

Bangladesh: Project for Developing Inclusive Risk Mitigation
Program for Sustainable Poverty Reduction

Needs Assessment Analysis on Financial and Non-financial Services

Summary Report of Focus Group Discussions (FGDs)

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Summary of FGDs

A total of 50 Focus Group Discussions (FGDs) have been conducted in the five districts of Bangladesh. The checklist/guideline of the FGD was, initially, developed in English and later, translated in Bengali. Four broad/major issues such as the impact of natural disaster and existing assistance, coping mechanism and awareness of risk mitigation, lifestyle-related diseases and coping strategies, social risk mitigation have been covered in the FGD to achieve the objectives of the study.

We recruit 20 Field Research Assistants (RAs) experienced in qualitative research for arranging and facilitating the FGDs. Five days rigorous training (one day in-house and four days online training due to COVID-19) have been provided to the RAs. To collect the data more efficiently and check the practicability of the checklist, we pilot the checklist and revise accordingly before implementation. The members of core research team have worked in close contact with each of the research assistants and addressed the queries immediately raised. Besides, the RAs were instructed and encouraged to contact directly to the Principal Investigator (PI) or core research team for any complexity in the field. Moreover, the core research team have visited all the fields at the beginning of the fieldwork. The RAs were instructed to organize the FGDs that consist of minimum ten participants with gender balance (minimum 30% female) and should include the UP Chairman, UP member, teachers, doctors, political leader in the FGDs depending on their availability. Sample distribution of the FGDs is presented in Table 1

Table 1: Sample distribution of FGDs

Sl.	District	Branch of MFI	Number of FGDs	Total
1	Patuakhali	CODEC Golachipa, Patuakhali	6	10
		CODEC Rangabali, Patuakhali	4	
2	Naogaon	Dabi Moulik Unnayan Sangstha, Sapahar, Naogaon	5	10
		Dabi Moulik Unnayan Sangstha, Shishahat, Naogaon	5	
3	Kurigram	RDRS, Kodalkhati Char, Kurigram	5	10
		RDRS, Manus Marar Char, Kurigram	5	
4	Sunamganj	TMSS, Derai, Sunamganj	5	10
		TMSS Jamalganj, Sunamganj	5	
5	Satkhira	Unnayan Prochesta, Brammorajpur, Satkhira	6	10
		Unnayan Prochesta, Khajra, Satkhira	4	
Total			50	50

Findings from FGDs

As mentioned earlier, four broad themes/issues such as the impact of natural disaster and existing assistance, coping mechanism and awareness of risk mitigation, lifestyle-related diseases and coping strategies, social risk mitigation have been covered in the FGDs. Findings of the FGDs are presented below based on these four themes.

Theme 1: Impact of Disaster and Existing Assistance

1.1. Impacts of natural disaster

Natural disaster is a common phenomenon in Bangladesh. Every year, different types of natural disasters, for example, seasonal flood, flash flood, river erosion, water logging, drought, cyclone, storm, tidal wave, salinity, heavy rainfall, lightning, hail etc. severely affect the people. These natural disasters extensively damage the affected peoples live and livelihood, house, homestead, livestock, crops and vegetables, trees, cultivable land etc. Besides, these disasters also hamper their education system and health condition as different types of water borne diseases spread out after floods. Moreover, early flood destroys their crops, especially paddy and thus create food crisis among many of them. Similarly, river erosion destroys their houses and cultivable land while waterlogging and droughts hamper their crop production. Findings of the FGDs that show the impacts of these disaster are briefly discussed below.

1.1.1 Seasonal and sudden flood

Flood is a common natural disaster in Bangladesh. From our qualitative exploration, it is found that both seasonal and sudden flood affect most of the districts of Bangladesh

almost every year and it creates lots of miseries for the people. It is reported that the sudden onset of floods without any prior warning bring misery to public life in several ways. Firstly, for example, flood makes many of them homeless and shelter less as it submerges their houses along with furniture and even the sudden flood submerges the houses overnight. These destroy their furniture and collapse houses. One of the FGD participants in *Sunamganj* district report that ***“almost 90 percent of the houses submerges under water during seasonal and sudden flood”***. The participants also report that the water level rises in several stages (2-4 feet water) and it causes people to live or take shelter in scaffold/rooftop, nearby primary school, colleges, or on the road. Some people are bound to confine in their houses by the floods, share their bedroom with their cattle, and face difficulties in cooking.

Secondly, seasonal and sudden floods cause unemployment, recession in trade and commerce, damage hundred hectares of crops, loss of fish farming, destroy tress, and death of livestock that affect income of the dwellers. These cause the inhabitants to fall in debt again. Especially, the day laborers who are dependent on daily earnings suddenly fall in a serious condition to manage food for their family as they have no work and sometimes, they take loan from the moneylenders with high interest to survive. Some of the dams break down during flood that submerge the crop land. In *Sunamganj* district, one of the FDG participants mention that ***“around 3600 KG paddy was damaged during flood in 2019” and fail to*** collect their crops. Flood also damages the cultivation of watermelon severely in *Patuakhali* area. Besides, flood restricted the fisherman to go to sea or river for fishing due to high tide. Inhabitants in the southern part of Bangladesh, *i.e.* in *Satkhira* district where fish cultivation in small ponds/lake is very popular,

encounter huge loss during seasonal and sudden flood. Because most of the ponds get flooded and fish go away with the flood water. Moreover, it is reported that in the coastal areas, the saline water entered into the rivers/ponds which destroys their fish cultivation. It is common in all the regions that the inhabitants loss their livestock during flood due to the lack of shelter and food. Sometimes they are compelled to sell their cows at a very low price before the rainy season. One of the FGD participants in *Sunamganj* district report that ***“around 70 cows died in their village in the last year during flood.”*** Majority of the participants report that *most* of the cows were died due to lack of grass and being on the water. Thus, regular flood is one of the main contributors to keep them poor.

Thirdly, seasonal and sudden floods create crisis of food and drinking water as the tube wells are submerged and saline water entered into the rivers/ponds. Availability or shortage of safe drinking water is very common across all areas during flood. Finally, seasonal and sudden floods effect on human development such as on education and health. The schools and colleges are closed that cause the education system fall down during the period. In response to the question about whether the participants face any health problems during flood, too many health issues are disclosed which are alarming. For example, as most of the toilets submerge in water, people go to open spaces or in the water for toilet. Due to these, waterborne diseases like diarrhea, dysentery, itching, fever etc. spread out among the people. The communication system breaks down as the roads are submerged and damages. It becomes difficult for the flood affected people to move from one place to another and seek health care. Some of the patients have been died on the way due to the communication problems. The elderly and children suffer mostly during flood. It is also difficult to take the pregnant women to the hospital as the hospital

is far away. They have to depend on boats for communication. It is found that prevalence of snake biting, especially in the *Sunamganj*, increased during flood. It is also revealed from the discussion that even they had no place to bury if someone died and alternatively, they had to float the dead body in water.

1.1.2 Storm and cyclone

During the Bengali months of *Chaitra*, *Baishakh*, and *Jaistha* (March-May), storms which is locally known as *Kal Baishakhi* storm, is a common natural disaster in Bangladesh. From the qualitative exploration, it is observed that the frequency of storm (occurred three or four times in a day) is very high in the north-west region of Bangladesh. The storm and sparks of fire cause multiple losses, for instance, crops loss, damages of trees and fruits, damages of houses, furniture and boats and loss of lives for the inhabitants. Firstly, the participants report that hot and heavy winds during storm greatly destroy and reduce the yields of paddy and maize. Farmers face huge losses for this. Secondly, fruits including mango are damaged in the storm. In the western region of Bangladesh, mango trees damages directly and mango falls into an immature state due to storm. It also causes extensive damage while the mango is about to ripe. The FGD participants mention that in the southern region of Bangladesh, battle nut trees damages severely due to storm in 2020. Thirdly, large number of trees and electricity poles get uprooted and fallen down on houses and cowsheds across all areas (mostly in the north-west and southern areas) of Bangladesh. This often causes people and domestic animal become injured, even sometimes die. One of the FGD participants in southern regions mention that ***“in 2017, two people have been died due to electrocution.”*** Fourthly, storm and cyclone damage houses, furniture and boats as well. One of the FGD participants in the north-west region

also report that "*last year, tin shed of my house was blown away by the Kalbaishakhi storm*". It has happened in a large number of houses during storm which also damages the furniture of the houses. Sometimes the speed of the storm breaks the boat and net. One of the FGD participants who is a fisherman said that "*the storm sometimes sank the boat in the sea and thus caused loss of life.*" Finally, it is observed that storm causes huge losses of human lives and livestock. Repeatedly, people are injured or died due to collapse of a house or fall down of a tree. Livestock such as cows, goats, sheep, buffaloes, poultry have been died during storm. It is observed that in *Naogaon*, the FGD participants believes that the number of respiratory patients in those areas have been increased due to frequent incidence of the storm.

As Bangladesh is located on the bank of Bay-of-Bengal, the southern region is the most affected region of cyclone that affects here almost every year. Sometimes, it affects two or three times in a year. It is a panic for the people of southern region. The major impacts of cyclone are almost similar to storm mentioned above.

1.1.3 River erosion

River erosion is another common natural disaster in the northern and southern parts of Bangladesh. It mainly occurs on the banks of the river *Padma, Jamuna, and Meghna*. River erosion washed away their houses, homestead, crop land, roads, plants and trees. It makes many people homeless and shelter less. Thus, river erosion plays a vital role in keeping the people below poverty line and making them poor. One of the FGD participants mention that "*this area is located on the banks of the river, so erosion often occurs due to excess water flow in the river.*" Sometimes the embankment breaks, and

water enters. This reduces the amount of livable and arable land for the people. Deep tube wells that have been used irrigation collapse.

1.1.4 Heavy rainfall and Waterlogging

Heavy rainfall is a common natural disaster that mainly occurs at the north-east and southern regions of Bangladesh during Bengali months *Ashar* and *Shrabon* (July-August). Heavy rainfall, flood and cyclone contribute to waterlogging. Heavy rainfall and waterlogging cause huge financial loss to the farmer as these damages their crops. Our qualitative findings present the following common impacts of heavy rainfall and waterlogging as these -

- submerge houses and cultivable land. Sometimes the cultivable lands are being submerged for 3 to 4 months
- cause to enter the saline water of the canal in the cultivable land and destroy the paddy fields and damage vegetables and seasonal crops
- damage crops. One of the FGD participants who cultivate watermelon in *Patuakhali* district mention that, ***“Waterlogging damages watermelon trees and causes irreparable damage that makes the farmers indebted.”***
- shift the farmers cultivation from two crop land to one crop land
- cause huge loss for the farmers who cultivate jute because sometimes, they cannot harvest jute due to waterlogging. One of the FGD participants in *Kurigram* mention that, ***"two years ago I could not harvest a few hectares of lands' jute due to waterlogging"***.
- make it difficult to produce adequate crop and many people become unemployed during this period. Moreover, incomes of the day laborer, rickshaw puller, van driver, *tomtom* (local vehicle) driver are likely to decrease. They could not even go out to earn their livelihood. Traders and shopkeepers could not do their business properly as well.

- deteriorate the communication system which restrict the movement from one place to another. Sometimes, they have to use boats. Elderly people, children and women suffer most.
- create shortage of safe drinking water
- affect education. It is difficult for the students to go to school or college properly.
- are responsible for the stagnant of flood water for a long time. It causes various water borne diseases because mosquitoes and flies are born in the stagnant and contaminated water. It also causes people to migrate to other places
- create scarcity of feed for cows, goats and sheep. These causes loss or death of livestock.
- often wash away the ponds and fish go away with water. This is huge loss for the farmers. Additionally, fishing becomes challenging in the sea during heavy rainfall.

1.1.5 Drought

Drought is another common natural disaster prevalent in the north Bengal areas of Bangladesh. Our qualitative findings indicate that drought affects the inhabitants of these areas in several ways, for example, it reduces crop and fruit productions, damage plants and animal species, causes food crisis, increases the cost of production and health hazard. Firstly, it creates crisis of water for irrigation and thus, reduces crop production. Therefore, productions of *kaun*, wheat, onion, jute, pepper, pulses, nuts, potato, chilies, guavas, almond etc. have been decreased due to the lack of water. Drought makes it difficult to grow crops properly. Secondly, long-term droughts severely damage plant and animal species. People are unable to planting tree. Thirdly, due to low production, severe food crisis has been noticed in that areas. One of the FGD participants who is a school teacher mention that *“drought is considered one of the major reasons of high poverty in the*

northern areas of Bangladesh.” Cattle feed have also become unavailable during drought. Fourthly, farmers are bound to depend on underground water for irrigation which increases the cost of crop production because it requires more electricity to irrigate paddy. Due to drought, farmers who cultivate paddy have shifted to cultivate mango which make two crops land to one crop land. Severe drought destroys mango buds. Thus, drought cause a lot of economic damage to the farmers. Though drought doesn’t have much effect in the southern region of Bangladesh, findings show that extreme drought has led to water crisis for watermelon fields in these areas. Farmers use pond water for irrigation that causes an increase of production cost of watermelon and a crisis of water for bathing and washing cattle. Finally, the high temperature during drought makes many people, especially children, fall sick. It also increases the health risk including heart attack or stroke while working in the field. Insect infestation increases during drought. The risks of fire have also been increased during dry season.

1.1.6 Tidal wave

The incidence of tidal wave is not a frequent natural disaster in Bangladesh. The southern districts like *Satkhira, Patuakhali, Khulna, Bhola, Bagerhat, Borguna* mainly have affected by tidal wave. In the last five years, the tidal wave has not caused much damage in *Satkhira* and *Patuakahli* districts. However, many cows and goats have been swept away during tidal wave of the ‘*Amphan*’ and ‘*Bulbul*’. The effects of tidal wave include the following as it:

- has flooded the affected areas and damages crops, roads, and dams etc.
- causes to drown the ponds and enclosures that wash away the fish

- hit the shore, swept away the nets, and the boats.
- causes to spread out the saline water everywhere that damages the crops and fish of sweet water
- sometimes breaks the fishing boat

1.1.7 Salinity

Every day at high tide and when dam break or damage, salt water enters in the canal and crop land. It has tremendous effect on the productivity and life of the inhabitants. The saline water in the canal cannot be used for irrigation and in lands wherever salt water enters, it damages the crops such as paddy. As the canal water is saline, there is a water crisis for irrigation. When salt water enters in the ponds and canals, freshwater fish like *magur*, *tilapia*, *ruhi*, *katla* etc. die. Sometimes, crisis of drinking water has also happened due to the saline water. Salinity causes diarrhea, cholera, typhoid, allergies etc.

1.1.8 Lightning

Lightning or thunder occurs during rainy season. The prevalence of lightning has increased significantly during last 10 years. Generally, farmers, fisherman, and cattle become injured or died due to lightning. It burns and destroys trees like palm, coconut, betel nut trees.

1.1.9 Hail

Hailstorm occurs every year and damages crop, fruits, house and lives. Sometimes, farmer and fisherman become injured due to heavy hailstorm. Mango orchards are severely damaged by the hailstorm. One of the FGD participants in *Sunamganj* said, ***“more than half of the paddy were damaged due to hailstorm in 2018. Farmers have been affected***

by hailstorms three or four times in the last five years.”

1.1.10 Hot weather

Sometimes hot weather causes extensive damage to crop. Number of patients increased during hot weather. Recently, hot weather is a matter of concern.

1.2 Existing assistance for disaster affected people

Disaster affected people in Bangladesh get both cash and in-kind assistance from the government, NGOs, private organization, social organization and individuals during or after any natural disaster. However, our qualitative findings about the existing assistances provided by the government, NGOs, private organization, social organization and individuals during or after any natural disaster are presented below:

2.1 Government Assistance

Before any natural disaster, government takes various initiatives which include providing awareness raising message, weather forecasting etc. to help the people so that they stay safe. Government creates awareness among the people through mass media that includes radio, television, social media etc. and local announcement from the mosque, school or government office. People are requested to go to the shelter. Government sometimes distributes relief that includes rice, pulses, oil, salt dry food, etc. However, during FGD it is observed that participants in the disaster affected areas claim that the government assistance are not sufficient and equally distributed among the disaster affected people. Only the relatives and close people of the political leaders get the government assistance.

On behalf of union council, dry foods have also been provided during flood and cyclone. However, the people of *Patuakhali* district claim that they rarely get relief from the government.

The government continues their support to provide relief after the natural disaster as well. In addition, some of the victims get money or tin shed to repair their houses. Government also supplies water from *Atrai* river through pump *Naogaon*. Due to this, the water problem has been eliminated during dry season. In *Naogaon*, it is also noticed that the government provides some loan to farmers on easy and flexible conditions. However, the participants across all district except *Kurigram* claim that the existing government assistance is neither sufficient nor equally distributed.

2.2 NGOs Assistance

Some NGOs provide assistance to the disaster affected people before and after the disaster. First of all, they tried to aware people by announcing weather forecasting, provide information on how to cope up with the natural disaster, and help people to take shelter in safe place or cyclone centers. Sometimes, some of the NGOs distribute different types of food like rice, pulse, oil, different types of dry food including puffed rice, molasses etc. among the poor people. It is also found that some of the NGOs distribute some basic medicine including oral saline. The Micro finance institutions doesn't provide so much pressure to their clients for repaying their loan installment. Even it is also found that some NGOs provide financial support to its members. BRAC donated 20 kg of food items to its member during the flood of 2017 and 2020. TMSS provided food items worth of BDT 89 lakh to the disaster victims of *Sunamganj* district. BRAC, CNRS also distributed

money, soap, medicine etc. in *Sunamganj* in the last year. Red Crescent run awareness-building activities such as miking, help to go safe places, provide dry food and pure drinking water in *Patuakhali*. BRAC, CODEC provided some emergency medicine, oral saline and first aid in the same area. Some NGOs also provide SMS to its member. People in *Patuakhali* district sometimes get assistance from the Red Crescent Society. People in *Patuakhali* district sometimes get assistance from the Red Crescent Society.

After the disaster, the NGOs provide loan on easy and flexible conditions for repairing their houses and recovering their livelihood. Some of the NGOs donate some money, distribute food, cloths, and provide basic primary health care. The Micro finance institutions doesn't provide so much pressure to their clients for repaying their installment. In *Satkhira*, the northern region of Bangladesh, some NGOs set up drinking water tanks.

2.3 Other Assistances

Besides, government and NGOs, the local government institutions, religious institutions, upper class people, close relatives and friends, local money lender, some local social organization, local public representative and some university students help the disaster affected people. The local government institutions and religious institutions make people aware through miking about the disasters. The young generation also make people aware about the disasters using social media. The close relatives, friends, money lenders distribute food among the disaster affected people. Some of them also provide financial support. Some social organization distribute clothes, medicine etc.

Theme 2: Coping Mechanism and Awareness of Risk Mitigation

Here we explore the crisis coping mechanism and awareness for risk mitigation in terms of loss of livestock and livelihoods, damage of houses and crops, safe drinking water, disease, and health. It is found that the people of the disaster-prone areas take various ex-ante and ex-post strategies to minimize the loss or damage of their lives, livelihood, houses, homestead, livestock, crops, crops land trees and their other properties. They take joint initiatives to repair the dams and build new dams to minimize the loss. In this case, community-based decisions are taken where influential people play leading role in the decision-making process. In addition, they also adopt some household-based decisions. It is commonly noticed that mainly the head of the household take decision about taking ex-ante and ex-post coping strategies to minimize the loss. Sometimes, it is also found that all family members have influence on the decision-making process. The qualitative findings on household-based coping strategies are presented below:

2.1 Loss of livestock

Before any natural disaster, the people of the disaster-prone areas take different local initiatives to minimize the loss or damage of their livestock. The common ex-ante strategies found all over Bangladesh are as follows

- Raise the height of the cowsheds
- Take away their cattle to higher places including road, school, cyclone centers, etc.
- Keep the cattle inside their bedroom

- Keep their cattle free so that they can survive by themselves - it is also found in some areas, especially in the southern region of Bangladesh
- Some of them make free their domestic birds like chicken, duck so that they can take shelter on trees, top of the houses
- Make shelter for their ducks above water using bamboo
- Store some dry food for their cattle
- Most of them sell their cattle at a lower price before flood or rainy season
- It is also found in *Naogaon* and *Sunamganj* that the some of the people vaccinated their cattle before flood

After natural disaster, they also adopt some strategies to minimize the loss of their livestock. These are given below:

- After disaster, they try to find out their cattle. They get back some of the cattle and some remain missing, some are found dead.
- They buried their dead cattle on land or floated on water.
- Collect food for their cattle.
- Due to the lack of food, sometimes people sell their cattle at a lower price.
- Repair their damaged cowsheds.
- They always stay aware so that the water borne diseases could not affect their cattle.
- Seek necessary treatment for their cattle if required.
- Some of them take loan for buying feed for their cattle.
- Some of them buy new cattle taking loan from micro credit institution or money lender.

2.2 Damage of house

To minimize the loss or to protect their houses from any natural disaster like flood, seasonal storm the people of Bangladesh in the disaster-prone areas, take some common ex-ante and ex-post strategies. The ex-ante strategies are as follows:

- Repair their houses
- Raise the heights of the homestead
- Tying the tin shaded house and huts with rope
- Add more bamboo pillars to make their house strength
- Keep heavy objects like brick, sacks with soil on the top of their house to protect from flew away
- Cut down trees or branches of trees adjacent to their house
- Keep door and windows open so that the air can smoothly pass through their house without affecting severely.
- Leave the houses and take shelter elsewhere
- submerge their dishes under water or land before disaster to protect the dishes

After disaster they take some strategies to minimize the loss of houses. These are given below:

- Repair houses
- Borrow or take loan to repair their houses
- Dishes are brought from under the water or land.
- Build disaster preventive houses
- Raise the height of their homestead.

2.3 Loss of livelihood

During any disaster, especially during flood, their income opportunity decreases which disrupted their livelihood severely. During cyclone, they cannot go to sea or big river for fishing. To lead their livelihood, the people in disaster-prone areas take some ex-ante and ex-post strategies. The ex-ante strategies are presented below-

- Save some money for rainy seasons as their income opportunities decrease during this period
- Sell their cattle
- Store dry foods
- Take loans
- Store rice, pulses and other daily necessities
- The earning member sometimes migrate in other areas in search of income earning opportunities so that they can earn their livelihood

It is difficult to make a living as there is limited working opportunities after the disaster. Sometimes, people are obliged to reduce their number of meals in a day. For starting their livelihoods after disaster, they also take some common strategies which are as follows

- Sell cattle to cope up with the disaster.
- Take loan to buy new cattle or start farming again
- Use the savings
- Change crops
- Work hard and most of the eligible members of the household engaged in multiple activities
- Start working as a day laborer.
- Even some of them take meals twice in a day instead of thrice
- Change occupations from agricultural to non-agricultural work.
- Migrate to city/town to earn more

2.4 Safe drinking water

In some areas, the tube wells are submerged during flood, cyclone, waterlogging and heavy rainfall. These create crisis for safe drinking water. For ensuring safe drinking water, some of them also take some ex-ante and ex-post strategies. The ex-ante coping strategies are given below:

- Tube wells are placed on high ground.
- Store safe drinking water in different containers including pitcher, bottle, large pots etc. Some of them collect water in pitcher and keep it in water after closing its mouth.
- Elevate the source of drinking water
- Use the pond water for doing household activities except drinking.
- Use pond water for cooking.
- The mouth of the tube wells keeps tied.
- Drink boiled water
- Store rainwater
- People who can afford purchase bottled water

During disaster or flood, people depend on supply water. In addition, many people collect rainwater and use it for cooking and drinking. Even if half portion of the tube well sinks during the flood, the water is not polluted, because the layer is laid far below. The post coping strategies are given below:

- Collects water from the tube wells which are not affected by the disaster
- Boil water with baking soda.
- People who can afford purchase bottled water
- Drink rainwater
- Repair the tube well.
- Repair submerged tube wells.
- Install new tube wells

2.5 Diseases related to disaster

It is found that very few of them take ex-ante strategies to prevent and treat the diseases related to disaster as most of the people of disaster-prone areas are poor. It is noticed that only some of them store oral saline in their house to treat water borne diseases. Those

who are slightly aware about diseases, only few of them store some basic medicine in their house. It seems luxurious to keep medicine in their house before any disasters. However, almost all the FGD participants report that they have not taken any action due to lack of money. Some of them tries to remain clean as a preventive measure.

If they become sick, generally the poor people seek treatment from pharmacy, village doctors, and other informal providers. In case of serious illness, they visit to upazila level health care facilities. In case of server injury, they go to district level health care facilities. To take treatment from the formal provider, most of them need to take loan from micro credit institutions. Among the people of southern areas, it is seen that they could make homemade saline for diarrhea. They usually take the homemade saline for diarrhea. In summary, they mainly depend on government clinics or hospitals for diseases such as allergies, cold, diarrhea, typhoid etc.

2.6 Damage of crops

It is commonly found that the people of the disaster-prone rarely take effective measure to minimize the loss of crops as most of them are poor. However, through qualitative exploration, we find some local strategies that they take before and after any disaster.

Local strategies before the disasters are given below:

- Harvest the crops which can be picked up before the flood
- Some people in the southern areas start to cultivate B-R52 types paddy which is saline tolerant
- They keep switch gate close during the rainy season to reserve water for irrigation during dry season
- Adopt early harvesting strategies and sell semi-ripe crops and fruits

- In some areas, they grow disaster tolerant crops. Even they are more likely to collect hybrid seeds
- They change the types of crop cultivation. For example, due to drought, some of them shifted from paddy cultivation to mango cultivation.

Local strategies after the disasters are given below:

- They try to collect the remaining crops from the field and sell at a lower price
- Start using pesticides to protect against various diseases and pests
- They try to remove excess water from their crop land after heavy rainfall. The land is drained to remove excess water
- When the Swiss gate is opened up, the water moves
- Short-term crops such as nuts and maize are grown after the disaster
- Put soil on the roots of the trees
- Start cultivation again by taking loan and try to cultivate the hybrid paddy to tackle the disaster
- Some of them change their crop production plan
- Some of them leave cultivation and work as a day laborer.

2.7 Loss of property (land and others)

To minimize the loss of the property, several coping strategies have been adopted by the inhabitants in the disaster-prone areas before the disasters. These are given below:

- In order to minimize the loss of valuable assets, money, gold and other things are buried in the ground
- The boats are tied with ropes.
- Keeps the boat on the shore during a cyclone.
- Big boats are left with anchor in the sea
- Bring nets, ropes, etc. at home

- Brought their boats in canal from rivers to protect them from cyclones, floods, tidal surges. Then they tied it up with a long rope.
- Start using traditional fertilizer to increase fertility in the land
- Increase the height of homestead
- Increase the height of land separator
- Some people have taken loans to build disaster prevention houses and raised houses.
- Preserves important documents properly. Packed in a bag and left in a high place
- Build up embankments such as ponds are fenced

To minimize the loss of the property, several coping strategies have been adopted by the inhabitants in the disaster-prone areas after the disasters. These are given below:

- Valuable assets are recovered after the disaster
- Renovate home
- Sale destroyed plants and trees
- Take loans to repair or buy their boats and nets if damaged or lost
- Take loan to repair the house
- Re-cultivate the crops
- Sell cattle
- Take loan to manage the losses

2.8 Health Injury

To minimize the health injury, several coping strategies have been adopted by the inhabitants in the disaster-prone areas before the disasters. These are given below:

- Take shelter on cyclone center, road, school or any high land
- Try to stay in safe house
- Don't stay under big tree

- Don't go to field or fishing
- Sick people are taken to the Cyclone Center.
- Take shelter on high land. Those who cannot move are not taken away
- Elderly and disable people get priority in the cyclone center.
- During disasters, they try to be conscious as much as possible to avoid physical injuries
- Remain aware of lightning and hail.
- stay clean.

To minimize the health injury, several coping strategies have been adopted by the inhabitants in the disaster-prone areas after the disasters. These are given below:

- In case of serious health problem, they go to doctor
- People with physical injuries or disabilities are taken to the hospital as soon as possible. If treatment is not possible at district level hospital, he or she is taken to tertiary level hospital.
- Taking consultancy from doctor, traditional healer or drug seller
- In case of minor issue, they mainly depend on quack, pharmacy or traditional healer
- They cooperate each other if they need to be taken to the hospital.
- Help each other for health injury.

Theme 3: Lifestyle-related Diseases

The people of disaster-prone areas take both ex-ante and ex-post strategies to cope up with lifestyle-related diseases that include diarrhea, diabetes, stroke, high blood pressure, asthma, peptic diseases, jaundice, injury, malnutrition etc. During FGDs, the participants were asked to report the strategies they cope up for lifestyle related diseases before and after the natural disasters. The qualitative findings are given below for each of the diseases mentioned above.

3.1. Diarrhea

Diarrhea is a water-borne disease and the people in Bangladesh commonly suffer from this disease during flood. However, due to lack of money and awareness, no ex-ante action has been taken by the inhabitants in the disaster-prone areas. The commonly taken ex-ante coping strategies are as follows:

- Preserve salt, molasses, or sugar to prepare saline at home.
- Purchase medicine and saline.
- Wash hands.
- Consume healthy diet
- Remain aware of and take pure drinking water.
- Preserve safe water

However, the commonly taking ex-post coping strategies are as follows:

- Drink saline water to treat diarrhea. Many people prepare saline with molasses-water salt at home. If the condition worsens, the patients are taken to the nearest hospitals
- Receive advice from the elderly of the village

- Take medicinal plants
- Purchase medicine and oral saline from the pharmacy.
- Receive consultancy from the pharmacy or doctor
- Drink coconut water
- Diarrhea patients are given oral saline, rice starch, and pure drinking water.
- Prepare saline at home through salt and sugar.

3.2. Diabetes

A good number of people in Bangladesh has been suffering from this lifestyle disease diabetes. Several coping strategies have been adopted by the inhabitants who are suffering from diabetes in the disaster-prone areas before the disasters. These are given below:

- They try to maintain a particular routine for food intake
- They regularly go for walking in the morning
- Most of FGD participants are aware of about diabetes but do not take any ex-ante coping strategy
- Those who can afford store insulin, medicines, and other necessities before the disaster to avoid the disruption of taking medicine regularly

Though people are aware of about diabetes, most of them do not take any coping strategies to deal with diabetes after the disasters. However, several coping strategies have been adopted by some of the inhabitants who are suffering from diabetes in the disaster-prone areas after the disasters. These are given below:

- Most diabetes patients go for walking in the morning and evening
- If the chance of diabetics increased, they visit the hospitals

- They also take suggestions and treatment from the doctor
- Sometimes, they visit the village quack to seek treatment.
- Those who can afford test diabetes and purchase medicine regularly from the nearest health center

3.3. Stroke

Most of the FGD participants are not aware of about stroke. So, they have a little ex-ante coping strategy to deal with the stroke during natural disasters. Those who are aware of stroke, purchase medicine from the pharmacy and follow the traditional method to deal with this.

Those who are aware of about their health, take post-ante strategies to cope up with the health risk due to stroke. They receive advice from a doctor or take medicine from quack, and purchase medicine from the pharmacy. Sometimes, they take loan to deal with the problem. From discussion, it is found that the first aid of the treatment of stroke is available in some families. They become aware of and take action based on the patient's condition.

3.4. High blood pressure

Few people in disaster-prone areas have high blood pressure. However, most of them do not take any ex-ante strategies due to poverty. Some of them purchase necessary medicine for high blood pressure. They check their blood pressure regularly. Most of the FGD participants across all areas mention that they keep tamarind and garlic in their houses. Therefore, most of them are careful with their health and seek treatment if they feel ill.

The coping strategies for high blood pressure after the disasters are same as the ex-ante

strategy. If blood pressure rises, they go to the doctor to receive treatment. Many people seek treatment from the village pharmacy or village quack and bring medicine from there. They also go for diagnosis and check blood pressure. If the blood pressure goes up, they eat tamarind shells. Those who have high blood pressure, have changed their eating habits.

3.5. Asthma

It is a very common disease in most areas of Bangladesh. The people of the disaster-prone areas take some ex-ante action to cope up with this problem. Some of them follow traditional strategies that include using of medicinal plants and oil in the body. Those who can afford, purchase medicines, inhalers before the disaster. Some patients reserve asthma medicine by taking loan. The patients of asthma stay at a higher place from the ground, stay away from dust, eat dry food and different types of leaves based on their traditional beliefs.

The people of the disaster-prone areas take medicine from the village quack and take advice from a doctor as a ex-post coping strategy. If requires, they visit the hospital to seek treatment, take advice from the elderly people of the village, purchase medicine from the pharmacy and eat *helencha* spinach.

3.6. Peptic diseases

The people of the disaster-prone areas are aware of about peptic ulcers. They avoid junk foods and take precautions as an ex-ante coping strategy. Some patients reserve medicine by taking loans, drink more water, eat leaves of different trees such as mango, neem, etc., and try to keep gastric medicine at their house. Some of them receive herbal treatment.

Most people aren't able to take the post-ante coping strategies. When the condition gets worsen due to peptic ulcer, people go to the hospital for seeking treatment and follow the advice of the doctor. Due to the lack of money, many people do not take treatment even in critical conditions. They only take advice from the village doctor or traditional healer, purchase medicine from the pharmacy and take action after observing the patients' condition.

3.7. Jaundice

Jaundice is another water-borne disease. The people of the disaster-prone areas are affected by jaundice during the floods. In order to avoid the complications of the disease, several coping strategies have been adopted by the inhabitants. They store fresh rainwater and drink pure water. Few participants report that they bring medicine from the pharmacy. It seems people are aware of jaundice. If anyone suffers, they go to the traditional healer or village doctor to seek treatment.

3.8. Injury

It is common in disaster-prone areas. People take adopt strategies to cope up with unnecessary injuries before and after the disasters. Before the disasters, they try to be careful to avoid injuries. But living in a shaky house is the same thing as not being aware. After the disasters, they take advice from the village doctor and a traditional healer if gets injured. They also go to the hospital if the level of injury is serious. Some manage first aid for emergencies and purchase medicine or seek treatment from the pharmacy. They, mostly, take action after the injury.

3.9. Malnutrition

From the FGD, it is found that malnutrition is a common issue in the disaster-prone areas especially mothers and children who suffer more. Those who suffer from chronic diseases due to malnutrition recover after getting treatment. Some of them have been died due to the disease. Very few people receive adequate treatment. The common ex-ante coping strategies are-

- Eat egg
- Store nutritious food for the disaster period.
- Eat seasonal fruits.
- Keep meat in the diet.
- Cultivate some vitamin-rich vegetables.
- Drink pure water.

The ex-post coping strategies are-

- Receive advice from a traditional healer.
- Receive consultancy from the doctor
- If malnutrition increases, take nutritional support from schools, community clinics etc.
- Purchase medicine from the pharmacy.
- In case of a serious problem, seek treatment from the hospital
- Some of them take action after the problem occurred.
- Eat foods rich in vitamins.
- Cultivate vegetable
- Eat more vegetables
- Add nutritious food items in the food menu

Theme 4: Social Risk Mitigation

Here we explore how the inhabitants in the disaster-prone areas mitigate the social risk. We focus on five major categories that include exploring the participants social relationship with persons who help most under financial crisis, available mutual aid system in the villages, reason behind the necessity of mutual aid system, challenges in such mutual aid system, and what else can be done to improve such mutual aid system. Findings from the FGDs on these five distinct categories that help to mitigate social risk are presented below.

4.1. Social relationship with persons who help most under financial crisis

Most of the people in Bangladesh are in financial problems during and after the natural disasters. To recover the financial hardship, it requires depending on other sources rather than their personal savings. The most common help under the financial crisis are as follows:

- Take help/support more from parents, friends, relatives and neighbors during financial crisis
- Take loan from the association or NGOs
- Borrow money or necessary goods from each other
- Sell asset, furniture and jewelry at a lower price
- Mortgage assets for money to meet the immediate needs
- Receive support from microfinance institutions
- A little bit of support from other partners like government, private and NGO

4.2. Available mutual aid system in the village

Everyone, especially in the disaster-prone areas, helps each other. When someone faces any problems, another comes to help. For example, when a house of a poor person

destroys in a disaster, everyone tries to repair it. When the road breaks down, everyone builds together. If requires, they construct bridges in different places mutually. The available mutual aid system in the disaster-prone villages are as follows:

- Collaborates to help through youth organization.
- Build up dams through voluntary work
- Help the neighbors during their difficulties.
- Help each other to travel one place to another places by boat during floods.
- Help each other to protect their homes from destruction.
- Cooperate with each other. If anyone faces problems related to shelter or food, everyone deals with the problems together.
- Co-operate with each other to go to the hospital during serious illnesses including pregnancy.
- Help each other to irrigate the land.
- Allow each other to collect safe drinking water from personal sources.
- Help to repair damaged road and construction of bridges.
- Provide volunteer cooperation
- Build shelters collectively with the help of the local government.
- Help through lending.
- Provide shelter to the neighbors.
- Provide food including rice and pulses to the poor people during the disaster.
- Help to repair the house together.

4.3. Needs of such mutual aid system

Findings show that the mutual aid is required due to the humanitarian demand. It is also necessary to survive in the society. Most of the people are insolvent and do not have the ability to cope up with the disasters. Joint initiatives helped them to fight against disaster. That is why mutual assistance is very crucial. It is not possible to survive in this region without mutual cooperation. Mutual cooperation is needed to overcome economic

weakness. One of the FGD participants who is a potter in *Satkhira* report that *"since we don't get any help from the government, we need to help ourselves."* The reason behind the necessity of mutual aid system are as follows:

- Because of religious beliefs
- To maintain harmony in society.
- To live in peace
- For humanitarian reasons.
- Using such system, if everyone works together, it is easy for all to move out from the crisis.
- Mutual assistance helps them to survive during the disaster
- Mutual cooperation system can make them safer against natural disasters
- Damages of disaster can be reduced by mutual assistance
- Using such system, it is very easy to work as many things can be done if everyone works together.
- Using such system, it is easy to deal with the problem.
- Such a system helps to keep their houses and cultivable land safe.
- Solve the problem quickly at a lower cost.

4.4. Challenges in such mutual aid system

The main obstacles to form a mutual aid system are economic crisis, extreme poverty, and frequent natural disasters. The indifference of local authorities is the major challenges in such mutual aid system. One of the FGD participants who is a farmer in *Satkhira* report that *"when someone is given a responsibility from the government, he thinks that he is powerful. He uses it to hinder mutual activities in the society"*. Again, a day laborer in *Satkhira* said that *"as we work together for social interest, there has no obstacles"*. But this isn't common all over the country. The common challenges during such kinds of mutual aid system are as follows:

- Poverty
- Financial crisis
- People quarrels with each other for minor issues.
- Lack of resources
- Lack of competent leadership.
- lack of easily available loans and insurance facilities
- Frequent natural disasters
- Lack of adequate relief or governmental aid
- Lack of property and human resources.
- Lack of unity
- Lack of initiatives
- Lack of education
- Lack of cooperative attitude from the rich
- Unorganized youth society
- Individualism
- Bad communication system
- Lack of radio or television in their village.
- Lack of awareness
- Gap between the poor and rich is high

4.5. What else can be done

It is necessary to take some measures to improve the mutual aid system. Our qualitative findings provide some most common suggestions from the FGD participants all over the country. These are given below:

- Create a cooperative organization or fund for helping the poor
- Stay together to save each other.
- Cooperation can be done through mosques and temples.
- Disaster tolerant road construction.

- Plant more and more trees
- Increase awareness
- Construct more dams
- Provide pre-caution for advance preparation.
- Create local organizations.
- Increase unity.
- Create aid funds for awareness and cooperation.
- Educate people.
- Provide relief to the poor
- Provide loans at a lower interest rate.
- Provide government assistance during disasters and build shelters in villages.
- Government may undertake more development activities
- River dredging and construction of dams in a sustainable manner.
- Financial assistance for construction of disaster-resistant houses.
- Make arrangements to deliver the relief/aid directly to the poor without being distributed through the UP members or UP Chairman or the NGO.
- Distribution of crops seeds among the affected people that yield crops at minimum time
- Make life insurance, agricultural insurance, asset insurance facilities easily available
- Take protection to prevent river from erosion.
- Influential people can provide more support to the poor
- Provide support like Char Livelihood Program.
- Increase public-private cooperation.
- Build up pink village and shelters for the people
- Discuss with the neighbors about the disasters and hazards and try to find ways about how to reduce the amount of damage.