their livelihoods and adjustment scenario closely.

The stages of methods of study can be categorised into the following steps:

Collection of Secondary Data

Secondary data and information have been collected from different relevant sources like books, websites, Bangladesh Bureau of Statistics (BBS), etc.

Selection of the Study Area

Erendabari Char is located in Gaibandha district and disassociated by the Jamuna river from the mainland. This Char is highly vulnerable to flood and river bank erosion. It is really difficult to collect the indigenous knowledge practices from the people for the whole area; therefore three villages were selected for collecting the information. The names of the villages are: Zigabari (ward no. 2), Horichondi (ward no. 9) and Vatiapara (ward no. 5).

Collection of Primary Data

This research is a qualitative research. Therefore, for collecting primary data, several socio-anthropological methods were used in the field. The following methods were used:

- (i) Focus Group Discussions (FGDs) with the aged people
- (ii) Key Informants Interviews
- (iii) Observations

Brief Study Area (Erendabari Char)

Erendabari is a union of Fulchhari upazila, Gaibandha. Erendabari union occupies an area 21,952 acres of land including river and Char. The union is surrounded by Jamuna river and several channels of Jamuna and Jinjiram river. This union is completely dissected by water from the mainland and it is a truly hard to reach area.

The waterway is the best way to reach Erendabari Char. From Balasi Ghat (under Fulchhari upazila of Gaibandha district) one can reach Erendabari Char by boat (shallow engine driven). It takes 2.5 hours to 3 hours to reach Erendabari Char. Road connectivity in Erendabari Char is not found significant. Main sources of household income are: 70.8% on day labour and share-cropping; 21.6% on cultivation; 7.6% on fisheries, non-agricultural labour, business and employment. Shops and other facilities are not so good. People are living through primary economic activity.

Field Findings and Discussions

People of Erendabari Char experience different types of disasters every year. From their experience, inhabitants are informed that a hazard will hit their locality but they do not have the option to leave Chars. Rather they find some other options to cope with disaster, which they have been practising since long. During field-based study, researchers tried to find out the indigenous knowledge that has long been practised by the community for disaster management. The indigenous knowledge is documented here, and is closely related to the behaviour of some animals, weather conditions, trees, wind direction, clouds, etc.

As understood through the discussions with the local community, they have learnt how to live, the ways of coping with disasters through the application of indigenous knowledge that they have inherited from the time-tested experiences of generations, and internalised through a process of socialisation. Field study has revealed that certain indigenous capacity for prediction possessed by the local people always helped them to anticipate disasters and take necessary precautions. Indigenous predictions are even more important as it was revealed during field study with the Char people that they are not well acquainted with modern technology as well as forecasting.

Char dwellers informed they can predict the occurrences of forthcoming disasters in their community. For gathering indigenous knowledge the study targeted the older generation, those who were 50 years old and above. The indigenous knowledge for disaster management is transmitted through the male line and preserved by the older generation.

A. Myths and Beliefs Regarding the Behaviour of Certain Animals

a. Behaviour of Ants

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

Reasons for practice and scientific explanation

Red ants cannot tolerate water and they have a strong smelling capacity. For this reason, they migrate from their own habitat to a dry and high area. Seeing the behaviour of ants, people of the Char areas try to prepare themselves to cope with the upcoming disaster. In most of the cases such type of indigenous precautions help Char people a lot.

b. Behaviour of Dragonfly

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

Reasons for practice and scientific explanation

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 favourable climatic conditions. So islanders applied their indigenous concept if they found a huge number of dragonfly.

c. Behaviour of Waterfowl

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

Reasons for practice and scientific explanation

Waterfowl lives near the bank of a river. So if they assume flood occurrence they will come to a dry place which is an indication of flood.

d. Eggs of Owl-birds

The indigenous methods used to predict flood include an owl laying eggs (locally known Pacha and in this poem Godi Sali).

Lyrics: *“Uttare dogmog, pocchime ban
Godi Sali dim pare pathorer soman”*

In English, it means,
“Cloud found in north, flood in west
Owl lays eggs as like as stone”

Reasons for practice and scientific explanation

Normally owl lays eggs of a standard size. But if eggs of owl are harder than normal and bigger than its standard size, then people can assume there will be a possibility of flood. People believe that for the survival of its generation, the owl lays such eggs that will not be destroyed by disaster.

e. Abnormal Behaviour of Certain Animals

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

Story:

- *If stork enters a room in Ashar (June-July), it is an indication of tornado.*
- *If cows/dogs wail continuously at night, it indicates flood that year.*
- *If hens rise to the roof of the house at night, there is a possibility of flood that year.*
- *When snakes start to roam around the homestead areas, people start to expect flood.*

Reasons for practice and scientific explanation

People explained that abnormal behaviour of stork, cow, dogs or hen, is an indicator of disaster. Generally, cows/dogs never wail at night. But they have strong smelling capacity and can guess before a hazard hits.

B. Myths and Beliefs Regarding Wind Direction, Weather and Other Celestial Phenomena

a. Wind Direction

Char communities believe that hydrological hazards are acts of God. And they can easily guess upcoming disasters seeing the seasonal weather conditions or wind direction. The Char community believes an old proverb that has been used in weather observation for flood forecasting.

Proverb:

*“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 and scientific explanation

Normally, *Bhadro* (August- September) is characterised by bright days, grey skies and comfortable weather and the wind blows from the south. In exceptional cases, if the wind blows from the west in *Bhadro*, it indicates a high flood that year. *Verenda* (local name) is a one type of plant which is recognised 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 indigenous practice, people believe that if the wind blows from the west in the month of *Bhadro*, then the level of flood water rises high and floods Castor Bean. Such assumptions help Char community to prepare themselves to face disasters.

In addition to these, regarding the wind direction, the islanders believe that a wind blowing from the north in *Srabon* (July-August) portends greater chances of a flood. This is because a huge amount of water is released from the Himalayas as a result of snow melting, resulting in a flood that year.

b. Weather Conditions

Story: People believe that any occurrence of foggy weather except during *Poush* (December-January) indicates a possibility of flood that year.

Reasons for practice and scientific explanation

Bangla calendar year is 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 characterised by cooler, foggy and dry conditions which is an exception from other seasons. So that foggy conditions, except *Poush*, indicate that huge amount of water vapour exists which will fall as rain onto the earth.

c. Celestial Phenomena

Char community uses a poem for weather forecasting.

Poem:

*“Pochim Patila tar
Khal bil ekaker”*

In English, it is translated as:

*“Line in west sky
Everything will go under water”*

Reasons for practice and scientific explanation

There is close relationship between rainbow and weather. Over the period, aged persons accept it as true that if a rainbow is found in the west, it indicates water and water everywhere.

C. Knowledge Considering Crop Yields

a. Story: The *Chars* community has a proverb relating to bumper production crop that has been used for disaster forecasting. The abundance of jackfruit and tamarind during harvesting season is a sign 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 and scientific explanation

People of *Chars* are highly cautious 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 prevails in a year, then it is also an indication of bumper production of paddy. Similarly, jackfruit cannot tolerate drought and production, as it depends on high rainfall. So that high production of jackfruit indicates there is a possibility of flood 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 north-westerly direction, locally known as Kal-baishakhi (Banglapedia, 2006).

D. Knowledge on 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 and scientific explanation

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

Modern Practices for Disaster Risk Reduction

Disaster is common for the people of Erendabari Char. It is mentioned that people of Erendabari Char are more fatalist than realistic. Usually they think disaster is their fate and remain where they have been living for generations. Previously people only depended on their local knowledge and they could not make sufficient and effective preparations for minimising the disaster risk. But now people are becoming more aware about disasters. Several NGOs are working in Erendabari Char and working for reducing disaster risk. The most notable activities of DRR programmes are homestead plinth raising, embankment/earth road construction, providing income generating activities training, savings generation, nutritional support, building awareness regarding disaster, flood marker establishment, etc. People have built their houses that are best suited to

adapt to the flood. However, to protect the homestead from flood, people have raised their homestead in their own interests, or with the financial assistance of different donor agencies. In addition to this, people have received knowledge for disaster preparedness and IGA training from different non-governmental agencies which enable them to adapt to the changing environmental conditions.

Disaster is common for the people of Erendabari Char. No doubt people have become more adapted to disasters. Disaster is an integral part of the community, which thinks it is a part of their daily life. In the past people have been coping in their own interest without much support from external agencies. Currently, people are more aware regarding disaster preparedness and mitigation. As it is hard to reach certain areas, even now indigenous prediction contributes a lot for disaster management. As a result, this has created an enabling environment to save their livelihoods from disasters.

Recommendations

- Indigenous practices are prevalent due to a need to mobilise 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.
- Indigenous knowledge plays an important role for disaster management at local level. It is mentioned that indigenous practices have always come from traditional practices since long and people perceived knowledge from their own experience that is closely related to their traditional norms and beliefs. Indigenous knowledge may be different from community to community and place to place. Thus the documentation of indigenous knowledge is very difficult. But if it is possible to document indigenous knowledge from different aspects, it will help a lot for best disaster risk reduction practices.

Conclusion

With regard to rural people, indigenous knowledge practices for disaster management are very important considering both management and coping issues. Indigenous knowledge has passed on through hundreds of years and from generation to generation, community to community. Indigenous knowledge is generated through practical knowledge and no laboratory test has been done for it. But it plays an important role for disaster management at individual and community level. In Char areas where people have no access to modern technology, indigenous knowledge for weather forecasting based on observation of certain natural phenomena plays an important role to protect and save themselves. Chars are the hard to reach areas, therefore to address disaster risk reduction, setting holistic approach is important, as well as to

have successful disaster risk reduction. Community based approach is very important for creating community ownership—which is one of the major preconditions for sustainable disaster management process.

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