SUCCESS STORY

Locally Made Lifebuoy: A Breathtaking Example of Lifesaving in Monpura

Field testing with fishermen in Meghna River, Monpura, Bhola, Bangladesh. Photo by Amit Rudro for CRS.

When it comes to natural disasters, adverse weather and the effects of climate change, Monpura Upazila is one of the most vulnerable islands in Bangladesh's Bhola District. The southernmost tip of this isolated island, known as Dakshin Sakuchia, is located at the estuary of the mighty Meghna river, where cyclones are a regular occurrence, battering the island almost every year. It has experienced the wrath of major cyclones and tidal surges in 1970, 1991, 1997, 2007, 2009, 2013, 2019, 2020 and 2021. According to local residents, no women or children on the island survived the 1970 Bhola cyclone. Lives, livelihoods and assets of the people on the island are regularly lost and damaged by these weather phenomena. Fishermen are the largest community on the coastal island, numbering nearly 33% of the population. They are also heavily dependent on *Mohajon* in order to acquire boats, fishing-nets, support their families, and sell their catch. *Mohajon*, otherwise known as moneylenders, have existed historically as informal financial institutions and often operate as loan sharks. This is a situation that poses multiple challenges to the lives of the artisanal fishers of this island who also face corrosive poverty.

Caritas Bangladesh (CB) has been implementing the "Make Us Knowledgeable and Trained in Emergency (MUKTE III)" project in the union parishad of Daskhin Sakuchia since April, 2020. Of the 4,510 families in this union, 3,034 are highly vulnerable due to disasters and their socio- economic condition, therefore the project focuses on disaster preparedness initiatives in order to reduce the risk of disasters and help communities better prepare to respond to future shocks. A total of 1,500 people from the 3,034 most vulnerable households (identified through household census) in the union are primarily involved in fishing activities in the

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MUKTE III team showing fishermen how to make Lifebuoy ring. Photo by Amit Rudro for CRS.

Meghna River, where fish are most abundant. Due to a lack of awareness, poverty, and sometimes negligence, the fishermen do not carry life-saving equipment (lifebuoys, life jackets, raincoats, etc.) on their boats, increasing their fatality risk.

Cyclones are a regular part of life for the residents. Cyclone Komen alone, that hit the coastal areas of Bangladesh on July 31, 2015, took the lives of 45 of the island's fishermen at sea without life-saving equipment, leaving their families helpless. The fishermen were likely to catch more fish in deeper parts of the sea during fishing season and more likely to obtain a catch during even moderate cyclones. In most cases, fish traders (boat owners, or *Mohajon*) pressure fishermen to access deeper waters where fish are more plentiful during cyclone warnings[1]. In other words, due to increased chances of a bountiful catch, fisherman place themselves at risk by going into those deep-water areas when it is not safe to do so.

In addition to cyclones, April through May and October through November are the most dangerous months for fishermen, as northwesterly storms rapidly appear with little or no warning. As a result, every year, 10-12 fishermen die during these storms due to a lack of safety measures. The MUKTE-III project, through its Community-Led Disaster Risk Management (CLDRM) process, has identified that lifebuoys, life jackets, ropes, floats, empty containers, flashlights and first aid kits on boats and at home can save lives during cyclones, storms and other catastrophic events. However, due to negligence by fish traders (boat owners), inadequate access/ capacity (unavailability of these products in the local market) to purchase these safety materials, and lack of awareness on the part of fishermen, these life-saving items are not regularly kept on board or at home. Additionally, fish traders[2] are reluctant to purchase and supply any safety equipment for the fishing boats even though it can be procured at low cost.

In the MUKTE II project, the team provided lifebuoys to 400 fishermen in 2018 and conducted demonstrations on their use. The average cost of a lifebuoy was BDT 1,600 ($20) which was apparently too high for the fishermen. Families did not continue buying lifebuoys due to their high cost and unavailability in Monpura. Though the families did not purchase lifebuoys, MUKTE II tried to replicate a similar product with a locally available material called the "float[3]". The project team worked with a group of fishermen to produce a circular ring made with 12-15 floats. The cost for one float ring, made by tying 12-15 floats together in a circle resembling a lifebuoy, was BDT 385 ($4.50). One float ring was able to carry the weight of one person. The team found that more than 200 fishermen replicated this process during the project period. The innovative lifebuoy was affordable for most families residing in the region. CB also found that families could easily replicate this process on their own. This novel

1 There is a belief that fishermen get more fish when the sea is rough due to deep weather depressions.

2 The owners of boats and nets are locally known as *Mohazon*.

3 A white-colored lifebuoy made from articles that float in water.

approach and the resulting products are widely appreciated by the fishermen, coast guards, fish traders, and local communities along with local authorities in Monpura.

Design a community based, locally made lifebuoy: Based on the learning from MUKTE II, the MUKTE III team decided to formalize a standard for locally made float rings and proposed providing them to 1,500 vulnerable fishermen to ensure their safety. To develop a usable locally made lifebuoy, a rigorous community consultation and design test were performed, engaging all relevant stakeholders, i.e., the fishermen, Bangladesh Coast Guard (BCG), fish traders, local communities, Disaster Management Committees (DMCs) and float producer/traders in developing a functioning "locally made lifebuoy". The team also helped local traders to produce the device, making the life-saving equipment available in the market for purchase. This process increased awareness among all parties involved and led to adoption of this approach to producing life-saving equipment beyond the project timeframe. Moreover, with participation and engagement from all relevant parties, the communities became more resilient, and the death toll was reduced significantly. This is the summary of the process we followed to develop this locally made lifebuoy.

Lifebuoy demonstrated in the Meghna River, Monpura, Bhola, Bangladesh. Photo by John Rahul for CRS.

- **Consultation with fishermen community:** Facilitated 5 consultation meetings with 125 fishermen and received initial ideas, then developed a sample lifebuoy using available "floats" that was shared back with communities; Later, the team addressed feedback on the first design and developed an improved lifebuoy that was shared with both fishermen and the Fishermen's Association (FA).

Consultation with Fishermen Community. Photo by John Rahul for CRS.

Consultation with Government and Fishermen's Association: Organized series of workshops with BCG, Fisheries Office, Fishermen's Association, float producers/traders and Cyclone Preparedness Program (CPP) unit team leaders. Team exchanged concept and primary design for locally made life preserver and engineered the testing and validation process to further improve on the previous model. Based on the workshop's outcome, developed revised design with color, and added whistle and laser light.

- **Work with Float Producer/Local Trader:** MUKTE-III team worked with local float producers on the revised design of the float (make two hooks instead of one) and came to a consensus on a final design. Supported one local producer to make forms for newly designed float production. Produced several hundred floats to fabricate life preserver for final trial in the river. The future market provides a powerful motivation.
- **Field testing with fishermen and other relevant stakeholders:** After successful design, the project organized real-life field testing with the fishermen in the river. During the testing, Fishermen's Association Leaders, BCG and Government officials were present.

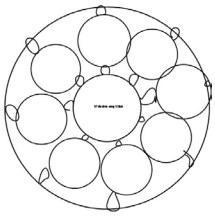
Lifebuoy demonstrated in the Meghna River, Monpura, Bhola, Bangladesh. Photo by John Rahul for CRS.

- **Share final design with government for approval:** After field testing, project team has shared final products with government officials at the sub-district level, communities of fishermen and fish traders, for validation and consent. Based on the

final feedback and comments the team came up with a final design with the following criteria:

- Float should be colorful and visible at night
- Hooks should be inserted on both sides of the float
- Use high density (thick) polyethylene
- Each float weight should be around 70 gm
- 12-15 floats for each float joined, using 12mm diameter
- One whistle and one laser light could be incorporated for easier location of affected people

- **Final Materials and Design:** The locally made lifebuoy is made up of High-Density Polyethylene (HDPE) fishing net floats and indigestible rope. Approximately 12-15 floats are tied together in a circle using indigestible rope. The weight of each float used for this float ring is estimated at 70 grams. Both the fishing net float and rope are available locally and anyone can purchase them for this use. The team also developed a new design for the floats, in consultation with local vendors and producers, with hooks on both sides so that the floats can tie more securely and float better.



Basic design after the consultation and the materials used in the lifebuoy .

- **Develop and distribute to 1,100 fishermen:** MUKTE-III teams had conducted a Household census to identify the main occupation in each household and found that around 33% of the vulnerable households are engaged in fishing as their livelihood. MUKTE-III has physically verified these fishermen and 41 of them formed groups, each group consisting of 20-27 fishermen. Project also developed a one-page guideline about locally made lifebuoy use, along with maintenance procedures and techniques for their fabrication. After a quick orientation, field team has distributed this lifebuoy to 1,100 vulnerable households.

IMPORTED LIFEBUOY

Not available in the local market
Fishers can't afford due to poverty
O&M is difficult
Fishermen cannot fabricate this lifebuoy
$20 per lifebuoy

LOCALLY MADE LIFEBUOY

Available in the local market
Fishermen could easily afford it, as it is much cheaper
O&M is very easy
Can be easily fabricated using locally available materials
$5 per lifebuoy

- **Commitment of CB and replication experience in other projects:** CB Disaster management (DM) team has made a decision that one of the projects to implement in the coastal district should include the locally made lifebuoy as one of its components. CRS and CB recently have submitted a Proposal to USAID's Bureau of Humanitarian Assistance (BHA) and proposed the replication of locally made lifebuoys in the south-eastern part of Bangladesh. BHA accepted this Concept and advised CRS to include it in the full proposal.

The M&EO of the MUKTE III Project interviewed Mohamad Ali Sikder, capturing his stories about falling into the deep sea.
Photo by Mr. John Rahul Baidya for MUKTEIII.

Ali Sikder's story: Perceiving the innovative nature of this safety equipment, Mohammad Ali Sikder, who is a professional fisherman shared his experience: "My name is Mohammad Ali Sikder, son of the late Md. Khalilur Rahman Sikder, I live in Rahmanpur village in Dakshin Sakuchia Union. My only livelihood is fishing. I have a family with a wife, two daughters and an elderly mother. All five members are dependent upon the fishing income. While fishing in the deep sea, a heartbreaking event happened in my life. On May 1, 2019, I went fishing in the deep sea with 14 fishermen at once, moving over four days on the fishing boat. We didn't care about any weather forecast/signal but unfortunately, on May 5, 2019, we were caught by Cyclone Fani in the deep sea with 14 fishermen and including the fishing boat, and all the fishermen fell into the deep sea. I immediately grabbed an oil container and the others floated in the deep sea for about eight hours holding onto water jugs and net floats. The container slipped from my hand at least twenty-five times and I had to swim again and again to catch the container. It was very difficult for me to hold the container in the strong waves. During that time predator fish were also biting my legs and different places on our bodies. That day, I thought I would never survive again. But by the grace of God, all of us fishermen survived by using oil containers and water jugs, and made our own lifebuoys (6-10 net floats held together with knotted rope). From my practical experiences, I saw net floats were displaced due to heavy waves and currents so that my face and eyes were injured. I fell into the sea at night around 1:00 am and kept floating on the river until 9:00 am. In the morning a fishing boat located me and rescued me near the island of Char Nizam. At that time, I was unconscious. The local village doctor treated me and I regained consciousness after one hour; then the fishermen sent me back to my house.

If I had died, maybe my wife would have left my daughters and gotten married elsewhere. My daughters would lose their parents and my mother would have lost her son. Or my wife, children and elderly mother would have had to work and eat at someone else's house. All in all, my world would have been ruined. I thank Allah for saving me through a small container and giving me the gift of my family and my daughters.

If we had had such life-saving gear as this at that time, we would not have been in so much trouble and we could have easily survived using this life-saving gear.

In a tearful voice, Mohammad expressed to all the fishermen his experience of floating eight hours in the sea, assuring them of the importance of using this life-saving lifebuoy and inspiring them to use it as he himself uses it.

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