

# **Disaster Risk Reduction (DRR) activities by the Sundarbans Rural Communities in Bangladesh**

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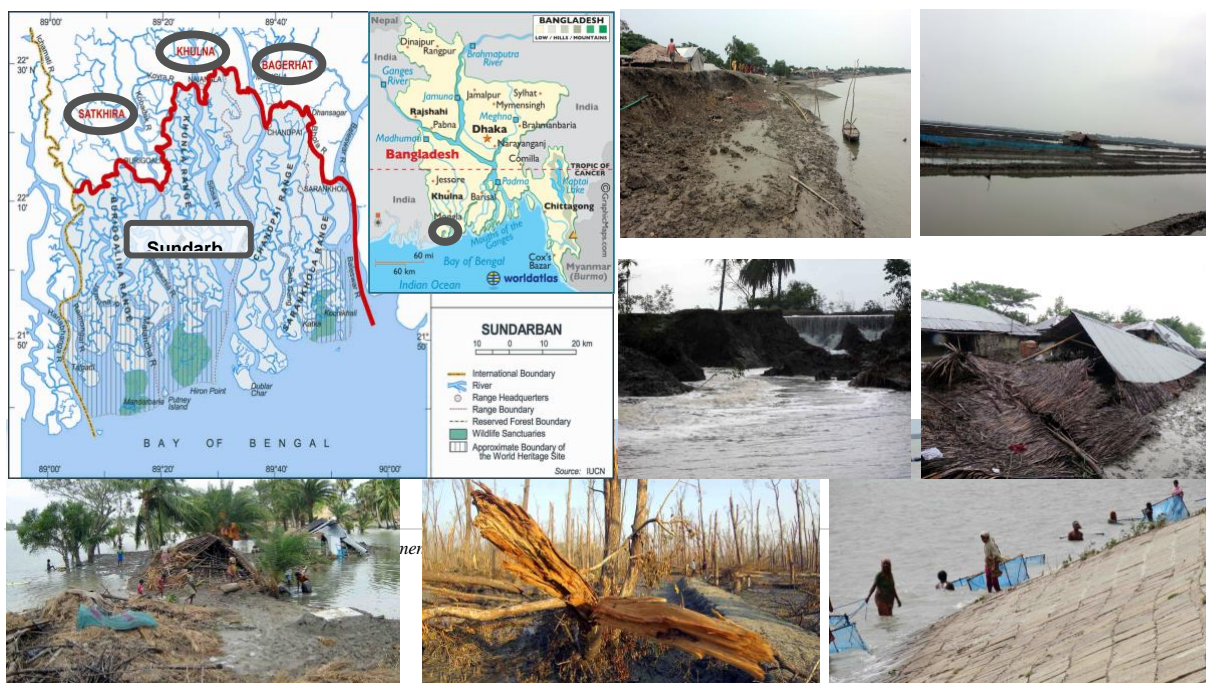
## **Abstract**

Disaster events are common phenomenon in Bangladesh. People in Bangladesh frequently suffer from it. The Sundarbans coastal region is on the frontline of global climate change due to its geographic location. People here fight with the effects of natural calamities regularly to save their lives. Natural hazards such as salinity intrusion, rising sea levels, river erosion, water logging, high tide, cyclones, and storm surge have been gradually increasing because of climate change. To cope, people in the Sundarbans coastal region created different techniques and applied those in their daily lives. Government and NGOs have begun introducing Disaster Risk Reduction techniques among the poor, climate-vulnerable people living in the Sundarbans coastal communities.

## **Background information of the Sundarbans coastal region of Bangladesh:**

Climate change is a global issue for sustainable development. Bangladesh is one of the most victimized countries for climate change. Khulna, the southwest coastal region of Bangladesh, has been identified as one of the 15 most climate change vulnerable cities of the world (IIED, 2009). Khulna frequently suffers from hydro-meteorological and climatic disasters due to its natural setting close to the Bay of Bengal. During recent past, two havoc climatic disasters (Super Cyclone Sidr, 2007 and Cyclone Aila, 2009) totally washed out all of the coastal infrastructures and public properties and so many things.

Sundarbans is the UNESCO declared Natural World Heritage as well as RAMSAR Wetland site which is known as the largest single mangrove forest in the world. Sundarbans mangrove flagship ecosystem is the natural safeguard and livelihood support for 3.2 million climate vulnerable coastal people. It is the home of various types of species including many rare and endangered flora and fauna such as the iconic Critically Endangered Royal Bengal Tiger, estuarine crocodile, Turtle, Dolphin, wild birds etc. It is a matter of great regret that 35% of mangrove forests have been reduced since 1980s from the world because of excessive human interference and every year 2.1% mangroves are decreasing (Ref: FAO 2003). Sundarbans is also in serious jeopardy of losing its origins from the world.



## **Current Disaster Risk Reduction (DRR) practice of the Sundarbans Coastal communities**

### **Constructing House:**

House is the most valuable asset for everyone; especially for the people of Sundarbans coastal region who often face different natural hazards. Structure of houses differs from one place to another. Mainly disaster affects the coastal houses due to poor structure of their houses because of their poverty. So, it becomes really difficult for them to repair or rebuilt the houses. This is why they consider disaster at the time of making their houses and they try to apply some techniques for coping with disaster.

### **Make high foundation of Houses:**

Coastal people generally make their house foundation four to six feet high from the ground to protect their houses from flood, wild animals etc. (Picture-1)

### **Teaming up the corners of House with rope:**

The corners of a house are strongly tied with a nearby tree so that the shades of the house may not be blown away by the storm. When trees are not available beside the house, people put strong and big branches of tree two or three meters inside the soil and tie the corners with it. (Picture-2)

### **Pressing the Shades by the Wood/ Bamboo with straw:**

People put big size woods or the pieces of Bamboos over the shades of the house and tie them with rope or straw. Maximum people have been using it after the cyclone Hurricane of 1988. (Picture-3)

### **Putting the sticks/branches of Tree inside the mud made wall:**

The mud made wall can be broken if the saline water get mixed with it. To protect the walls, people of Sundarbans coastal region use the technique of putting branches inside the mud made wall. They created this technique by themselves. (Picture-4)

### **Making cross by the sticks:**

People of this region make strong crosses (x) with Bamboo or durable wood for railing. It makes the railing strong. It protects the house from strong cyclone. NGOs introduced this technique with them. (Picture-5)

### **Semi concretizes the foundation:**

Pressure and waves of flood water leads to destroy the mud made foundation. This is why some people make semi concrete basement of their house. This foundation is much more sustainable than the mud made foundation. People came to know this technique from different NGOs. (Picture-6)

### **Making temporary houses:**

At the time of disaster when the houses get flooded and people lose their residences then they prepare shelter on the trees/embankment temporary. They learnt this technique from their ancestors. (Picture-7)

### **Making deck on the floor:**

If the house is flooded in disaster time, people stay on the deck with their family. Usually, deck is made with Bamboo or other strong branches of different trees on which four or five members can stay. Normally, the deck is made two or three feet high from the floor so that flood water may not touch it. They create and apply this technique by themselves. (Picture-8)



### **Government and NGOs are constructing Cyclone Shelter:**

Bangladesh government is very much conscious about coastal disasters and this is why government has changed its formal construction design at coastal regions. Especially, the primary schools are being constructed with special care both for the academic facilities and to use as a cyclone shelter. NGOs also support to construct cyclone shelter. Beside the cyclone shelter NGOs also introduce high mud made place as a shelter place for people and livestock during the disaster period.



*Pic\_9: Cyclone shelter and Government school*



*Pic\_10: High mud made place*

### **Preserving food, water and important documents:**



Sundarbans coastal people know that disaster will damage their important documents and they suffer from food and water crisis during the disaster period. To solve this problems Government, NGOs introduced few techniques. Coastal people also apply few of their own techniques for coping with the situation.

**Put dry foods and necessary documents in the ground of their houses:**

People put their necessary documents and dry food in the ground of their houses by using polythene. They tie the polythene and dig two or three feet hole on the floor to put it. If the house is destroyed by flood or cyclone, the treasure remains safe and they use it after disaster. They learn this technique from their ancestors. (Picture-11)

**Put dry foods on a high place of the house:**

A lot of crops and vegetables get wasted during flood time. So, people of Sundarbans coastal region make deck to preserve food on it during disaster time so that they can get food even after disaster. (Picture-12)

**Tie up the necessary papers with strong trees or upper part of the house:**

Some people of this region tie up their necessary goods and papers in polythene with long and strong trees. Sometimes they use the strong upper part of the house to hang up necessary things. (Picture-13)

**Water preservation during disaster**

During disaster time people use polythene to tie the loaded water pots. The water pots are of different kinds. They can be made of plastic, silver or mud made. They use this technique to preserve drinking water from being flooded. (Picture-14)



*Pic\_11: Put dry foods and necessary documents in the ground of their houses*



*Pic\_12: Put dry foods on a high place of the house*



*Pic\_13: Tie up the necessary papers with strong trees or upper part of the house*



*Pic\_14: Water preservation during disaster*

**Protecting embankment**

As riverbank erosion is common feature in the Sundarbans region so Government and people are conscious on protecting the embankment. They gather mud and make the embankment high so that flood water may not damage the road and get inside. Sometimes, they put brick pieces and make concrete blocks in front of the roads to make the roads strong. Local government and other NGOs help people to work with the embankment.



*Pic\_15: River bank erosion*



*Pic\_16: Coastal embankment protection techniques*

## Receiving disaster signal

Disaster risk can be reduced if the news is received in advance. A few years ago people don't get disaster information in advance but with the development of the technology the scenario has been changed. Now they get disaster news through cell phone, radio, television, miking, siren and signal flags before the disaster.

People who stay inside the Sundarbans for resource harvesting can't get any disaster information but they judge the situation by observing water level, ferocity of wind and the movement of the clouds. They take necessary steps according to the situation.

Mainly Disaster signal comes from the Government. Government of Bangladesh is the main responsible authority to take the initiative of disseminating disaster signal and broadcast them through different media to reduce the probable disaster risk of the community.

Government of Bangladesh has also taken other initiatives for reducing the disaster hazards in the community level. Such as forming Disaster Management Committee (DMC) in local, regional and nation level like Union Disaster Management Committee (UDMC), Upozilla (sub district) Disaster Management Committee (UDMC), District Disaster Management Committee (DDMC) and National Disaster Management Committee (NDMC).

Moreover Bangladesh Government arranges national fund; Climate Trust Fund for disaster preparedness activities



*Pic\_17: Disaster signal receiving ways*

## Preparedness activities for livelihood sector

Climate change has adverse impacts in all the sectors including livelihood. People are now applying different techniques to cope with this changed climate those are introduced by the Government and NGOs as well as the communities own techniques.

### **Crab fattening with different technique:**

Some people of Sundarbans coastal region do the business of crab fattening with different technique. They do the fattening in plastic box so that the crabs may not come out from the box even though the area is flooded. (Picture-18)

### **Hanging Gardening**

Hanging gardening is a technique followed by the people of Sundarbans coastal region. It is a great opportunity for them who have no land of their own. They hang a bag or polythene or plastic bottle and put seeds in it and water them. If the area is flooded these garden will remain safe, if the salinity of soil is increased it has a little impact on production. (Picture-19)

### **Cultivate climate adaptive crops**

People of Sundarbans coastal region started to cultivate climate adaptive crops, mainly paddy. As the salinity is increased people cultivate those crops which are good for saline water and soil. (Picture-20)



*Pic\_18: Crab fettering in plastic box*



*Pic\_19: Hanging gardening*



*Pic\_20: Saline tolerant crop*

### **Coping with Disaster during staying inside Sundarbans**

People apply few own techniques during disaster when they stay inside the forest according to the situation. When the realize disaster is about to strike, they tie their boat with big and strong tree and clime on a strong tree for taking shelter. They tie them with the branch of the tree. If they think the ferocity of the wind is very high they take shelter in such a place where is no risk of trees to be up rooted and branches to fall over them. (Picture-21)

### **Using unique technique for coping with disaster**

At disaster time some people use plastic drums to protect their boats from being drowned. It is a unique technique. Plastic drums help the boat to float over the water. At the same time they preserve food and water on the boat. People use this technique when cyclone shelter is far away from them. All the family members sit together on the boat. (Picture-22)

### **Using life Jacket:**

NGOs introduce and provide life jackets among villagers for their safety during disaster. (Picture-23)



*Pic\_21: Coping with Disaster during staying inside Sundarbans*



*Pic\_22: Using unique technique for coping with disaster*



*Pic\_23: Using life Jacket*

## **What are we doing for reducing the climate change hazards?**



Bangladesh Environment and Development Society (BEDS) is a non-profit, non-political organization committed to sustainable socio-economic development, conservation of natural resources, use of clean energy and protection of the environment through research and implementation of specific activities. A group of enlightened environmentalists, development workers and nature lovers came together with the idea of advocating to protect the ever-degrading coastal ecosystem of Bangladesh. As a result, BEDS was formed on July 26, 2010, to work with the grassroots-level community. The organization promotes the long-term co-existence of people and natural ecosystems on our planet, creating harmony among all living beings. For reducing the natural disasters we have been doing the following Community Based Disaster Risk Reduction (CMDRR) activities



Hazards mapping by the Communities



Climate change assessment by the villagers



Formal Education Service and Business Education for Sundarbans Resource Harvesters Children



Construct Cyclone and Training Center



Poverty Reduction and Biodiversity Conservation activities



Renewable Energy Promotional activities



Environmental and Sundarbans Biodiversity Conservation Education program



Non Timber Forest Production Promotional activities



Improved Cooking Stoves promotional activities



Community Based Mangrove plantation and restoration activities

