



## **One year since Cyclone Amphan: A disaster that did not end**

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Editor's note

Dear Readers

This month marks the one year anniversary of Cyclone Amphan that ravaged the country's coastal region.

A large number of the people in the affected areas are still living in the ruins that the super storm left behind. This remains a largely underreported side of the disaster.

In this issue of Climate Tribune we report these untold stories from the ground, trying to shine a much needed light on the people's sufferings, which did not end after the storm dissipated.

These reveal how the vulnerable communities in the coastal region lose properties and livelihood despite Bangladesh's advancement in the early warning system and other disaster risk reduction mechanisms.

Relatively simple infrastructure works like rebuilding embankments could have prevented large areas being inundated by saline water, we



COVER: RAFIQU ISLAM MONTU

learn. In this issue we have reverted to print after publishing the magazine only digitally since the pandemic began. As we go back to print, we are pleased to inform our readers that from this issue Climate Tribune will be printed on environmentally friendly recycled paper. ■

# Where getting drinkable water is an everyday struggle

## Scarcity of fresh groundwater is causing misery for the local people in the Sundarbans area

Md Ridwan Bin Alam Diganta and Mahmuda Akter

Safe drinking water crisis in the south-western coastal area of Bangladesh, especially in the Sundarbans region has become a constant problem due to the groundwater salinity. Besides, the freshwater aquifers in this area are not available at reasonable depths and the surface water is profoundly saline and turbid (Islam et al, 2014). Arsenic and saline contamination make troubles for providing consumable water to the underprivileged individuals of the country. The destitute and poor individuals cannot bear the cost burden of water innovations due to the financial crisis.

Over the years, shrimp and crab farming has gradually increased the salinity of the area. In the aftermath of cyclone Aila in 2009 as the coastal areas were damaged by the storm surge, a vast area in that region was inundated with saltwater and remained water-logged; affecting both surface and groundwater levels in the area. That is why the locals have to rely heavily on rainwater harvesting, pond sand filters (PSF), deep tube-wells, and pond water for drinking purposes. However, due to the less rainfall and the fact that the pond sand filters are far away from the area, every family has to struggle to store that potable water every day.

As a part of the TAPESTRY project, we had to travel to Shyamnagar, an area near the Sundarbans. We have found that potable water is a scarce resource in Sundarbans as the rivers and shallow groundwater are saline and fresh groundwater is not easily accessible, causing daily misery for the local people.

We visited some villages of Shyamnagar and got to know that they have to collect potable water and preserve them through lots of hardship. As fresh groundwater is not accessible everywhere, the whole village depends on a short number of tube wells. Besides, there are PSF in several villages of Shyamnagar. People from 2 to 3 villages collect water from a single PSF.

So, people, especially women have to go a long way to collect water. Most of them travel at least a kilometre on foot to fetch water. Sometimes they have to pay for it. For example, people from Purbo Jelekhali village in Shyamnagar collect water from a PSF (constructed by the Red Crescent) for Tk100 a month.

In some houses, the villagers have been collecting rain-

water in large earthen pots for a year. Many also have proper rainwater harvesting systems. However, due to lack of money, many people cannot afford to buy large pots or tanks to collect rainwater for year-round use. Nevertheless, they have received training from various NGOs on how to collect and preserve rainwater to use it throughout the year.

Many are now digging ponds and canals to collect rainwater, which they use for drinking, cooking, agriculture and other daily activities. They were dealing with salinity in this way and were moving towards a better life. But the environmental and social disaster has thwarted their efforts and success once again. They are not able to collect enough rainwater as the rains are not regular due to climate change.

Also, due to the increase in the amount of cyclones in the area the river bank is not strong enough, the area is often inundated by saline water; affecting all the freshwater bodies. Last year, cyclone Amphan and coronavirus attacked together, causing them the worst sufferings. They had to collect water from a distant PSF as their stored rainwater became saline.

But due to the lockdown situation, the police would take issue whenever they came out and would fine them money. Moreover, when the people of one village went to fetch water from another village, the people of that village did not want to let them enter the village for fear of Covid-19. So, they secretly went far away to collect water.

“One can survive without rice but not even a day without water,” said one woman from Vamia village of Shyamnagar. “Even though we have plenty of water around here, everything seems to be poison to us. Drinking this water regularly is sure to cause illness and death. We have a serious shortage of drinking water,” said another woman from Datnakhali.

Getting fresh water to the residents of Shyamnagar is a big challenge. As they do not know when or how their suffering will end, they are hoping that the government and/or NGOs will help them get portable water facilities. ●

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Storm surge rushes into a village in Satkhira, destroying a road, following Cyclone Amphan. Photo taken on Thursday, May 21, 2020

DHAKA TRIBUNE

## Destruction by Cyclone Amphan continues to haunt its survivors after one year

Cyclone Amphan affected the lives of about one million people in Bangladesh's coastal areas

Rafiqul Islam Montu

**H**ajatkhali village of Uttar Bedkashi union in Koyra upazila of Khulna district is located at the south-west coast of Bangladesh. On the night of cyclone Amphan on May 20, 2020, under strong tidal pressures, the embankment on the village broke, and water broke the bank of Hajatkhali village damaging several houses.

Kartik Chandra Mandal, 39 year old resident with his family of five lived in a pacca building that he built with a lot of effort using his and his father's savings. It was one of the houses that became engulfed by the tidal water. On the ill fated night of the cyclone, Kartik and other villagers had rushed to climb the top of the embankment to save their lives. From the top of the embankment, they saw their houses and belongings



Sources from local union councils and non-governmental organizations said about 50,000 people had been permanently and temporarily displaced from the ten unions affected by the cyclone

going under water.

For the last one year Kartik has been surviving in a leaf fenced thatched shed he built on top of the embankment. Many people from the area of Hajatkhali, Katmarchar, Bedkashi and neighbouring villages also started to live on the embankment. The villagers have been facing extreme crises in every aspect of their livelihood for over a year and many people have left the area in search of livelihood and employment.

The same scenarios are seen in Kurikahunia, Sreepur, Sanatankathi, Pratapnagar of Asashuni upazila Banyatala and Gabura of Shyamnagar upazila of Satkhira district. Cyclone Amphan affected about one million people across the five upazilas of Shayamnagar, Satkhira, Koyra, Dacope and Paikgacha.

This is just a fragment of the people affected by Cyclone Amphan. If we want to see the real picture of how coastal lives and livelihoods are affected by cyclones, we have to look at Kalabagi village of Dacope upazila of Khulna district.

The houses of the people there have been turned into 'hanging' houses. The river Shibsra has washed away their village. One misfortune after another has fallen on these people. In contrast to the situation of Kartik Chandra Mandal, the people of Kalabagi 'hanging village' have been living with water for the last 12 years since the 2009 cyclone Aila devastated their lives. These villagers have no land left to build houses on, every other disaster since cyclone Aila has made extensive damage, leaving them destitute.

### The burden of natural disasters

This burden of natural calamity is felt all over the coast of Bangladesh. Before the independence of the country, a strong cyclone hit the coast in 1970. According to non-government





## The hungry river is coming towards us. Our houses are slowly sinking, and we are moving backwards. Where a year ago there were roads, houses - now there is about 60 feet of water

statistics, about one million people were killed in the cyclone. According to the United Nations, that cyclone is the biggest cyclone in the history of the world.

After independence, many more powerful cyclones hit the coast of Bangladesh. But for more than a decade, the southwest coast of Bangladesh seems to have been the target of cyclones. As a result of frequent cyclones, the area is becoming increasingly uninhabitable.

Agricultural land is declining, drinking water crisis is intensifying, salinity is increasing, vegetation is declining. The embankments are also getting weaker due to the cyclone. On the other hand, there is no proper initiative to reform those weak embankments.

“The hungry river is coming towards us. Our houses are slowly sinking, and we are moving backwards. Where a year ago there were roads, houses - now there is about 60 feet of water. By road we went to town. Now we have to cross that path by boat. A new island has been created here after the cyclone Amphan,” said Akbar Hossain Moral, 65, a resident of Fakirkona area in Kalabagi village of Sutarkhali union in Dacope upazila of Khulna district.

Akbar Hossain has been living in this area all his life. But since Cyclone Aila, he has been unable to continue farming; moreover there has been many changes in the area; once the village was surrounded with big trees and plants and crops in the field. Now plants cannot regenerate due to excess salinity.

Numerous hanging houses can be seen outside the new embankment in the far south of Sutarkhali union of Dacope upazila. These houses have been built with increased height to withstand the tidal waters.

But Cyclone Amphan has left many of these houses and families completely isolated as the Fakirkona part of the long hanging village has turned into an island especially at high tide, the houses in the hanging villages seem to be floating in

the water.

The people in this region were dependent on natural resources. At one time the people of this area used to depend on agriculture and fishing in the river for livelihood. Now they do not have professional security due to the environmental crisis in the whole area. They lost their jobs or business and are being forced to move away from the area at an alarming rate. The crowds are increasing in the surrounding district headquarters, such as Satkhira, Khulna, Barisal and Jessore.

Abdus Sobahan Gazi, 70, has moved ten times throughout his life. Now he lives in a small hanging house next to Kalabagi Bazar. He has lived through many disasters in the area and recalling those events he said the cyclone of 1988 had caused the most damage in the area.

Since then the cyclone that hit the hardest was Sidr. Followed by Cyclone Ayla which caused severe damage to Sutarkhali and Kamarkhola Unions, of which Sutarkhali suffered the most. The area was under water for about five years, resulting in the houses being built becoming like hanging houses after Aila. The village that was once surrounded by greenery has now turned into a barren desert like landscape.

### The number of displaced people is increasing

Post Cyclone Amphan, many affected villages were submerged with water making it uninhabitable, resulting in people fleeing the village in search of survival. Many were forced to move to the city in search of work and food.

After Amphan, Tripti Das's house was submerged for about ten months. Though he tried his best to hold the ground of his house, eventually he left his home. Many like Tripti Das have left the area permanently, some temporarily. Some have gone to the city, others to distant villages. Many have changed their livelihood. Some have lost businesses.

Sources from local union councils and non-governmental organizations said about 50,000 people had been permanently and temporarily displaced from the ten unions affected by the cyclone. Some people will be able to return home when the water recedes.

But a large part will never be able to return home. Shamsur Rahman, chairman of Dakshin Bedkashi Union Parishad in Koyra Upazila, said more than 2,000 people had fled the area after Cyclone Aila in 2009. Many people have left this year even after Cyclone Amphan. A large part of them never come back.

“The tidal wave caused by the cyclone has increased salinity in new areas. Due to weak infrastructure, a huge area is being damaged due to breakage of embankment. Production has declined in various areas due to adverse environmental effects. The village of Jaliakhali in Dacope upazila has been completely lost after cyclone Aila. Erosion has increased at a huge rate in Kalabagi and Nalian areas of the same upazila. As a result of the increase in erosion, a small part of Kalabagi is on the verge of extinction. There is only 30-35 meters wide space left now. Yet

people are forced there. This place will become extinct at any time when another big cyclone hits,” said Hassan Mehdi, chief executive of the Coastal Livelihoods and Environment Action Network (CLEAN), a non-governmental research organization.

### Changing Profession: Farmers become van drivers or day labourers

Many people in the southwest have been forced to change professions due to natural disasters, including in the aftermath of Cyclone Amphan. Someone who once identified themselves as a farmer of the village is a van driver or day laborer of the city.

Many are struggling to survive in the area of boating or fishing. The big fishermen of one time have now turned into small fishermen. Natural disasters are destroying the lives of the people in this area. From the dire state people are trying to recover. Some are borrowing from NGOs, some are borrowing from moneylenders. This only increases the burden of their lives.

Shrimp farmer Nur Islam, 45, of Kurikahunia village in Pratapnagar union of the Asashuni upazila is now making a living by boat. Managing three meals a day for his family members has become difficult. The last resort was to sell the cows and return the lease money to the land owner of the shrimp farm making him incapable of continuing shrimp cultivation. Nur Islam has now changed his occupation to a boatman from a shrimp farmer.

Mafuar Rahman, 35, of the same village farmed shrimp on three bighas of land Amphan flooded his shrimp farm and his house. Like Mafuarno, other farmers have been able to prepare for shrimp farming in the entire Pratapnagar Union this year.

Since Amphan these individuals are trying to make ends



## A non-governmental organization Leaders-Bangladesh conducted a family-based survey (within three month of the cyclone) in six unions of the three upazilas affected by Cyclone Amphan, and found that 3,822 people had been displaced by August 2020

meet by earning Tk20-30 taka daily, if they are lucky.

Abdus Samad, an elderly man from Pratapnagar village, said the damage to agriculture and shrimp farms in the area was at least two metric tonnes per acre which costs about Tk75 thousand. Every shrimp farmer will incur a loss of at least two and a half to three lakh taka.

On the other hand, the yield per acre of aman is 1.6 metric tons which is worth Tk62 thousand. If IRRI and Aman could be properly cultivated there would be no crisis for the people of the area. If there were activities in agriculture and shrimp farms, many people in the area would have job opportunities.

### Some sell assets, some survive on debt

In the face of the crisis that unfolded with the cyclone Amphan, many had sold their properties. Almost everyone has taken loans. Debt burden has increased in almost all households. Families have no budget to deal with natural disasters or to build houses more than once a year. In this financial crisis, Akbar Hossain Lashkar sold his motor van worth Tk40,000 for only Tk15,000. Natural disasters are increasing their family's 'hidden climate costs'.

The non-government development organization Uttaran has conducted a survey on the affected people of the upazila and verified their coping mechanism. There are seven types of strategies. These are: reduction of daily meals; borrowing and begging; reduction of medical expenses; sale of assets; displacement; child labor; and relief assistance.

A survey conducted in May 2020 after Cyclone Amphan found that in May 2020, 74% of those affected had reduced food intake. But when the survey was conducted again in December, the rate was 100%.

The rate of borrowing and begging in May was 45%; However, in December this rate went up to 67%. In May, 83% said they would reduce the cost of treatment. But in December the rate rose to 98%. In the May survey, 39% said they sold their assets, but in December 2020 the rate stood at 73%.

The rate of displacement in May was 22%, which decreased to 17% in December. The child labour rate was 59% in May, which went down to 54% in December. In May, 94% of the people paid for their families with relief, compared to 79% in December.

Christian Commission for Development in Bangladesh (CCDB), a non-governmental development organization, went to the village of Vamia to assess how the cyclone affected their lives. The team was tasked with investigating the double impact of Covid-19 and Cyclone Amphan at the local level. The aim of the investigation was to understand how people are coping with this double crisis and how they can be helped to recover and improve. The people of the village had told the research team how borrowing was a significant technique and how many had to sell their assets and reduce daily food intake.



## Cyclone warning and shelter management in the coastal areas of Bangladesh is one of the best in the world

### Some statistics on impacts

A non-governmental organization Leaders-Bangladesh conducted a family-based survey (within three month of the cyclone) in six unions of the three upazilas affected by Cyclone Amphan, and found that 3,822 people had been displaced by August 2020.

People living in cyclone shelters, school buildings and embankments for more than six months are off the list. If these are added, the number of locals is estimated to be more than 25,000. Among the affected unions, the worst situation is in Pratapnagar of Asashuni upazila. Of the 18 villages in the union, 18 were under water for about a year. Many areas are still under water.

However, sources in the Climate Council, a civic organization working in the cyclone-affected areas, say that at least 100,000 people have been displaced from the three upazilas on a permanent, temporary and seasonal basis. Ashek-e-Elahi, member secretary of the Climate Council, said they received the information through union-based volunteers.

### Demand for strong embankments

“The main cause of this problem in the area is the weak embankment. The dam, built in the sixties, has become increasingly weak. The previous cyclones that broke this weak embankment also endangered the people of the area. The government says it is not going to build a strong embankment due to lack of necessary funds. The people of the area have been demanding a sustainable embankment for several years,” the chairman of Koyra Sadar Union Parishad Humayun Kabir said.

“Build us a strong embankment. We will be able to make a living by working in this area. If there is no strong embankment, we will have to move to another place,” said Sukumar Chandra Baulia, 65, of Hajatkhalia village in Koyra upazila. Nirmal Chandra Barkandaj, Suchitra Sarkar, Rekha Rani Sarkar, Parimal Mandal and many others who stood by his side said the same thing.

Parimal Mandal said, “The help of government and non-government organizations comes for the people here.

However, it is much less than necessary. Most of the government and non-government assistance is relief based. No one is thinking about sustainable development.”

Mizanur Rahman Moral, a resident of Napitkhali village in Gabura union, a cyclone-hit area in Shyamnagar upazila, said, “As the tide rises, panic spreads in the area. We cannot sleep at night during high tide. The embankment has to be guarded at night. We would not have this problem if there was a strong embankment.”

### National and international initiatives are needed

Alexandra Balik, director of the Geneva-based Internal Displacement Monitoring Center, or IDMC, said “It will be easier to find a sustainable solution if the displacement information is available properly. Along with this, initiatives have to be taken to create stable housing. We have to build sustainable urbanization. The risk of displacement can be significantly reduced through ecosystem management.”

“The ongoing Covid 19 epidemic has affected the local economy. Due to this, the disaster has put additional pressure on the displaced people. On one hand, facing natural disasters, on the other hand, the fear of being affected by the Covid 19. These people face a three-pronged challenge. Therefore, an integrated action plan needs to be adopted that takes all these factors into consideration.”

Prof Saleemul Haq, Director, ICCCAD, said, “Cyclone warning and shelter management in the coastal areas of Bangladesh is one of the best in the world. Because we are able to successfully remove millions of people we can prevent loss of life. But people are still losing their homes, land and livelihoods. There is a lack of support even after the cyclone.”

“Unfortunately, with climate change and rising sea levels, people in the lower coastal districts of Bangladesh will gradually lose their livelihoods as fishermen and farmers. They will be forcibly displaced. This needs to be actively addressed by both the national government and the international community,” he added.

Rezaul Karim Chowdhury, executive director of Coast Trust, a non-governmental development organization working in the coastal areas of Bangladesh, said, “The broken dam was not repaired in time.

As a result, people from different parts of the country, including the coast, have to move elsewhere every year. Most of them are slum dwellers in the city. They were also evicted from the slums for several years. Arrangements should be made so that these people can live in their own area.” ●

Rafiqul Islam Montu is an award-winning Bangladeshi independent journalist and coastal journalism specialist. He is a contributing reporter for The Guardian (UK), The Third Pole (UK), Gaon Connection (India), and Risingbd (Bangladesh). He is Fellow of Internews's Earth Journalism Network (UK). He has been involved in journalism for over 30 years. He is a pioneering figure in coastal journalism.

# The long-term effects of Cyclone Amphan on the west coast of Bangladesh

## A disaster that continues

Story and photos by **Rafiqul Islam Montu**

When the tidal water enters a village unhindered through a collapsed embankment, it leaves more than just a wreckage of destroyed houses; roads; ponds; crop fields, home gardens, etc. These tidal water and cyclonic storm surges leave people helpless, threatening their lives, livelihood, shelter and access to food. When Cyclone Amphan made landfall on May 20, 2020, the people living in the coastal belt of Bangladesh were already suffering from the aftershocks of COVID-19 pandemic.

While many people were suffering from job loss due to the pandemic and lockdown, Amphan came like a major blow. People became helpless running from one place to another with no work in the area and no income source. Ensuring three meals a day became a luxury for many. Many families

were grateful to be able to earn just Tk100-200 a day or get 5-10Kgs of rice as relief.

While May 2021 marks the first anniversary of the cyclone, many people haven't not been able to return to normal still. The losses they incurred have been too hard to overcome. Shrimp farmers and agri farmers suffered from big losses. Eleven months later, the embankment was repaired, but many areas are still underwater. The embankments are still very weak. If not by the next cyclone, high tides can break these embankments in many places.

Though Cyclone Amphan has caused major damage, very little relief made it to the people. Locals say the relief has been sufficient for a maximum of one month's worth of food. The remaining five months have been very difficult. Many people are spending their days borrowing money. But how long? What is the long-term impact of Cyclone Amphan on the west coast of Bangladesh?

### Environmental disaster

Over time what we can see in these pictures has become a very common and tolerable scenario for the people in this area. But anyone from outside will be surprised at the sight! This is where I turn my camera toward. The trees in this area seem to be weeping. No one is listening to their cries. Where there were green plants, there are now zero green villages. Somewhere dead trees are standing in the water. All the plants in these areas are dying after being submerged in saltwater for about six months. Crop fields, shrimp farms are all underwater.



The area has been submerged in saltwater for a long time after the cyclone had passed. As a result, the plants are dying. These plants are about 40-50 years old. Photo of Sreepur village in Asashuni upazila of Satkhira district on the west coast of Bangladesh



There is an acute shortage of cattle feed in the area. This teenager brought his goat from a distant village by a raft to feed grass. Picture of Pratapnagar village in Asashuni upazila of Satkhira district on the west coast of Bangladesh



# PHOTOSTORY

## Housing crisis

Post-Amphan, the housing crisis has been evident in many places on the west coast of Bangladesh. Someone's house is submerged in water or is washed away by tidal water. Moreover, with the increase in river erosion, many houses that were far from the water are now close to the river susceptible to erosion. Due to these persisting risks, some are living in houses with high decks. Many have built houses on the roads and embankment. Many have moved to homes of relatives, while many people are being forced to leave the area due to lack of shelter and no means of earning a living.



Life with water. When the water rises and you still have to go on the road. Picture of Kurikahunia village in Asashuni upazila of Satkhira district on the west coast of Bangladesh



All the areas around the house are submerged in water. Now all the work is done on the roof of the house. Picture of Banyatla village in Shyamnagar upazila of Satkhira district on the west coast of Bangladesh



When the tide comes and the house sinks, life still has to continue. The woman in the photo continues doing her household chores while her house is flooded. Picture of Pratapnagar village in Asashuni upazila of Satkhira district on the west coast of Bangladesh

## Temporary residence

Many people on the west coast of Bangladesh lived temporarily in different places for at least six months after the cyclone. Some lived in cyclone shelters, some in school buildings, some in madrasa buildings. A few families even lived at the launch terminal. Those who have not had the opportunity to find shelter in a building are somehow living under the open sky. Classrooms of many schools and madrasas are now housing 4-5 families cramped in one room surviving in a very inhuman way. The families are cooking by making an oven in one corner of the room.



Many affected people have taken refuge at restrooms of the launch dock. The photo was taken from the restroom at Kurikahunia launch ghat in Asashuni Upazila of Satkhira district on the west coast of Bangladesh



Those who have no place to go have taken a dwelling under the open sky. People are adopting to make these polythene-hanging shelters. The photo was taken from Banyatala village in Shyamnagar Upazila of Satkhira district on the west coast of Bangladesh



At this old age, the man in the photo has taken shelter at the classroom of Faruk Chowdhury Government Primary School. Here the school benches have been assembled to make beds. The photo was taken in Asashuni upazila of Satkhira district on the west coast of Bangladesh



# PHOTOSTORY

## Waiting for hope and relief

While some people have left the area permanently; many people have been temporarily displaced. Many are waiting for some assistance or a means to go somewhere that is not as devastated as their current home.



This woman has become destitute after losing everything to the cyclone. The photo was taken from Fultala village in Asashuni upazila of Satkhira district on the west coast of Bangladesh

People are moving from one place to another with whatever household goods they could salvage. This scene is very normal now. Photo taken from Pratapnagar village in Asashuni upazila of Satkhira district on the west coast of Bangladesh



## Lack of employment

The lack of employment took a deadly shape post-Amphan. Workplaces and opportunities in the area have shrunk. IRRI paddy was sown in the area which was washed away with the stormwater from the cyclone. Aman paddy was not planted in many places as croplands were submerged in water, additionally, many shrimp farms were underwater. With the roads, damaged rickshaws, vans and motorbikes were not running. The number of unemployed people has increased a lot. Many people are rushing to the city in search of work.



Due to lack of income, it has become difficult for the people of the area to get three meals a day. Many people try to earn some money by fishing at night. The photo was taken from Taltola village in Asashuni upazila of Satkhira district on the west coast of Bangladesh



Many people try to get food by catching crabs. The photo was taken from Fultala village in Asashuni upazila of Satkhira district on the west coast of Bangladesh



The roads are broken. The fields are submerged in water. In many places, there is no alternative to waterways. So many people are trying to earn a living through the use of a boat. This photo was taken from Taltola village in Asashuni upazila of Satkhira district on the west coast of Bangladesh



# PHOTOSTORY

## Water crisis

The drinking water crisis in the area has intensified as most deep tube wells have become submerged by saline water. There has never been a water crisis in this area before, but that changed after cyclone Amphan. Water now has to be collected by travelling some distance. Not only drinking water but also the lack of water used for other purposes including bathing has taken a serious turn.



Deep tube wells are submerged in tidal water. People use tube wells when the tidal water is gone. Photo taken from Kurikahunia village in Asashuni upazila of Satkhira district on the west coast of Bangladesh

Collecting drinking water seems to have become as difficult as collecting three meals a day. Water has to be collected by travelling to a distant place. Photo was taken from Banyatala village in Shyamnagar upazila of Satkhira district on the west coast of Bangladesh



## Roads wiped out

Road communication in the area has been weakened after the cyclone. In many places, there are no more paved roads due to the damage from the cyclone. The Brick Soling Road has been washed away by the tidal waters. The whole area seems to have become a remote village



Whichever way the eye goes, there is now a bamboo bridge. The local people have made these bridges for movement. The photo was taken from Drishtinandan village in Asashuni upazila of Satkhira district on the west coast of Bangladesh



It is not a river. There used to be paved roads here. There was a culvert on that street. The culvert has collapsed under strong tidal pressure for the cyclone. The photo was taken from Fultala village in Asashuni upazila of Satkhira district on the west coast of Bangladesh



Rickshaws, vans, motorbikes and many other vehicles used to run on this road. But for about seven months since the cyclone, the road was submerged in tidal waters. Photo taken from Hajatkhali village in Koyra upazila of Khulna district on the west coast of Bangladesh



# PHOTOSTORY

## Weak embankment

Previous cyclones showed how weak embankment has created a serious crisis in the area. Cyclone Sidr hit in 2007, Cyclone Ayla hit in 2009, Cyclone Fani in 2019 and Cyclone Bulbul hit the same year. With so many cyclones hitting the coast the locals have demanded that a strong embankment be built. But no initiative was taken to build a strong embankment. The embankment was built in this area in the sixties. Since then only the embankment has been repaired. As a result, the embankment has gradually weakened.



This embankment has been built with the efforts of local people. Photo was taken from Banyatala village in Shyamnagar upazila of Satkhira district on the west coast of Bangladesh



Weak embankment on the banks of the river Kopotaksh. The weak embankment collapsed due to the impact of Cyclone Amphan. The photo was taken from Hajatkhali village in Koyra upazila of Khulna district on the west coast of Bangladesh



Risky houses next to risky embankments. Photo taken from Harishkhali village in Asashuni upazila of Satkhira district on the west coast of Bangladesh

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## When a deadly cyclone is followed by a global pandemic

Covid-19 and Cyclone Amphan have shown us what a multidimensional and intricate series of disasters look like in today's time and age

Arusa Iqbal Rahim

Jamila Begum, a thirty-five-year-old woman lives right on the bank of a river along the coastal belts of Bangladesh with her family. Her home opens towards the great Sundarbans – an extremely beautiful yet highly climate-vulnerable area for any community to live in.

Every year, Jamila faces climate-induced natural disasters in the form of cyclones, river erosion, flood, tidal surges, and sea-level rise, bringing countless overbearing socio-economic challenges (such as loss of lives, land, livelihoods, jobs, shelters, as well as increased risk of poverty, forced migration, food shortages and so on) and emotional stress. But in May 2020, this natural disaster came with a partner – Covid-19.

Amphan was different from any previous cyclones. Because this hit during the growing presence of an ongoing pandemic. After the blow of the storm, not only did the family lose their livelihoods and parts of their shelter, but the cyclone made access to water, sanitation and hygiene (WASH) extremely difficult. With the surges in Covid-19 cases throughout the country, lack of access to WASH became an immediate threat for the entire community. Moreover, many families like Jamila's were forced to migrate under one cyclone shelter making social distancing impossible and further increasing the risk of the pandemic. Jamila felt helpless as she continued to hold her children in the corner of the shelter house.

Cyclone Amphan has destroyed a total of 440 kilometres of road and 76 kilometres of embankment in the coastal area, affecting many families like Jamila's. More than 55,600 homes were completely destroyed, and at least 162,000 homes were partially damaged. Amphan displaced over 100,000 people---with more than half still sheltering with friends and relatives at the end of May. In terms of WASH sector, approximately 50,000 people needed water, sanitation, and hygiene. There were about 40 thousand toilets and nearly 18 tube-wells re-

**Jamila Begum (35) is living on the bank of the river. As it is a coastal region, as well as the start of the Sundarbans, a climate-induced natural disaster like a cyclone, river erosion, flood, tidal surges and sea-level rises brings big challenges for maintaining proper hygiene. This photo was taken on August 24, 2020 at Gorkathi, Khulna. 24 August, 2020**

WATERAID/ DRIK/ HABIBUL HAQUE



corded as damaged or fully destroyed.

The natural disaster also had certain direct and indirect impacts on general public health, livelihoods, infrastructure, the economy and sociocultural institutions of the country, especially in coastal regions. Access to food and drinking water were severely affected during the period, and a definite increase in the risk of transmission of waterborne infectious diseases, such as diarrhoea, hepatitis, malaria, dengue, pneu-

monia, and other contagions like eye infections, skin diseases, or in Jamila's case the coronavirus. Which ultimately became extremely deadly for these vulnerable communities who are less equipped to tackle such challenges. These, combined with the lack of proper WASH facilities turned out fatal for these coastal communities.

“The squatting pan is all mud-splattered and wet when it rains here. I always feel I will slip, and my leg will be stuck in



that pan. I have a neighbour who is pregnant and now staying with her mother. I saw how difficult it was for her to use this kind of toilet. I fear that pregnant women are more vulnerable to slip in the toilet,” said Jamila.

Furthermore, surface water, the main source of drinking water in coastal divisions of Bangladesh such as Khulna & Barisal, becomes contaminated by saline intrusion and poor sanitation systems. Open latrines and poor sanitation are pre-existing problems in rural and coastal areas. Cyclones make this worse.



Apart from these, other indirect health-related impacts were recorded such as an increase in suicide and crime rates within the community, and adverse pregnancy outcomes

Bangladesh, and the loss of crops and reduced access to fish amalgamated the issue for Jamila’s neighbourhood children. Situations like these are truly the most horrifying for the vulnerable communities who end up losing the most despite having the least.

Apart from these, other indirect health-related impacts were recorded such as an increase in suicide and crime rates within the community, and adverse pregnancy outcomes. These were observed to increase in the post-disaster period of Amphan, possibly as a result of post-traumatic stress and depression. The literacy rates were low and poor knowledge of environmental health issues created additional problems following a cyclone for Jamila’s community.

Despite such challenges arising out of this natural disaster, in the past 50 years, Bangladesh has learned to adapt to these frequent cyclones and has succeeded in significantly reducing cyclone-related damages. This has been achieved by reforming early warning systems, developing proper shelters and evacuation plans, constructing coastal embankments, maintaining, and improving coastal forest cover and raising awareness at the community level.

Many neighbouring countries now take Bangladesh as an example and learn from the country’s experiences to tackle and overcome the aftereffects of such disasters. However, what still remains a concern, especially concerning the aftermath of Amphan is the dynamic socio-economic repercussions alongside Covid-19 in an underprivileged, poverty-stricken community.

Covid-19 and cyclone Amphan have shown us what a multidimensional and intricate series of disasters look like in today’s time and age. Past research and findings have shown that the vulnerable communities living on the margins of Bangladesh are subject to some of the worst impacts, even though they contribute least to the problem. In particular, it finds that the poor, rural communities who depend on agricultural products may be hit the hardest as most of their livelihoods and source of income are destroyed in the process.

Keeping Covid-19 in mind, sound, fact-based national policies need to be formulated to help these groups recover faster. International humanitarian assistance is key in ensuring that those displaced and economically down do not fall further into poverty. For the upcoming cyclone season, the communities and authorities need to learn from the experiences of cyclone Amphan and develop a more comprehensive plan to tackle the next power couple’s blow. ●

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## Sobur fights a losing battle

An untold story of Cyclone Sidr



Aftermath of cyclone Sidr in the Sundarbans in November 2007

SYED ZAKIR HOSSAIN/DHAKA TRIBUNE

MD Nadiruzzaman

Little more than a decade ago, I was researching peoples’ experiences through Cyclone Sidr and its impact at a tiny village near the mouth of the Boleshwar River and at the edge of the Sundarbans.

I lived in that village for 10 months and interacted with its people. The village was yet to be connected to the national electric grid and watching music videos on electric battery charged televisions at the tea stalls happened to be the only public (men only) entertainment in that area. One evening, I was out in a local tea stall, observing people sitting in a dark corner. I met Sobur there, a short, strong-built fisherman in his mid-20s.

I was an easily recognisable outsider and thus an obvious subject to draw attention to. I always took advantage of my ‘new in the village’ eagerness and met more and more people every day and expressed interests to learn about their everyday lives in the rhythm of tides, waves, and cyclones.

I did the same with Sobur. At one point in our discussion, I asked him what he had been doing during Sidr. I was very surprised to learn that despite knowing about the cyclone warning he had been fishing at the mouth of the river Boleshwar.

Seeing my expression of surprise, he continued that there had been a tsunami false alarm just a month before Sidr struck. Moreover, his family lives from hand to mouth and he is the only breadwinner for four dependents. He does not have any savings and his family will starve if he does not go to work.

I realised, for people like Sobur, who must work every day for their next meal, comprehensive cyclone preparedness does not make much sense as their desperation to live pushes them to go beyond the margin irrespective of the circumstances.

Sobur was born in a poor fishing family. His father lost their home and land to riverbank erosion and shelter on the embankment. He watched his father fishing in the Boleshwar River, accompanied him since his boyhood, and has grown up



as a fisherman. He has never gone to school and has no skills of cultivation. But he has enormous fishing experience both in the river and out to sea.

Everyday struggle in a poverty lashed life taught Sobur to maintain connections with the power loop of the society. He became a member of a powerful political party before reaching his adulthood. The rivalry triggered by political enmity led his political opponents to trap him in a firearm possession case.

A firearm, found hidden in a bush one kilometre away from Sobur's home, was recovered under his name. He was sent to prison summarily and the case was never forwarded



I realised, for people like Sobur, who must work every day for their next meal, comprehensive cyclone preparedness does not make much sense as their desperation to live pushes them to go beyond the margin irrespective of the circumstances

to the court. After serving four and half years, he met some high-ranking visitors to whom he explained his issue. He was bailed within a month and his case has remained pending ever since.

Sobur came back to his home and restarted fishing. By then his party was in power and he had no problems whatsoever. Like many survivors of Sidr, Sobur was aware of the forecast. Cyclone warnings are not new to him and he never had the luxury to act on warnings.

He went on finishing consoling his desperation and helplessness by submitting to God. However, it was beyond his worst nightmare when a twenty feet wall of water surged through his village. When the cyclone was over, Sobur, along with the other survivors, found himself in the wreckage of a living hell.

He did not find even a small piece of wood from his boats that he could recycle as firewood and he did not have any savings to reinstate his fishing business. So, he was fortunate to receive a boat and a net from an NGO and he managed a small

amount of dadon from his previous mohajon.

He started his business again with these small grants. Within a year, he had lost some of his floating nets when they became tangled in fixed fishing net structures. This loss was one and a half times the money that he had taken as dadon and it now became very difficult for him to sustain his activities while the fixed fishing nets (locally known as dhora jal) grew bigger and his losses became a regular event.

Local fishermen organised themselves and went to local administration and politicians. Though installing fixed fishing nets are illegal, none stood up by their side as their opposition here was very powerful both financially and politically. Though almost ninety percent of the fishermen in the Boleshwar River had a similar fate as Sobur, their voices have been silenced by muscle power.

Sobur sold his last resort, homestead land, moved back to the embankment, and bought a small piece of agricultural land. A little more than one year after Sidr, as his first crop was flowering, this village was again hit by another cyclone, called Aila. He sold his first crop. One influential neighbour evicted him from his land using his political influence.

To make a stronghold on that piece of land, his neighbour influenced the administration to revive the old unresolved case of firearm possession against Sobur. He was bailed after four months. But, he had to sell off his land to pay the fees of the court and his lawyer.

In jail he was approached by a dacoit gang leader, who offered him membership of his gang. Sobur's destitution, frustration and anger triggered a feeling of revenge against Halim and Rob. Therefore, instead of going to a big city to find a job, he joined that gang of bandits in the Sundarbans.

He started taking ransoms and extorting from other forest users. However, early in April 2010 he was cornered by some of his victims, they blinded him, and he was handed over to police custody. During my ten-months stay at my field site, Sobur was the eighth dacoit I heard of being caught by the community and all of them were blinded in this way.

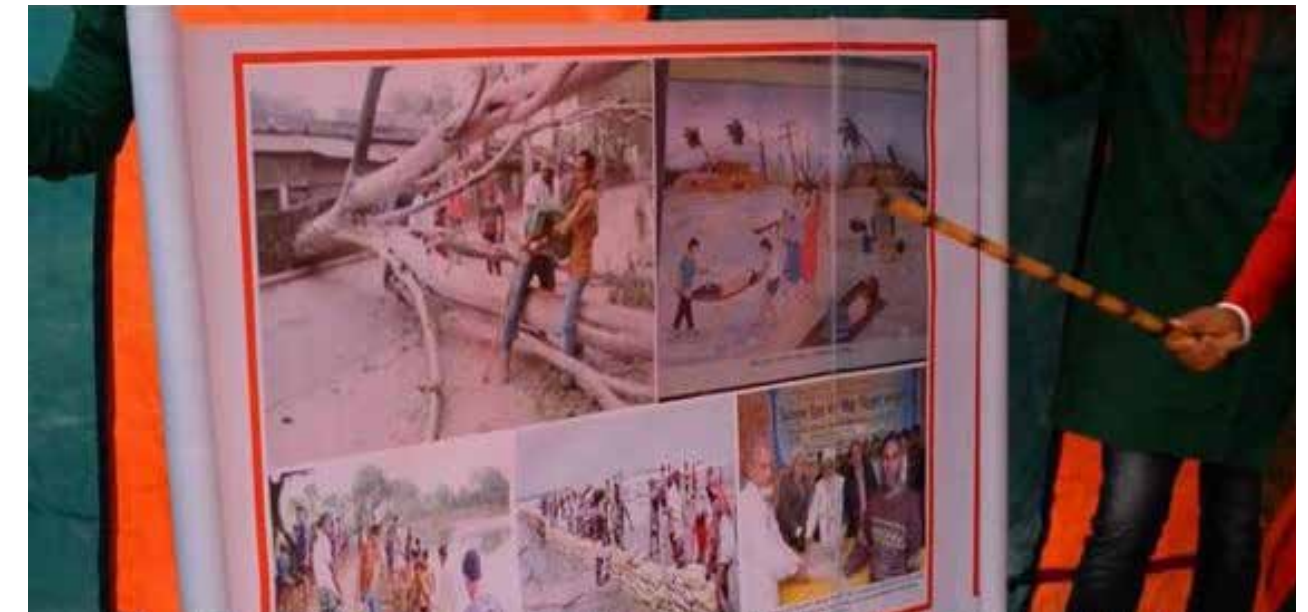
Sobur is just an example of the social construction of vulnerabilities. Many similar stories remain unnoticed. The superiority of our institutional knowledge captivates our wisdom to understand the everyday life and practicalities of cyclone survivors.

We, an elite from elsewhere, who visit a place following an extreme event only see the big waves. But people like Sobur who cannot accumulate their strength to withstand those big waves due to a tormented daily existence mostly remain unnoticed.

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## How people are learning disaster preparedness through a traditional folk art

Pattachitra is a form of folk art that has been used since ancient times in the rural areas of Bangladesh and India



Screenshot from the music video of the Pattachitra song on Disaster Risk Reduction

**Mahmuda Akter** and **Faizah Jaheen Ahmed**

Although people of the South-western coast of Bangladesh have been struggling with cyclones for the last a few years, they still lack adequate awareness. That is why during cyclone Sidr and Aila there was a lot of damage in those areas like loss of human and animal lives. A lot of resources were destroyed, many people lost everything and became destitute. So, the government and various NGOs have been working to raise awareness among the local people of these areas which includes- awareness training, Utthan-boithok (backyard meetings), posters, seminars, plays, songs and so on. Among them, one of the traditional media to raise awareness is through Pattachitra, which is renowned in both the Indian and Bangladesh's Sundarbans region.

Pattachitra is a form of folk art that has been used since ancient times in the rural areas of Bangladesh and India. It is a medium of storytelling through clothes or patta on which paintings and pictures or chitra are made and songs are sung based on the paintings. The painters, or Potuas, earn their livelihood by making Pattachitra and have been doing it for generations.



Through a project known as TAPESTRY, ICCCAD is trying to find out how the climate and disaster vulnerable people of Sundarbans area of Bangladesh survive by coping with various disasters





## It also covered other climate-induced disasters like floods, droughts, river erosion and tidal waves that occur every year

Earlier Pattachitras used to contain paintings of mythological characters, historical and religious events. With changing times, the paintings also started to focus on raising awareness on various social issues like dowry and family planning, and issues related to health, with the most recent one being the COVID-19 pandemic and how to tackle it.

Apart from these, it has also proven to be a useful medium to raise awareness on environmental matters like climate change and disaster management. The bright visuals and the lyrics of the songs contain strong messages that serve the dual purpose of capturing the people's attention through entertainment and educating them on these crucial issues at the same time.

Through a project known as TAPESTRY, ICCCAD is trying to find out how the climate and disaster vulnerable people of Sundarbans area of Bangladesh survive by coping with various disasters. At one stage of the research, they found out that the Pattachitra song is more popular among local people than other media of raising awareness.

People of all types, all ages listen to this song with great enthusiasm. Moreover, those who do not know how to read and write can easily understand what is meant by this song. Those who cannot hear can understand by looking at the pictures, and those who cannot see can understand by listening to music.

A villager from Shyamnagar said, "We don't understand half of what is said in training, and we also don't listen attentively as much as we understand because it is very boring to listen. However, at the training, they give us food and money, that's why we go to listen to them." According to a man from Shyamnagar, Pattachitra song does not sound like a boring speech to them, it seems like a way of entertainment. The words are spoken in the melody of the song so they listen to it very attentively and are able to remember these words effortlessly.

So, as a part of the research, a video has been made with

the Pattachitra song where the issues of disaster are revealed through a song. The Pattachitra song explicitly mentioned the sufferings of the coastal people in Bangladesh, particularly in the Sundarbans. It talked about cyclones Aila and Sidr that made the people so vulnerable that it took them years to get back to normal.

It also covered other climate-induced disasters like floods, droughts, river erosion and tidal waves that occur every year and destroy their lives and livelihood so they have to start from scratch every year or suffer with their families from poverty. The song highlighted anthropogenic activities that have contributed to climate change and the rise in global temperature, for example through the cutting of the trees in the Sundarbans. However, through the song, the people were encouraged not to give up and keep going to focus on adaptation.

It was interesting how the pre, during and post-disaster activities were so easily explained through the Pattachitra song like being prepared with food and other resources, leaving livestock on elevated places, sending pregnant women, the elderly and the children to cyclone shelters first, and repairing houses and planting trees to be more resilient against cyclones and other disasters. There was a special focus on paying attention to warning signals during cyclones which are usually difficult for most coastal people to understand during training but they heard about these through the song with a lot of interest.

Lately, the traditional livelihood sources of the mangrove-dependent people of the Sundarbans, like agriculture, honey collection and fishing have been at risk due to frequent disasters and more so because of cyclone Amphan.

Though already a year has passed since the cyclone, the coastal people are still coming to terms with the destruction it has caused to their livelihood sources. The TAPESTRY project works to transform the livelihood opportunities of the coastal people to make them adapt to and become resilient against disasters.

Along the same vein, the Pattachitra can be an example of a transformative livelihood option that will not only help the coastal people to earn livelihood but also raise awareness about climate change and disasters through the bright illustrations and simple but meaningful songs. In addition, our Sundarbans area-centric culture and traditions will be preserved year after year through this song. ●

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## Disaster induced water crisis in Gabura

While the government and non-profit organizations are doing their best to help out, it is still unlikely the plight of these people are going to end soon

Adnan Qader and Tahmida Sarker Muna

Another cyclone season is here. Experience of the cyclone season varies from where you are reading this from. If you are reading this from the comfort of your home in Dhaka, you are one of the lucky ones. Your experience will start off with rainfall through a window and most likely will end with a social media post. However, that's not always the case for the vulnerable people of the coastal belt, most of whom will likely end up in a cyclone shelter or will become homeless.

At least 14 major tropical cyclones have hit the country since 1965, which has left 479,490 people dead. According to the Ministry of Disaster Management and Relief, Bangladesh is one of the worst sufferers of cyclones in terms of casualties. Although these numbers are changing, the impacts on the infrastructures are still something Bangladesh is struggling with. Cyclone Fani of 2019 had an economic impact of \$63.6 million while Cyclone Amphan of 2020 has an economic impact of \$1.5 billion. The most affected Upazilas were in the Khulna and Satkhira where 50% of the Upazila were hampered due to Amphan.

The coast of Bangladesh consists of 19 districts which covers 32% of the country and accommodates more than 35 million people (Huq and Rabbani, 2012). The coastal zone comprises the flat Ganges delta passed upon large tidal rivers discharging into the Bay of Bengal. Bangladesh is now widely recognized to be one of the country's most vulnerable to climate change and natural disaster.

Cyclone Amphan made landfall in Bangladesh on May 20, 2020. It destroyed homes, polders (low-lying areas of land surrounded by dikes or levees), embankments, roads, electricity poles, mobile phone towers, bridges and culverts, with the exact costs still being tallied. Many agricultural fields and fish farms were overwhelmed by the saltwater storm surge.

While it's evident that the intensity of cyclones are increasing, certain situations should be critically assessed to better understand the various small-scale impacts these have on the people of the coastal belt, especially the impacts of lack of drinking water. Believe it or not, women still have to travel 24km everyday to fetch water or have to live through saline water to earn a livelihood, a scenario that has not changed in the last decade since cyclone Aila.

Cyclone Amphan left Drishti-nondon, the biggest freshwater source of Gabura Union of Satkhira inundated. The

whole region went under saline water from the adjacent meander, leaving around 800 families of Dumuria and Parshe-mari Mouza waterless for almost a month. Fortunately, the adjacent mouza's water provided for them during this crisis phase. However, not all places were that lucky.

Gabura, a South-Western island, surrounded by Kholpetua River is considered as one of the most vulnerable places for living in Bangladesh due to its disadvantageous location. The re-curvature characteristics of tropical cyclones cause the



## Gabura, a South-Western island, surrounded by Kholpetua River is considered as one of the most vulnerable places for living in Bangladesh due to its disadvantageous location

disproportionally large impact in the landfall in this region and . Due to climate change, the magnitude and the frequency of cyclones are increasing day-by-day, and eventually exacerbating the vulnerability of the Gabura union.

Since the severe cyclonic storm Aila dismantled all the available water sources of Gabura, from ponds to tubewell, the people of this union have been facing the highest amount of suffering from freshwater scarcity. Various studies and on ground experience have shown that the effect from cyclone Aila of 2009 is still causing salinity problems. Tube-wells are



# WATER CRISIS



File photo of flooding caused by Cyclone Amphan

KAZI FAZLA RABBI

not usable due to the presence of high salinity in the shallow and deep aquifer level. It also seems that problems are going to increase further in the near future if proper measures are not taken for the people of this region.

The increasing problems and consecutive effects on the water supply is causing numerous problems in that area. There is a significant number of people (almost 20% of unions) at risk of communicable diseases (eg, diarrhea, ARI and skin diseases) because of effects of drinking water supply and disruption in the sanitation systems which was stated on the

recent joint assessment report after Cyclone Amphan.

Many governmental and nongovernmental organizations came up with technology interventions to minimize the crisis and sufferings due to freshwater scarcity of the people of this community. Ponds with pond sand filter (PSF), reserving rainwater in households and community level (Rainwater Harvesting), Water Treatment Plant are now the only major sources of safe drinking water. However, these alone can't mitigate the problems of people who need to travel long distances, high saline water and climate uncertainty in that region.

Availability of potable water for drinking purposes is still a big challenge for the dwellers of Gabura. Drishti-nondon was introduced with a PSF as a suitable option for water supply. PSF is a simple technology which can treat rainwater reserved in a pond in, water is pumped from a pond and passed through a number of chambers containing sand and gravel. The treated water is usually considered safe for drinking. However, the functionality of PSFs depends upon availability of freshwater in the ponds and its maintenance.

In addition to the impacts of the recent cyclones, lack of

regular follow-ups, contribution in terms of repair and maintenance of PSF and its adjacent pond after the cyclone had a major impact on the PSFs installed in Gabura. Earlier, there were at least 500 such filters in the upazila, from where people could collect drinking water. But these filters were damaged due to various reasons, including natural disasters. Now there are just 50 filters left in the entire upazila, which are much few to cater to the people of this region.

While the government and non-profit organizations are doing their best to help out, it is still unlikely the plight of these people is going to end soon. So, what will happen to these people? How do we ensure climate justice for the people of Gabura?



In addition to the impacts of the recent cyclones, lack of regular follow-ups, contribution in terms of repair and maintenance of PSF and its adjacent pond after the cyclone had a major impact on the PSFs installed in Gabura

I want our readers to treat this article as a call for action. If you are an engineer, we need more climate resilient technologies in the coastal belt and especially a place like Gabura. If you are a business owner, we need your ideas to empower the marginalized communities situated in Gabura, if you are practicing medicine, please take some free time to go stand by these communities and lastly if you are an innovator, can you come up with an idea to ensure safe drinking water in that area? ●

Annan Qader is working as Advocacy Officer at WaterAid Bangladesh. Tahmida Sarker Muna is WaterAid Youth Advocate.



# Managing Cyclones in Bangladesh: A success story but no room for being complacent

Despite remarkable progress in reducing cyclone related deaths and injuries, damages related to cyclones continue to put life and livelihoods of coastal communities at peril

**M Feisal Rahman** and **Gawher Nayeem Wahra**

**B**angladesh's 700 km coastline is one of the world's most active areas for the development of tropical cyclones. The unique geophysical characteristics of the Bangladesh coast, coupled with socioeconomic characteristics of coastal residents contribute to the high vulnerability of the residents to cyclones.

However, over the past 30 years, Bangladesh has made remarkable progress in reducing cyclone related deaths and injuries. Having said that, damages related to cyclones continue to put life and livelihoods of coastal communities at peril. During the most recent Cyclone Amphan in May 2020, coastal embankments in several areas collapsed even before the cyclone made landfall and remained waterlogged even six months after the storm, suggesting there is little room to be content.

In this article we highlight some of the existing successes of recent years, but also outline areas for improvement that need to be addressed to build a more robust cyclone management system.

The relatively lower number of casualties during cyclone 'Sidr' in 2007 compared to the Great Bhola Cyclone of 1970 and the cyclone of 1991 have been widely used to narrate Bangladesh's success in cyclone preparedness. The Bhola cyclone claimed an estimated 300,000-500,000 lives while the 1991 cyclone claimed 138,000 lives. Sidr on the other hand at 260km/h caused 4,234 deaths, a near 100-fold reduction compared to the Bhola cyclone.

While the reduction is undoubtedly related to the country's massive advancement in the early warning system, engagement of trained volunteers (CPP), increased number of shelters, and enhanced institutional capacity, several additional factors that contribute to this dramatic reduction are often overlooked.

The height of storm surge as opposed to the wind speed is a more important determinant of casualties during a cyclone. Professor Bimal Kanti Paul from Kansas State University reported that while Sidr's maximum wind speed matched that of the 1991 cyclone, it made landfall at the half-way point between low and high tide which reduced the height of the storm surge.

In fact, none of the recent cyclones made landfall during a

high tide as did those in 1970 and 1991. Also, the 1991 cyclone struck at 2 am whereas Sidr made landfall at 9 pm, highlighting the complication of people needing to look for shelters in the dead of night. Furthermore, Sidr hit the southwestern coast where the Sundarbans mangrove forest shielded the region and bore the brunt. Disregarding these additional factors may provide an inaccurate measure of robustness.

While Bangladesh has increased the number of cyclone shelters, currently at 5665 from 400 in 1991, it is still inadequate for nearly 35 million coastal people. On the other hand, poor management during a cyclone discourages many, especially women, from going to cramped shelters.



## The height of storm surge as opposed to the wind speed is a more important determinant of casualties during a cyclone

Previously a shelter review committee under the leadership of the late Professor Jamilur Reza Coudhury reported that only 2-sq ft space is available per person in the shelters. Often people need to walk 2-3 kilometers on muddy roads to reach a shelter during adverse weather with their belongings.

People are not allowed in with their livestock or other assets, so they often chose to remain in their homes risking their lives. It is therefore essential to listen to the priorities of those who will take shelter to ensure better management and utilization of these shelters.

It is also crucial that alternatives to cyclone shelter centric disaster management are considered. Building cyclone resilient houses could be such an alternative. Using the funding



Cyclone resilient houses in Kalapara, Patuakhali

GAWHER NAYEEM WAHRA

needed to construct one cyclone shelter could result in the construction of 35-40 cyclone-resistant houses which can accommodate many more people during a disaster without the need to travel to a shelter in dangerous conditions.

ActionAid and BRAC have already successfully piloted such a programme. Another alternative is increasing the number of raised earthen platforms known otherwise as Kella or Mujib Kella which can house people and livestock during the cyclones.

Investing in such alternatives with provisions for local communities to construct and manage these structures themselves will also create opportunities for work in the coastal areas. While the Government has taken initiative to build new Mujib Kellas, it is also important to maintain Kellas so that they do not become vulnerable during cyclones owing to landslides.

Disseminating early warnings clearly and effectively to communities can further strengthen the existing system. To this end, coastal community radios can be effective as they can provide more grounded information and relay them in the local accent. Increasing transmission capacity of existing community radios from a mere 250 Watts to 10 KiloWatts similar to commercial radios could be explored, which may save lives of fishermen out at sea.

Existing cyclone warning signals provided by the Bangladesh Meteorological Department are applicable for maritime ports. However, they tend to be complex and difficult to understand, thereby leading to mistrust among local people as they cannot always relate these signals to their own locality. Thus, simplified warning signals for communities should be

considered.

To enhance the effectiveness of cyclone risk reduction programmes there is no alternative to empowering local communities and local government entities who are typically the first responders. Risk reduction programmes that contribute to strengthening and creating livelihood opportunities can also lead to building resilient communities.

For example, putting local governments and local communities in charge of maintaining coastal embankments could be a useful way to empower them. The Water Development Board set such a precedent after the 1991 cyclone in Char Fashion, Bhola and Char Alexander, Laxmipur where they collaborated with local government, NGOs and local landless people to construct and maintain embankments. Landless communities were put in charge of maintaining the embankments by providing them land on the embankment. Those embankments remain in service with no maintenance costs from the Government.

Finally, we need to recognise that building resilient coastal communities requires maintaining the natural and cultural heritage of the coastal areas which connect coastal communities with their surrounding natural environment and enables them to thrive. This also means that development activities in coastal areas would have to be done in harmony with the natural environment. ●

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Saltwater submerged Shyamnagar, a town in Satkhira

COURTESY

## Rethinking development

Investments for housing infrastructures that are resistant to the impacts of cyclones remain of supreme importance

**Sirazoom Munira**

When the first few cases of COVID-19 were appearing in early-2020, a contingency plan was being devised by the Government of Bangladesh (GoB) to keep in mind that the twofold-challenge of an emerging health crisis may be compounded by a forthcoming event borne from extreme weather – both needing precautions and measures for serious interventions.

This assessment was both timely and accurate. Each year, Bangladesh has a GDP loss of 2 % due to extreme climate events, which by the turn of the century is estimated to turn 9 %. Being one of the most vulnerable countries to natural disasters, it remains the hardest hit, despite its marginal emission of greenhouse gases. In addition, human development progress sets back through loss of life and livelihood, with an annual number of around 13,200 deaths and millions affected.

The frequency and intensity of natural disasters have been increasing with a mounting number of people impacted, both directly or indirectly. While the country has made significant progress in resilience, its ability to reach the disaster affect-

ed people and risk reduction is constrained by several contextual realities, including the influx of 1.1 million Rohingya refugees.

Yet, the response and recovery strategies of the Bangladesh Government to commensurate with unpredictable and unprecedented challenges is both commendable and exemplary. Recognized by global leaders like Former UN Secretary-General Ban Ki-moon who appraised Bangladesh as ‘the best teacher in climate change adaptation, Bangladesh’s survival battle has been braved by millions of people.

### Super Cyclone Amphan and response at a glance

End-mile communities in remote areas of Bangladesh are mercilessly impacted by the recurring wrath of nature. This takes us back to the 2020 Super Cyclone Amphan stretching over five days affecting approximately 10 million people. Impacting mainly in the southwest coastal districts of Bangladesh, including Satkhira, Khulna, Bagerhat, Jholakathi, Pirojpur, Barguna, Patuakhali, Bhola, Barisal, Laxmipur, Chandpur and their off-shore islands and chars, this cyclone is remembered as one of the most fatal calamities in the country.

Responses to Cyclone Amphan had to be tailored to the crisis from the ongoing pandemic. During cyclone Bulbul in

2019, each cyclone shelter on average housed 377 evacuees whereas during Amphan, as a result of contingency planning, the crowding was reduced to 40%, so that each shelter had about 165 evacuees, thus allowing a certain degree of social distancing. To that, there was an augmentation of the number of cyclone shelters from 4,000 to 14,000.

The GoB took several steps to combat the crisis, including building institutional arrangements at the local level which led to a decentralization of disaster management and relief facilities to Zilla (district), Upazilla(sub-district) and Union Parishad (UP) level. GoB also ensured stockpiling of life-saving and personal protective equipment (PPE) items in the multi-purpose cyclone shelters, which were delivered in displacement situations at speed during and prior to the cyclone.

While the awareness and readiness among the management committees were present, challenges remained pertaining to transportation difficulties to evacuate people for shelter, space inadequacy in the shelter centers, availability of protection gears, electricity cuts etc.



As a national priority, Bangladesh is also advancing towards infrastructure-related initiatives aimed to reduce disaster risks that is protective of the fragile ecosystems

Unequivocally, the pre-meditated steps initiated by contingency planning helped reduce the loss of human life along with collateral damage. Yet, much more is underway to realize the Standing Orders on Disaster (SOD) which provides directives for concerned Ministries to incorporate disaster risk reduction considerations into their sectoral development plans to enforce actions.

### Ongoing efforts and way forward

While the GoB heavily emphasizes adapting early warning systems to facilitate displacement management, such will be more effective when the risk and hazard information is shared in a language or modality interpretable by the local communities. Local stakeholders and youth engagement to establish multi-sectoral joint emergency response teams can also be a suitable approach in promoting the federation of existing volunteer networks in a more coordinated manner.

Enhanced technical support can help in accurate information collection by conducting thorough prior vulnerability analyses that may be translated into appropriate humanitarian crisis management undertakings. Bangladesh is also working towards enhanced and coordinated Geographic Information System (GIS) mapping to enable more efficient risk reduction and resource mobilization.

As a national priority, Bangladesh is also advancing towards infrastructure-related initiatives aimed to reduce disaster risks that are protective of the fragile ecosystems. This includes promoting mangrove cultivation on the side-line of coastal embankments. Resilient infrastructure helps in promoting nature-based livelihood solutions for communities most exposed and vulnerable and helps to protect our natural buffers from disasters, like our Sundarbans.

Above all, people need to feel safe in their own homes during crises. For that, investments for housing infrastructures that are resistant to the impacts of cyclones remain of supreme importance. These architectural designs should include context-specific measures to best capture and internalize solutions addressing the risk faced by vulnerable communities to reduce their overall casualties.

For all measures, the GoB tries its best to ensure an inclusive approach to strengthen the overall ownership of decisions taken for the communities. This should be complemented with expanded feedback channels and grievance redress mechanisms. Meaningful and effective communication strategies should lie in the heart of advocacy tools for influencing state to local level decision-making processes.

### Concerted effort needed

Extreme events like Amphan has taught us more than we imagined. From the misery of the innocent to tackling crises with minimal resources and preparing for the most unpredictable – people hardest hit in Bangladesh have shown the world their immense capacity to cope, adapt and bounce back.

To tackle any crisis, a concerted effort of the government, non-government, humanitarian teams, local level organizations and community leaders, as well as private sectors, remain absolutely imperative.

Our country understands that there must be a further revised protocol focusing on COVID-compatible disaster management. As the President of the Climate Vulnerable Forum (CVF) and the Vulnerable Twenty (V20), the leadership of our honorable Prime Minister Sheikh Hasina will help our country remain as a global example in combating climate crisis with unity and solidarity. ●

Sirazoom Munira is currently supporting the Government of Bangladesh in its ongoing Presidency of the Climate Vulnerable Forum (CVF) and Vulnerable Twenty (V20) as a Programme Officer the CVF and V20 support program of the Global Center on Adaptation (GCA) based out of Dhaka. She can be reached at sirazoom.munira1@gmail.com.





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