

# Climate Tribune



Destruction after Amphan

ZAHID AMIN

## 'We survived on two meals and charity after the cyclone'

Water security and crisis in the new normal

Adnan Qader and Zahid Amin

It has been four years since the World Economic Forum in their 2016 Global Risks Report highlighted the water crisis as the most important concern for this new decade alongside the unprecedented refugee crisis that has gripped nations worldwide. When the World Resources Institute (WRI) updated the Global Water Risk Atlas in 2019 it revealed that 17 countries will face extremely high water stress within the next 20 years. Bangladesh currently faces medium-high risk in this ranking.

Climate change is significantly transforming the water cycle and will contribute to many added problems including migration. The loss of livelihood due to increasing water scarcity and variability could force those affected to migrate.

Furthermore, water scarcity is becoming much more problematic (eg through increased variability of water flow against vulnerability) due to global climate change. Climate change is likely altering rainfall patterns, which may lead to increased flooding, drought, and soil erosion in tropical and arid regions of the world.

In that sense, climate change is worsening pre-existing phenomena of climatic unpredictability. Close to one-third of Bangladesh has already been flooded with forecasts of further damages yet to come. It was reported by the National Disaster Response Coordination Centre that over 50 lakh people of 150 Upazilas in 31 districts have been affected by the flood. This comes after two back to back cyclones in six months, Bulbul and Amphan months prior.

Abdul Majed (50), had left his village from Assasuni Upazila in Satkhira 10 years ago. Majed sold off his land and all his belongings in Assasuni and migrated as life there was a constant challenge. He and his wife had to grow up with a constant burden of searching for potable water. Cyclone Amphan made things worse.

It breached embankments, and high salinity made the little cropland they hand unsuitable for agriculture. Majed did not want this fate for his daughters. He moved to various cities across the southwest, finally moving to Munshiganj, 260 km away from his home. There, he drove a truck to make a living.

However, amidst the Coronavirus pandemic, he had to return to his village in Assasuni with his wife and three daughters due to unemployment. Currently, Majed is living in a rented house working as a part-time hawker earning



For more than a month Rani and her family had to use their neighbour's latrines. It was a very humiliating experience for the whole family

less than Tk500 (\$6) a day, just enough to make rent. With limited savings and the pandemic not ending anytime soon he and his family might soon be homeless.

People like Majed are stuck, weary and are in a constant limbo about settling down. Disasters and pandemic worsened the already existing problems due to shortages of drinking water. People in Bangladesh are now sandwiched in a quadrupled disaster of cyclones, flooding, the coronavirus and an associated socioeconomic crisis of loss of livelihoods and jobs.

The latest flooding of farmlands and destruction of crops can push millions of people, already badly impacted by the Covid-19, further into poverty. The problem of a 'double jeopardy future under climate change' was brought to light by Canadian researcher Mclemen who argued that problems migrants and displaced people will face will double if they are constantly moving from point A to point B in search of basic needs and



rights.

Like Majed, Bishakh Rani Mondal (43) is not new to the adverse aftermaths of disasters. But to her, what is not normal is the frequency at which these disasters are happening. In the past twenty years cyclones, drinking water crisis, salinity, breach of embankment and waterlogging have made her life a constant trail for survival.

She and her husband work as day labourers to support the family of five. Her husband used to migrate to various parts of Bangladesh to work as a labour-

er, but as the whole country stood stagnant due to the lockdown, her husband was not able to find any work. As a result, they didn't have any savings to rebuild her destroyed home.

"We survived on two meals and charity after the cyclone," exclaimed Rani talking to us. The only reserve ponds they used for cooking were damaged by tidal inundation and drinking water supply had to be purchased from 2 km away since everything was closed after the cyclone.

For the first month after the cyclone,



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they had to wait for NGOs or Government support to have any drinking water. “I am scared for my children,” she said. The tidal surge also destroyed their latrine and kitchen and severely damaged their house.

For more than a month Rani and her family had to use their neighbour’s latrines. It was a very humiliating experience for the whole family and they were often subjected to harassment.

Rani also said that her husband is looking for an opportunity to take them to someplace else, where her children

will have a better future and they won’t have depended on the mercy of the climate.

Notwithstanding the frequent natural calamities in Bangladesh, these poverty-ridden people always had alternatives or time to recover in-between disasters. In the ‘New Normal’ people like Rani and Mazed are now facing additional burdens to water security.

Is climate change forcing these people to move? It should be noted that climate change alone does not cause poor access to potable water or sanitation.

Problems are often created because of poor governance practices, financial management, high demand or capacity issues of surrounding water management.

Climate change is worsening many of the existing threats to water security and is putting additional stress on the availability of WASH services. Coupled with problems as mentioned earlier, people are being forced to move from their homes or are thinking about moving. Thus moving towards stronger water security requires climate change

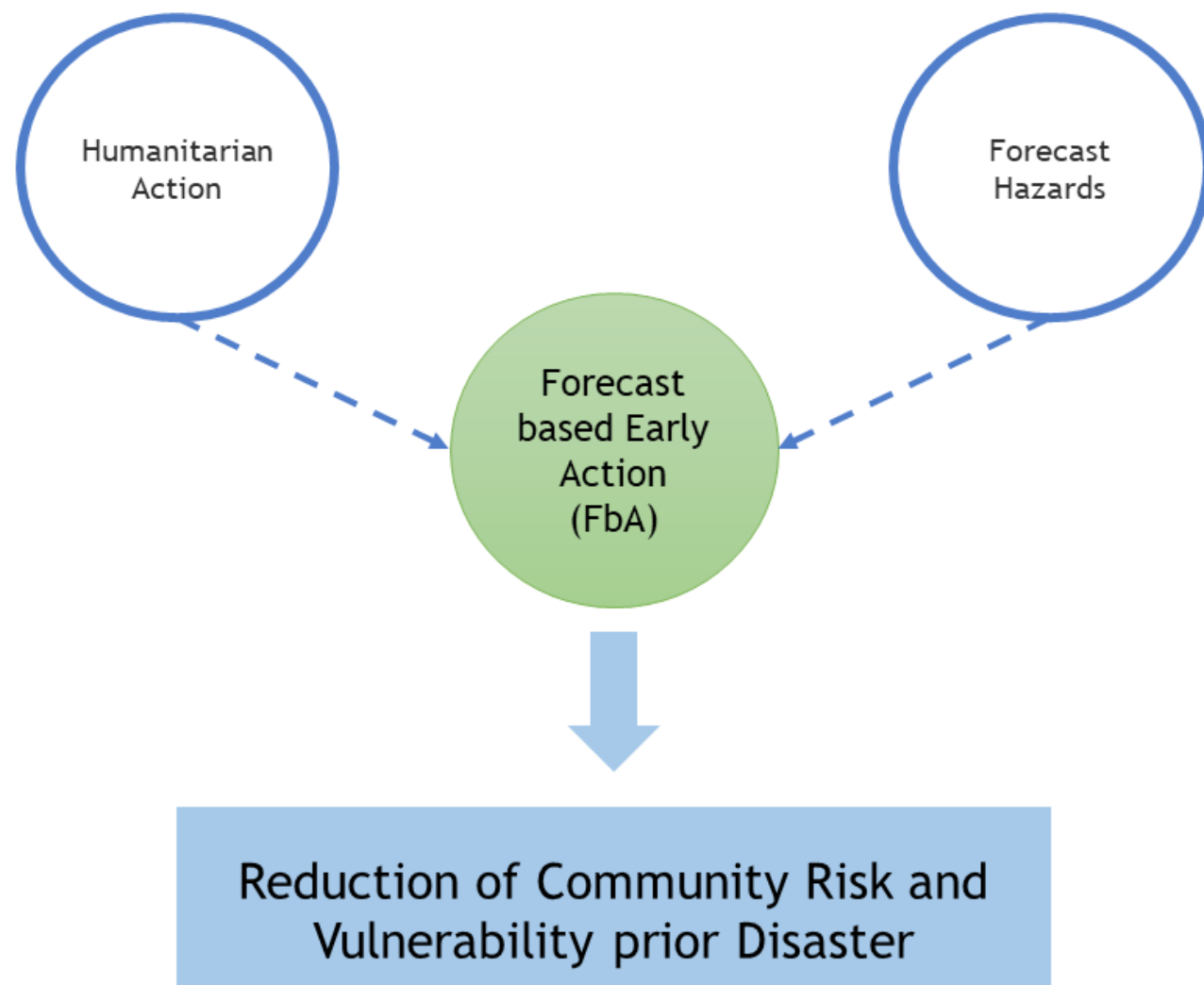
planning to address the issues of migration and these problems in the new normal. ●

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# The calm before the storm is the perfect time for preparedness

How early-action can reduce risks



Change in Disaster Management Approaches

Marwa Tasnim

Bangladesh is considered one of the leading examples of having a progressive disaster management system for climate-induced disasters. But it was not always the case for the country. In the last decade, the government and other agencies have made a visible shift from a reactive approach toward the Preparedness, Disaster Risk Reduction (DRR) and Build Back Better strategies.

The success of Bangladesh Government's disaster management strategy, which adopted DRR principles; anticipatory and climate adaptation through the Cyclone Preparedness Program-

mes(CPP) has been a success. This adaptive modality has made CPP a widely recognized and used program for early action and preparedness in the country.

Over the years there have been many definitions of preparedness developed and the summary tends to state it as 'long-term development activities to strengthen the overall capacity of communities to respond to disasters'.

Yet, as the impact of climate change becomes increasingly evident through the amplified frequency, magnitude and impact of disasters. The vulnerability and risk of such events are also amplified at greater terms. Thus from the previous experience, it is observed that these long-term development schemes

require support from empirical data and analysis of the overall landscape.

This will help to develop scenarios that will allow the communities to take action before the disaster occurrence, which refers to anticipatory early action to disasters.

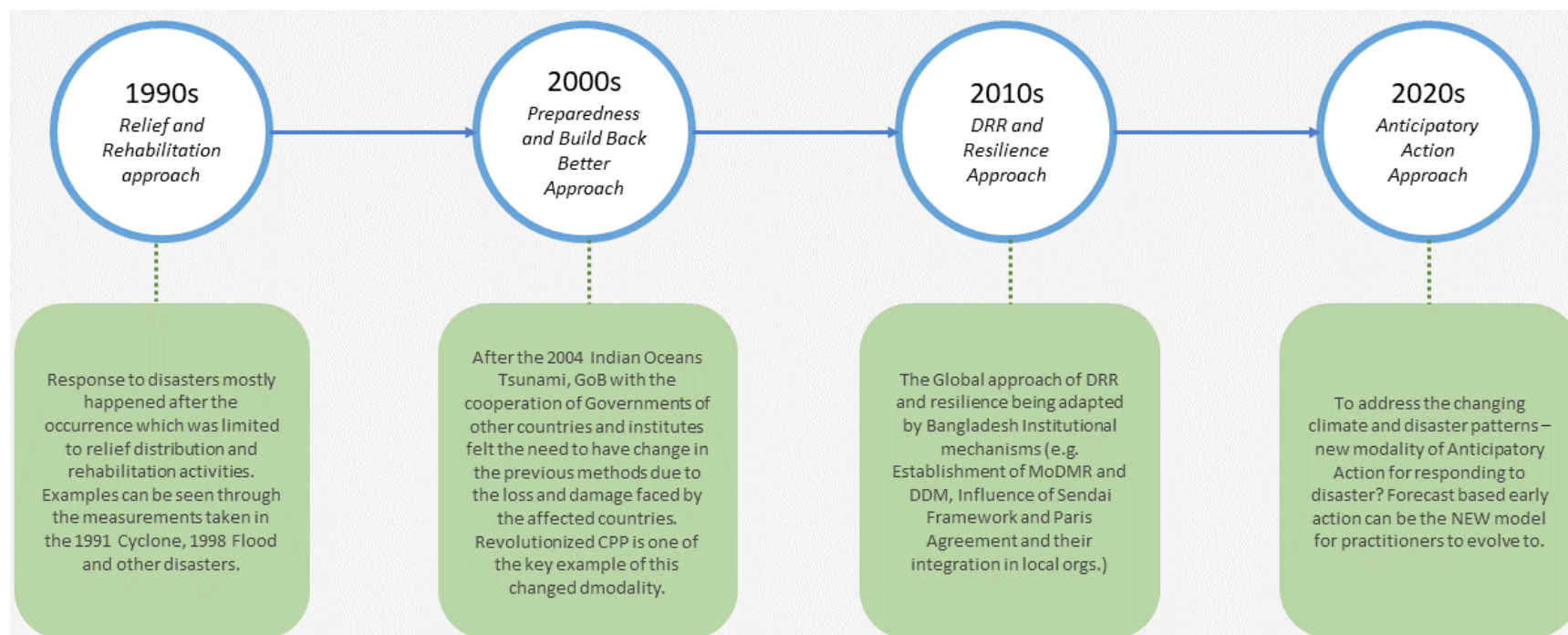
Most severe disaster events are foreseeable, and a proactive anticipatory approach can lead towards a more timely, efficient and secure solution for responding to and reducing exposure to the risk. Skilful forecasts of an impending disaster can allow the prevention of the effects and allow timely preparation for the impacts.

To develop a forecast-based early action (FbA) mechanism there are two fac-

tors essential to the plan: firstly 'forecasters' who will predict and paint the scenario of risk and secondly 'humanitarians' or 'DRR practitioners' who will take anticipatory early action to reduce the imminent risk of people.

Incorporation of these factors into practice requires swift cooperation between the actors involved. There is still some gap found in the practice of this methodology in Bangladesh due to the lack of proper coordination between the actors and understanding between the parties.

Since 2017, FbA is receiving prominence among DRR practitioners as a risk management strategy that can help minimize the impact of shocks on



**Basic concept of forecast-based early action (FbA) Mechanism**



**Management of disaster should be an evolving process that continuously embraces the change in societal needs and climatic events**

vulnerable populations and their livelihoods, enhance the quality of emergency preparedness, response and recovery efforts.

Over the years different modelling approaches have been developed which includes impact modelling method, threshold method, qualitative method, climate sensitivity method, etc. Many practitioners use multiple sources and models of forecast and early warning to identify the triggers and threshold of early action.

For an effective FbA model, it is important to identify the actions required to respond to anticipated hazards and connect them with the vulnerability of the at-risk population.

Though there are several advantages from adopting anticipatory early action modality, the probability of inaccurate forecasting of risk, target group and impact etc, can work as a barrier for adopting this methodology.

Also, the availability of funding for post-disaster phase humanitarian assistance relief activity largely dominates the disaster sector which limits the scope of implementing forecast-based early action. Apart from that, another barrier for forecast-based early action is the institutional and political barriers, as there is the possibility of the actions

going in vain due to lack of accuracy in the forecast.

A research conducted by Start Network had identified that the national forecasts are often overly technical which is not comprehensible for its users. To take actions at a more local level, more precise spatial data is needed to generate accurate forecasts. Furthermore, to ensure practical usability by local actors these technical forecasts must be translated into a comprehensive user-friendly language.

In this regard, Start Network with the help of its global members has been working with researchers and practitioners since 2016 to scale up the forecast-based early action. FOREWARN is developing a network of global and regional level experts to enable informed anticipatory actions by humanitarian actors.

Global and National level FOREWARN (Forecast based Warning, Action and Response Network) expert groups have been assisting the humanitarian organizations to take more risk-informed early actions. UN and other humanitarian organizations also have been piloting FbA strategy in the ground with the support from technical institutions and have built up different platforms to allow forecasting to be integrated into

the humanitarian effort.

It is also necessary to recognize the government as one of the crucial stakeholders for this mechanism to be established within the country.

Bangladesh Red Crescent Society (BDRCS), World Health Programme (WFP), CARE, Start Network, Flood Forecasting and Warning Centre (FFWC), CEGIS along with many others are leading the pathway for the integration of forecast modelling and development of FbA modality to take early action, which will be triggered by pre-specified risk criteria.

Management of disaster should be an evolving process that continuously embraces the change in societal needs and climatic events. Thus when modelling FbA, it is essential to consider the impact of climate change.

Therefore, Bangladesh's response to disaster should work towards preparedness and anticipatory early action rather than continuing to act after the impact of the disaster devastates the communities. ●

Marwa Tasnim is working in FOREWARN Bangladesh as a Partnerships Officer, her research interest lies in Climate-induced disaster management methodology and resilience approach

# Shrimp farming and environmental degradation: A deadly cocktail for Satkhira

Migration from Satkhira to Dhaka shows the urgency of a well-planned disaster management initiative



In just a few years, crab farming has become extremely popular with the local farmers of Satkhira.

DHAKA TRIBUNE

Shohail Bin Saifullah

Internal migration is now a major issue related to the national economy, as well as a subject of heated debate in the development arena. As a driver of economic expansion, internal migration can be seen as both a solution as well as an ailment for the country, as it propagates economic growth and urbanization at the expense of traditional rural lifestyle.

Taking the push and pull factors of internal migration as an overarching theme, this article discusses how shrimp farming and climate change-induced environmental detriment in Satkhira force people to migrate in search for better livelihoods. To assess how socio-economic conditions play an integral part in the migration decision-making process, inhabitants of Bauniabadh slum in Mirpur, who are originally from Satkhira, were interviewed.

Historically the main earning source for people in the rural Satkhira was rice farming. But due to the saltwater inundation caused by Cyclone Aila, the increased soil salinity has made it difficult to bounce back to farming.

As a result of saltwater intrusion, a sizable number of people lost their

livelihood. The saltwater inundation, however, did bring in a newer opportunity for shrimp farming. As more people joined the shrimp farming bandwagon, it led to further degradation of the local livelihood.

Considering just the economic aspect, it takes roughly 12 people per 10 acres of land to farm rice whereas it requires only 4 per 10 acres for shrimp. Roughly 60% of the yield from rice farming is sold off and the rest is kept by the workers for domestic purposes leading to an annual profit of Tk1 lakh per season.

On the flip side, if the landowner were to do shrimp farming the person would be able to sell all the shrimp harvest per season, leading to a higher seasonal profit of roughly Tk3 lakh.

Considering how lucrative shrimp farming was in comparison to rice farming and how much easier it was, the landowners usually opted for shrimp farming. This led to many labourers losing their livelihoods and forced them to search for alternative means.

The shortage of work available in the fields leads the labourers to work as day labourers where they can earn anywhere from nothing to Tk500 per day. Alternatively, they can work as rickshaw drivers, who earn Tk400 per day.

ka with aspirations of having a better standard of living, they are not satisfied staying in Dhaka. When talking to some of these migrants, it is evident that they did not account for the extra expenditure that they would have to incur, such as firewood, more expensive water rates and more expensive rent.

The lack of familiarity with their surroundings also takes a toll on their mental health as well, since in Dhaka they do not have the social environment they had back in Satkhira. Given the lack of support from peers in the city compared to that in Satkhira, many of these migrants mentioned that they wish to go back home once they have saved up enough money.

These people came to Dhaka with dreams to make a decent living while overcoming the increased threats of cy-



Given the lack of support from peers in the city compared to that in Satkhira, many of these migrants mentioned that they wish to go back home once they have saved up enough money

Either of the options is not suitable to sustain a stable economic condition for a family. In search of a more economically stable and a better standard of living many of these labourers travel to Dhaka, where they would engage in working as rickshaw pullers, day labourers, brick workers, for example.

Compared to what these individuals were earning as day labourers back home, by pulling a rickshaw in the city they can Tk1,000 - 1,200 per day or anything between no-work day to earning Tk2,000 BDT per day as day labourers.

As for brick workers, they earn at a rate of Tk1,000 per 1,000 bricks made. Women who migrate to Dhaka earn roughly Tk7,000 per month working as domestic helpers.

Even though people migrate to Dha-

clones, and salinity intrusion in Satkhira. Many suffer from homesickness and pressures of getting accustomed to city life.

Just like the inhabitants of Bauniabadh slum, many others throughout the country have no alternative getaway to improve their situation. This reaffirms the need to have a well-planned disaster management initiative along with better accountability for implementing sustainable economic actions in Bangladesh to help the trapped and displaced population. ●

Shohail Bin Saifullah is working in the International Centre for Climate Change and Development as a Project Associate, his research interest lies in understanding internal migration of Bangladesh.

# Waste: The next solvable problem

A conversation with Abu Hasnat Maqsood Sinha, Co-Founder and Executive Director of Waste Concern



MEHEDI HASAN



Alongside the management of waste, we also help build social capital by fostering partnerships, creating jobs

Mimansha Joshi

Amidst the greatest waste crisis in our history, in the rapidly expanding hustling megacity of Dhaka, Waste Concern is upbeat with some pioneering and replicable solutions.

A transformation was underway when Abu Hasnat Maqsood Sinha and Iftekhar Enayetullah realized in 1995 after their Masters' thesis, that the problem they were meant to solve was waste.

There was a huge waste problem in Bangladesh then, but no one was trying to solve it at scale. They then founded

Waste Concern, with circularity in mind - considering economic and business opportunities for transition to restorative, new business models to stimulate new avenues of product development and cross-sector collaborations, when the idea of circular economy was non-existent.

"We are in a waste and plastic pandemic, but to really move needles, we need to consider waste as a resource. If waste is seen as a problem, it is difficult to solve," says Sinha. "A big part of our work is looking at how waste can feed into the greater equation of improvement of the urban environment, job

creation, and fostering partnerships, which ultimately leads to sustainable development."

The untapped opportunity in waste, especially organic waste, was obvious to Sinha and Enayetullah. Together, they decided to design a waste treatment facility for organic waste and brought it to scale. Looking beyond the current take-make-waste extractive industrial model, Waste Concern has, since its inception, set an epitome for waste management, redefining growth and focusing on positive society-wide benefits through its innovative business models.

To understand more about Waste Concern's business models and their pioneering work, I caught up with Abu Hasnat Maqsood Sinha to talk about the organization's role in designing a better approach to the waste industry. The following excerpt has been edited for length and clarity.

### How is Waste Concern tackling the problem of waste?

Having realized that a major portion of

ed organic waste to processing centres (several small enterprises have been created in different neighbourhoods), which then gets turned into organic fertilizers and compost. Thirdly, we market the compost to farmers.

Back in 2010, when the Clean Development Mechanism (CDM) market was thriving, we also established a company named WWR Bio Fertilizer Ltd, jointly with a Dutch company to build compost plants with the plant capacity of 700

### sustainable development?

Landfills have long been considered the ultimate solution to waste management, but the realization of its negative externalities was always ignored. Landfills present a great risk due to the production of harmful gases like carbon dioxide and methane, a gas that is 32 times more potent as a greenhouse gas than carbon dioxide once waste decomposes.

Considering the problem of land scarcity and increased organic waste generation, energy recovery is the most sustainable option we can think of today. Our decentralized composting facility extracts the valuable feedstock and introduces a new form of uses in cascades - either as energy or fertilizers, a tenet for circularity. Not to forget the carbon emissions avoided through resource recovery.

Alongside the management of waste, we also help build social capital by fostering partnerships, creating jobs. Community benefits through a cleaner, healthier environment and the public sector benefit through the reduced collection, disposal, and transportation costs for solid waste management. The environmental benefits are through reduced methane emissions and better fertilizers for soil health. So far, our model has reduced 19,000 tons of carbon emissions each year and generated more than 1,000 jobs for the urban poor.

As for the many economic benefits, by diverting waste from landfill sites, an IRRIC can save a substantial municipality expenditure on transport costs, extend the life of existing landfills, reduce government spending on chemical fertilizer subsidies and improve the yield of crops. The scope of social benefits includes the generation of green jobs for low-income groups, improved living conditions, and improved community understanding of critical environmental issues.

We have replicated this model in other communities in 5 countries with land provided by public agencies and the government. We also have a Regional Recycling Training Centre in Dhaka to offer training programs and help officials undertake full operational activities of the model.

### Can you give an overview of the waste situation in Bangladesh?

Urban areas of Bangladesh currently generate 30,000 tons of waste per day, compared to 6,500 tons in 1991 and 13,300 tons in 2005. Food and organic waste make up the majority (over 80%) of waste, ending up at landfills in Bangladesh.

Municipal waste of the urban areas contains 8% of plastics. Bangladesh exported 0.82 million tons of virgin resin and produced 0.33 million tons of recycled resin in the year 2014-2015. Today, urban areas of the country generate an estimated 0.8 million tons of plastic waste every year. About 36% of the total plastic waste generated is recycled, while 39% is landfilled, and the rest, 25% is considered leakage or unattended and finds its way into the marine environment.

### What is the plastic situation in the country like?

Currently, the plastic footprint in Bangladesh is 11.95 kg/capita/year, whereas it is 22.14 kg in Dhaka city, and it is becoming an acute problem here.

Bangladesh was the shining example when it came to banning plastics - it was one of the first countries in the world to ban polythene bags, which are less than 55 microns thick after they were found to have choked up waterways. Although the ban is now almost two decades old, we still use it as a staple material for convenience due to a lack of available alternatives and effective enforcement of the ban.

Once heralded as a cheap and convenient way to carry groceries, this material is now a scourge of the modern environment. But imagine life without plastics! It is almost impossible as it brings countless benefits to our everyday lives - think of our homes, appliances, products in our surroundings, packaging. Think of convenience, too - we can't really carry meat/fish products in paper bags!

### How do you think we should address the problem of plastics and the problem of waste in general?

To stem the tide of waste flowing into our environment, we need to start by considering waste not as a problem but as a resource. Waste, when it goes to landfills, not just pollutes the environment but also wastes a valuable resource. We need systems that can help to recover that value, understanding the upside that exists amid dealing with waste. Take, for example, the meat industry in Bangladesh - the slaughterhouse waste, if turned into biogas, can transform our energy sector.

To create a commodified demand for these recovered resources, they should have a competitive advantage and a market value, which governments need to subsidize by putting their minds in monetizing co-benefits from resource recovery. For example, urea, as a fertilizer, has been subsidi-



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the waste is composed of organic matter (80%), we initially started as a social business enterprise with fringed sources, promoting waste recycling activities through community-based decentralized composting technology using a public-private community partnership model in Dhaka. We collect organic waste, send it to waste recycling centres and turn it into compost for horticulture and agriculture. As we started piloting this model, we also promoted the concept of the '4Rs' - reduce, reuse, recycle, and recovery of waste.

We first involved the community and asked them to participate in source segregation and be aware of the waste problem while participating in the house-to-house waste collection program. Secondly, we take the segregat-

tons/day to create a model that reduces methane and trades the value of equivalent carbon reduced to organizations in need of carbon offsets.

We also partnered with UNESCAP to pilot a decentralized Integrated Resource Recovery Centers (IRRCs) that are locally appropriate and pro-poor facilities to recover the economic and ecological waste value from waste resources. IRRC is a small-scale decentralized community-based waste to resource model that uses simple techniques like transforming organic waste into compost or biogas to capture the value of waste.

### How do Waste Concern's models contribute to the sustainable management of waste and overall





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dized heavily by the government, but no subsidies, green finance are given to compost fertilizers. Also, the existing waste management policy neither includes any waste to energy recovery targets nor does it explain any recycling or reuse targets. Besides, there are little to no provisions for incentives for waste minimization.

As for plastics, we need a new plastics economy and rethink the future of plastics with a systemic approach and new collaboration models driven by the concept of circular economy and closing the loop. Consumer goods companies, plastic packaging producers and manufacturers play a critical role with an Extended Producer’s Responsibility (EPR) in this because they determine what products and materials are put in the market for consumers to use. Then, also consider the waste pickers that are involved in the collection and sorting—these waste pickers are the unsung heroes of waste management, and their role needs to be formalized, ensuring they are paid fair wages.

Economically viable polyethylene alternatives also need to be provided to



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people. With biodegradable plastics still being on the research stage and being 5 times more expensive, users are not left with many choices. Bangladesh being the second-biggest producer of jute after India, the country is looking into other low-cost biodegradable jute alternatives.

The negative externalities of waste could be avoided drastically also if people amended their behaviour. Recycling and zero waste habits take time, but every individual action matters. Since waste is an inevitable by-product of humans, it is important to start making

changes, even by taking smaller steps toward change. People could simply start with avoiding single-use items and choosing durable materials that can be used numerous times instead, ensuring less waste ending up in landfills.

“One persons’ waste is another persons’ resource.” This saying rings so true today, especially when we are increasingly trying to fix the linear culture or the “throwaway culture.” In fact, embracing a circular model, where we try to keep resources in use for as long as possible is also great for addressing climate change as it eliminates the need

to extract new materials.

Also, let’s note that over half of GHG emissions worldwide are associated with food and material production systems and our linear extractive system is the major driver of climate change.

The 1.5 degree target of the Paris Agreement can only be achieved by combining circular approaches with current efforts on climate mitigation like renewable energy and energy efficiency. So, one of the solutions to the climate problem can be as simple as radically reducing emissions from carbon-carrying gases, most of which are present in landfills. Given how waste has been deemed as one of the major contributors to climate change, we can go really far in solving the dual problem of waste and climate change if we consider sewage like carbon dioxide!

So, let’s muster the creative resources, investments and innovative methods needed to fix the problem! ●

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# Climate arbitration for better law enforcement

Like all international laws, climate agreements suffer from the problem of enforceability



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The 1958 New York Convention on the enforcement of arbitral awards to which more than 150 states are parties, increased the potential for the enforcement of arbitral decisions worldwide

Anne-Laure Pilat

**T**he factors that determine the effectiveness of any international treaty are its provisions for implementation by the state parties via their national laws and states-compliance with their treaty obligations (understood as the adherence to the obligation).

The compliance is usually insured by adequate sanctions and mechanisms to recognize the breach of its international obligation by a given state party. However, in the case of the Paris Agreement, given the lack of specific sanctions intended in the agreement, does this make its implementation less effective?

There is no specific judge dedicat-

ed to hearing climate claims on the international level, and with the lack of enforceability of the Paris agreement obligations, how can we aim to obtain climate justice when it is required?

This raises the question on the necessity to reflect on alternative ways to go around the missing pieces of the legal systems on the international level to obtain climate justice in order to deal with climate impacts, allow the affected population to make their voices heard and finally to ensure that appropriate actions are taken to prevent further global warming.

One of the main alternative ways of dispute resolution that is predominantly used, alongside the formal international court systems, is arbitration. Indeed,

current globalization and cross-border activities have led to the development of new types of relationships (between states, states and private persons, international organizations and states or private persons), in sectors where climate change questions are becoming more and more present (such as energy, retails, international investments, international insurance, etc).

Indeed, commercial parties can engage in a dispute against each other on the basis that one activity is contributing to climate change and thus affecting the ability of the other to pursue their own operations.

Private parties or States could also use the force majeure argument on the basis of climate change in order to jus-

tify their non-compliance with their obligations resulting from a specific international contract or treaty. As not all relations are meant to last, disputes arise and parties must consider the best method to settle their disagreement.

Since many specific sectors treaties or international contracts contain clauses on dispute resolution through the use of arbitration, and since climate consideration can arise in a variety of contexts and in different forms against carbon emitters or governments, climate arbitration could become a predominant way to ensure the implementation of climate obligations for adaptation and mitigation.

Additionally, if we decide to define international climate change laws as part of the internal law system in general and not simply the legal framework defined by the UNFCCC, then the possibility to use arbitration as a way of taking into account climate consideration to settle a dispute in various activity sectors increases significantly. Therefore, instead of having a formalized court specialized in climate litigation, we could resort to the use of arbitration in order to promote compliance with international climate change laws.

We should note that the article 14 of the UNFCCC provides the possibility to use arbitration but only in case of state dispute over the treaty interpretation thus having a limited scope of climate litigation that could be settled using this method.

Furthermore, in the recent years, it has not been uncommon to see the development of the use of environmental and climate language in arbitration treaties, investment treaties (ie the 2016 Morocco-Nigeria bilateral investment treaties referring to sustainable development) or have specific working groups created by the main arbitration courts such as the 2019 International Chamber of Commerce Task Force on Arbitration of Climate Change Related Dispute that aims at analyzing the implication of climate change in the arbitration sphere and provide guidelines on how to incorporate climate consideration in arbitration settlements.

Finally, recent arbitration awards (equivalent to the judgement in a court) shows that climate consideration is becoming more and more important in arbitrators' reasoning.

The previous considerations allow to explain the foreseeable expansion in the use of arbitration to obtain climate justice, however we also need to mention the main characteristic of this method in order to fully grasp its advantages over the normal court system.

It is not to say that arbitration does not have some drawbacks and not all disputes should be settled using this method. But there are several points that clearly show that arbitration could lead to a more effective climate justice system.

Firstly, the 1958 New York Convention on the enforcement of arbitral awards to which more than 150 states are parties, increased the potential for the enforcement of arbitral decisions worldwide. Indeed, national court judgments or even some international court judgments are mostly limited in scope in terms of the jurisdiction.

Thus, an arbitration decision can be more easily enforced and recognized by most of the countries, providing for a wider spectrum of protection against climate change impacts for affected entities. Moreover, since most national laws recognize arbitration and hold it as a mutually exclusive method to normal



**The procedural flexibility allows arbitration to be an easier process to follow by parties from different nationalities and with different capacities as well as a faster one than a court procedure**

court litigation, an arbitration award is often regarded as a final way of resolving a dispute.

Additionally, arbitration offers a neutral space for both parties to make their claims. Indeed, arbitration allows the parties to not be subjected to either jurisdiction (which would require both parties to have a significant understanding of the legal system of the other one, which is usually not the case) due to its procedural flexibility.

This means that parties are free to determine by themselves the arbitrations rules and applicable laws, place of dispute resolution (which could be especially beneficial for the poorer population if the chosen place is closer to their homes, since in many instances they might not be able to bear the cost of travelling abroad) and fixes the duty and the scope of the power of the arbi-

tration tribunal.

The procedural flexibility allows arbitration to be an easier process to follow by parties from different nationalities and with different capacities as well as a faster one than a court procedure which is especially important when urgent climate mitigation actions are required.

It is also important to note that despite the parties fixing the rules for their dispute resolution, an arbitration tribunal always has the obligation to follow a due process in order to ensure that both parties have the equal chance to present their case and to defend themselves, thus giving additional insurance of neutrality.

Another important characteristic of the arbitration process lies in the possibility for parties to designate the arbitrators that will hear their case and thus have some control over who is hearing the case. Considering the fact that scientific expertise is critical in the area of

have an interest in participating in the arbitration process.

Indeed, certain advocating groups, NGOs or other intergovernmental organizations representing the interest of civil society and the population most affected by climate change impacts should be able to participate in climate disputes as additional parties. Arbitration allows parties to express their consent for a third relevant party to join their dispute and could help them gain some important support in the process of settling their dispute.

Especially in cases involving developing nations where having an additional ally to support their cause and provide them with additional arguments or capacity to make their claim stronger can be used as a tremendous advantage.

Finally, by being specifically planned, arbitration allows for more predictability and certainty and therefore leads to



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climate change and that most law practitioners often do not possess a deep enough understanding of climate related questions, allowing the parties to have a decisive impact on the choice of their arbitrators is of significant importance.

Indeed, parties can select arbitrators with significant technical expertise, skills and experience in climate change and therefore do not run the risk to have their case being heard by a judge with little climate change understanding. This also permits to avoid making climate change questions secondary in dispute settlements which could be the case if a judge is not comfortable enough to decide on climate issues.

The consequences of climate change impacts often lead to the question of knowing if a third party, not directly involved in the dispute per se, can also

the development in some fields of uniform standards in international law of acceptable behaviour.

Therefore, the use of arbitration in climate litigation could lead to the development of similarly recognized standards of behaviour by the various international entities, contributing to better climate mitigation and adaptation practices. Arbitrational courts would then become the main protector of the public interest in the area of climate justice and set the trend of action to combat climate change. ●

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# Wetlands and climate change: A more potent connection than meets the eye

The overlooked potential of wetlands can be a key to building climate change resilience



Farming on water in Barisal

SAQIB SARKER

Maisha Mahboob

Natural features in wetlands are proving to be essential in building climate change resilience. Wetlands are either temporarily (eg, intertidal zones) or permanently, (eg, swamps water-in-fused lands).

Additionally, wetlands are considered the largest 'carbon sink' in the world. Despite constituting only 6% of the world landmass, it promotes organic carbon accumulation by carbon sequestration (also 'blue carbon') and sediment-trapping which amounts to more carbon storage than all of the world's forests combined (Mitsch and Gosselink 2015).

Sometimes referred to as 'space-effective stock' for carbon, wetlands act as an efficient 'greenhouse gas sink', trapping different greenhouse gases, including methane which contributes

to global warming more than any other gas. Research says that saline or oxygenated environments, both very common features in wetlands, help to lower the methane emission rate. A report published in 2015 by UNDRR (UN Office for Disaster Risk Reduction) estimated that 90% of climate-related disasters are seemingly water-related and thus, related to wetlands.

The ecological value of wetland proceeds further from just absorbing greenhouse gases, the absorbed 'carbon' is used up by the inhabiting organisms to survive and contribute as a vital component of the biosphere.

The wetlands help maintain the hydrological cycle, via its water retention and infiltration in the soil while in the process, helps to filter precipitated water into the groundwater aquifers. As moisture helps regulate temperature, which also aids in controlling atmospheric temperature. The natural

cycle of the wetlands helps balance their local microclimates. Additionally, wetlands act as natural buffers for natural disasters.

In Bangladesh, almost 11% of the total area is covered by Wetlands, the Sundarbans being one of them. It is in the south-west region of the country, covered with thick mangrove forest. This year, when cyclone Amphan was about to hit Bangladesh, the presence of the Sundarbans flora abated the impacts by reducing wind speed and breaking the waves.

Similar incidents were reported during cyclone Bulbul and Fani last year. Many such examples of wetlands resisting storms have been reported in Egypt, the USA, and Australia among other instances.

In this regard, it has become crucial to restore and improve the wetland functions with all its resources preserved. Wetland degradation

can create some severe, irreversible problems. Loss or contamination of wetland water can lead to desiccated groundwater reservoirs, drought, salinity, peatland wildfires, like the fires in Australia. Not to mention how wildfires release all the stored carbon into the atmosphere, which in the race of lowering carbon footprint, would be a definite debacle for any nation. In the case of tropical countries, cyclones are becoming more and more augmented and floods are becoming recurrent. Specifically, in the coastal areas, this is a hazard. Wetlands are a common-pool resource, meaning, it can function at its full potential only if the collective interest is sought for. On the other hand, it might lose its resourcefulness if exploited. Big corporations and other organizations with their imprudent policies and projects are depleting the wetland natural resources, ie, biodi-



**In Gazipur, Bangladesh, untreated waste is disposed of near wetlands which contributes to freshwater contamination and pollution**

versity, renewable fuel, etc.

Plastic pollution in oceans hampers neighbouring wetland ecosystems, eg, in the Great Barrier Reef, whereas, there is no such descent noticed in the use of plastics. Similarly, burning fossil fuels in industries is not only releasing excess CO2 into the atmosphere but also exhausting the non-renewable reserves. In Gazipur, Bangladesh, untreated waste is disposed of near wetlands which contributes to freshwater contamination and pollution.

Wetlands are critical to climate change actions and also to the proposed SDGs (Sustainable Development Goals). If we talk about ‘Climate Action’ (SDG 13), ‘Life Below Water’ (SDG 14) or ‘Life on Land’ (SDG 15), all of these goals directly or indirectly suggest restoration and proper management of wetlands coupled with climate change.

Wetlands have the potential to provide 40% of global renewable ecosystem services. Preserving and restoring these resources through proper

investment on wetlands and effective utilization will ensure that the natural potential of the wetlands is retained.

The government should disseminate more river-dredging projects to help save the dying rivers and enhance river and water networks by stimulating siltation processes for better wetland cultivation. Floating beds in the Barisal regions is a classic example of sustainable utilization of wetland resources through adaptability. This way the wetlands would be restored being utilized in an efficient way for safeguarding us from climate change impacts.

Nobel Prize-winning economist Elinor Ostrom stated that common resources are well managed when those who benefit from them the most are in close proximity and that resources are only in danger when left in the hands of external benefactors.

It is self-evident that all the plans proposed for wetland management should be corroborated as ecologically sound. For instance, traditionally managed mangrove forests in Asia are

currently being converted for commercial agriculture or urban development. This is a very distorted approach.

Conversely, mangroves, when managed equitably, can prolifically store carbon up to the level of natural sites within just a decade, despite lower tree biomass in the restored sites. A good approach would be “integrating human society with its natural environment for the benefit of both” (Ramsar Convention on Wetlands).

Integrated community-based initiatives are best-fit for such cases, as the locals with required guidance would be able to plan the strategies suitable to them and their environment. This would necessarily help preserve and restore the wetlands. These small yet effective initiatives will confirm the sustainability of the wetlands. ●

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Sheikh Abdul Hamid practices floating bed agriculture which has been present in the Barisal region of Bangladesh for 200 years



## **A new world of waste**

Disposal of personal protective equipment in marine wildlife causes alarm



PIXABAY



Individuals should make an informed decision to use reusable PPE and dispose of the single used items properly

Maria Mehrin

Plastic pollution is a global problem that is growing exponentially due to an increase in the production of disposable plastic products. Many of these products are single-use items, which are used once and then tossed in the trash. These eventually end up in the environment, mostly in the ocean which causes a vast and detrimental impact on ocean wildlife and habitats. Recently the global coronavirus pandemic has added severity to the plastic pollution problem. A new kind of plastic, personal protective equipment (PPE) has been showing up in the oceans in recent months.

Amid the Covid-19 pandemic, PPE

are being used at an unprecedented volume. Many sustainability and plastic pollution experts are raising questions about whether people are properly disposing of these materials. The real situation is less than optimistic. Millions of gloves and masks are being carelessly thrown away every single day. Wipes, masks, and gloves are ending up in the streets. These discarded items are destined for the oceans.

**Impact on wildlife**

PPE and facemasks are critical for fighting the pandemic. But these are not always disposed of properly. Environmentalists fear negative consequences from such practice for wildlife and the fight against plastic pollution.

Anastasia Miliou, a marine biologist and research director with the Archipelagos Institute of Marine Conservation based in Greece talking on disposals of PPE said, “If they’re thrown on the streets when it rains the gloves and masks will eventually end up in the sea.”

Once they get to the water, they pose a threat to marine biodiversity. It is known that when plastic is left in the water long enough and algae and bacteria grow on it, it smells like food to turtles. Furthermore, turtles and seabirds mistake the brightly coloured latex gloves for food.

**Impact on climate change**

While plastic pollution in the oceans has long become a serious concern, the contribution of plastic production and disposal to the changing climate has been largely hidden.

Plastics originate from fossil fuels and emit greenhouse gases at every stage of their life cycle that are contributing to the warming of our world. Over time, plastics give off more and more gas.

Light (and to a lesser extent heat) are the primary catalysts for this gaseous release. This leads to an alarming feedback loop: as the climate changes, the planet gets hotter, the plastic gives off more methane, increasing the rate of climate change and the circle continues.

A report by the Center for International Environmental Law, published in May, concluded that the impact of plastic production on the world’s climate this year would equate to the output of 189 coal-fired power stations.

Furthermore, the oceans provide the largest natural carbon sink for greenhouse gases, having absorbed 30-50% of atmospheric CO2. Phytoplankton plays a critical role in taking carbon dioxide from the atmosphere and water

and sequestering it in deep ocean sinks. But microplastics that are generated from degeneration of plastics over time threaten plankton populations and seriously compromise the efforts to stop global warming.

**Solution**

Issues related to environment and climate change are not among the priority response actions in many countries. While one can think that these issues may not seem the most pressing during a global pandemic situation, the high risk of transferring virus through the incorrect or not at all disposal of PPE requires close attention and is directly linked with a safe environment.

Efforts to tackle Covid pollution can help us improve ocean health, tackle climate change, support biodiversity and build sustainable livelihoods. Some initiatives can be taken to solve the emerging situation.

**Wearing reusable PPE:** PPE made with a piece of clothing can be worn, washed and reused which will help prevent landfills from taking on all our waste.

**Encouraging regular hand washing:** The World Health Organization (WHO) has suggested that regular hand-washing offers more protection against catching Covid-19 than wearing rubber gloves while out in public.

**Ensuring a proper waste management system:** More trash cans can be a helpful solution to the PPE litter problem. Discarded items should be placed in a trash bin as soon as they are removed. Moreover, more instructions posted in public places which can clarify misinformation and provide tips on how to safely dispose of PPE.

To equip ourselves better and to properly manage the Covid waste, we need to ensure that these wastes, especially PPE, are disposed of properly and single used PPE are not used until it’s necessary.

Individuals should make an informed decision to use reusable PPE and dispose of the single used items properly. Furthermore, proper waste management should look into dealing with waste sustainably; it should not be at the expense of others, especially the marine ecosystem. ●

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This file photo shows landslide triggered by heavy rainfall in Kaptai upazila of Rangamati on Saturday, July 13, 2019.

## **Can we anticipate landslides?**

Lessons from the Chittagong Hill Tracts





DHAKA TRIBUNE

**Rukhsar Sultana, Sumaiya Binte Anwar, and Nafis Fuad**

**R**ight off the coast of Bay of Bengal, Bangladesh is currently experiencing the worst flood since 1998, in which 41 people have died from floods and over 5.5 million are hard hit.

So far the country has not yet reported any major landslide events resulting from the rainfall, but as the monsoon season is peaking, more rainfall is expected.

Annual seasonal variations in rainfall fuels landslide susceptibility. With the monsoon season continuing, there is still the potential threat for future downpours furthering current flooding. As Bangladesh continues to provide the required relief to flood victims, how will the country fare in anticipating landslides and minimizing casualties?

#### Landslides in South Asia

Earlier this year in February NASA ran precipitation data and compared the results with their Global Landslide Catalog. In doing so they identified that extreme precipitation events are likely to be common as the climate warms (Merzdorf, 2020).

Furthermore, this will result in many regions especially in South Asia experiencing intensified frequencies of landslide activities. NASA anticipated that China and Nepal could see a 30 to 70% increase in landslide activity due to such instances (Merzdorf, 2020).

Monsoon season rainfall has been unusually severe this year, triggering floods and landslides across the region. Floods and landslides triggered by heavy monsoon rains have killed at least 221 people across South Asia over the past month.

Since the beginning of the monsoon season in June, thousands of people have lost their lives to floods and landslides. More than one million people have been marooned in Nepal, Bangladesh, India and China, reports Al Jazeera.

Nepal's Ministry of Home Affairs said this year's vigorous monsoon in Nepal has left at least 116 dead and 50 missing in monsoon-related incidents, including landslides in mountainous areas and flooding in the southern plains over the past month, according to Nepali Times.

In recent years there has been a change in precipitation patterns. Meanwhile, weather experts have attributed the erratic and heavy rainfall in such a

short duration to climate change. "The intensity of rainfall has gone up," said Madhukar Upadhyaya, a watershed practitioner and climate change expert, when talking to The Kathmandu Post in 2019).

He further added that "We are experiencing a high intensity of rainfall in short durations." According to the Department of Meteorology and Hydrology, Nepal has received 736mm of rain since the start of the monsoon in mid-June - nearly 150mm more than the average for the same time period. Kaski and the mountains of central Nepal,



It is estimated that the economy of Bangladesh has suffered a total loss of Tk249 million due to landslides for the years 2009 to 2014

as well as the eastern districts, had the highest annual precipitation in Nepal with 3,500mm (Nepali Times, 2020).

In 2020 the South Indian State of Kerala has also incurred monsoon rain-induced landslides, resulting in the death of 29 individuals. The Indian Meteorological department projects more rainfall at the southern and eastern parts of India as low pressure is brewing at the Bay of Bengal.

#### Anticipating landslides in Bangladesh

Major recent landslide events have taken place in the Chittagong Hill Tracts (CHT) and were primarily triggered by prolonged rainfall in a short period compared to the monthly average.

The CHT is an area made up of three hill districts namely Rangamati, Bandarban and Khagrachari. This area

has experienced several devastating landslides during the last five decades, with CHT suffering 12 landslides with a death toll of 633 people and damage to thousands of homes between the years 1999 and 2019.

It is estimated that the economy of Bangladesh has suffered a total loss of Tk249 million due to landslides for the years 2009 to 2014 (BBS, 2016).

To identify the landslide susceptible zones in CHT and the vulnerability of these zones to the effects of landslides, a study was conducted by Caritas Bangladesh and FOREWARN Bangladesh titled Landslide Vulnerability Analysis of Bangladesh, A study of Bandarban & Rangamati Districts.

The analysis determined landslide susceptibility zones in the study location of Rangamati and Bandarban area via the development of a composite vulnerability index. As landslide susceptibility mapping is essential to mitigate landslide disaster, the map was used to identify a range of susceptibility from very low, low, moderate, high, and very high at the study locations.

Additionally, various factors, including rainfall, soil characteristics, local geology, topography, climate, and land use/land cover type, were looked at to find the major triggering factors of a landslide. A Frequency Ratio Model method was used to identify the weightage of these factors resulting in a landslide event.

Upon determining the triggering factors required to anticipate landslides, the study also looked into methods of reducing the loss of lives and property from such an event by designing early action protocols.

To distinguish the most landslide vulnerable locations that need early action intervention, socio-economic indicators were considered. Education (literacy rate), income and population density of the study locations were overlaid with a landslide susceptibility map.

The study's findings pointed out that a combination of attributes contributes to several Upazilas of Rangamati and Bandarban being highly vulnerable to the impacts of the landslide. This process identified 43 locations vulnerable to landslides within the 8 Upazilas of the study site.

Of this, the most vulnerable site to the impacts of landslides is Ruma Upazila in Bandarban (as shown in the map). The contributing factors included greater population density, low-income level and poor literacy rate. Rowanghari Upazila follows behind Ruma Upazila in being the most vulnerable to landslides.

## Landslide Susceptibility Map of the Study Area

By contrast, Lama Upazilla in Bandarban, is highly susceptible to landslides, but it is not as vulnerable. Better economic and education attributes of Lama makes the Upazila less vulnerable to the impact of landslides.

Kaptai, Nainarchar and Kawkhali Upazilas in Rangamati are the most landslide susceptible zones as well as the most vulnerable spots.

### When to raise alert and prepare for landslides

Climate change has been a major player in the variation of rainfall patterns in the CHT. Event-based rainfall data of the area indicates that Rangamati is more vulnerable compared to Bandarban in terms of withstanding heavy rainfall within a small period.

Upon further comparing rainfall data of the two locations, it was identified that 50mm-100mm of rainfall within 24 hours can create landslide favourable conditions in Rangamati in contrast to 100mm of rainfall within the same period in Bandarban.

Bangladesh Meteorological Department (BMD) projects that in coming years and considering climate change, extreme rainfall events will be higher. Therefore, increasing rainfall, as well as the amount of rain in a single time, will be higher than current trends and is expected to compound the effects, causing more landslides during the monsoon season in coming years.

Intense rainfall followed with unplanned deforestation and a change in land use pattern increases the vulnerability of a landslide event in Rangamati and Bandarban.

Therefore, the study analyses that an alert should be raised when the precipitation forecasts of the locations are close to the identified threshold level. Once the alert is raised, a set of early warning protocols should be initiated.

Apart from anticipatory actions, there are some effective non-structural and structural mitigation approaches that can be undertaken to retrofit the impending risks of a landslide. Upon assessing risk, uncertainty, possible consequences, constructability, environmental impacts and costs of such approaches, improvement of drainage conditions, controlled hill cutting,

### Landslide Susceptible Zones in CHT

landslide mapping and geophysical analysis should be considered. Structural measures considering the safety measures, building codes are also inevitable for mitigation of landslide disaster risk.

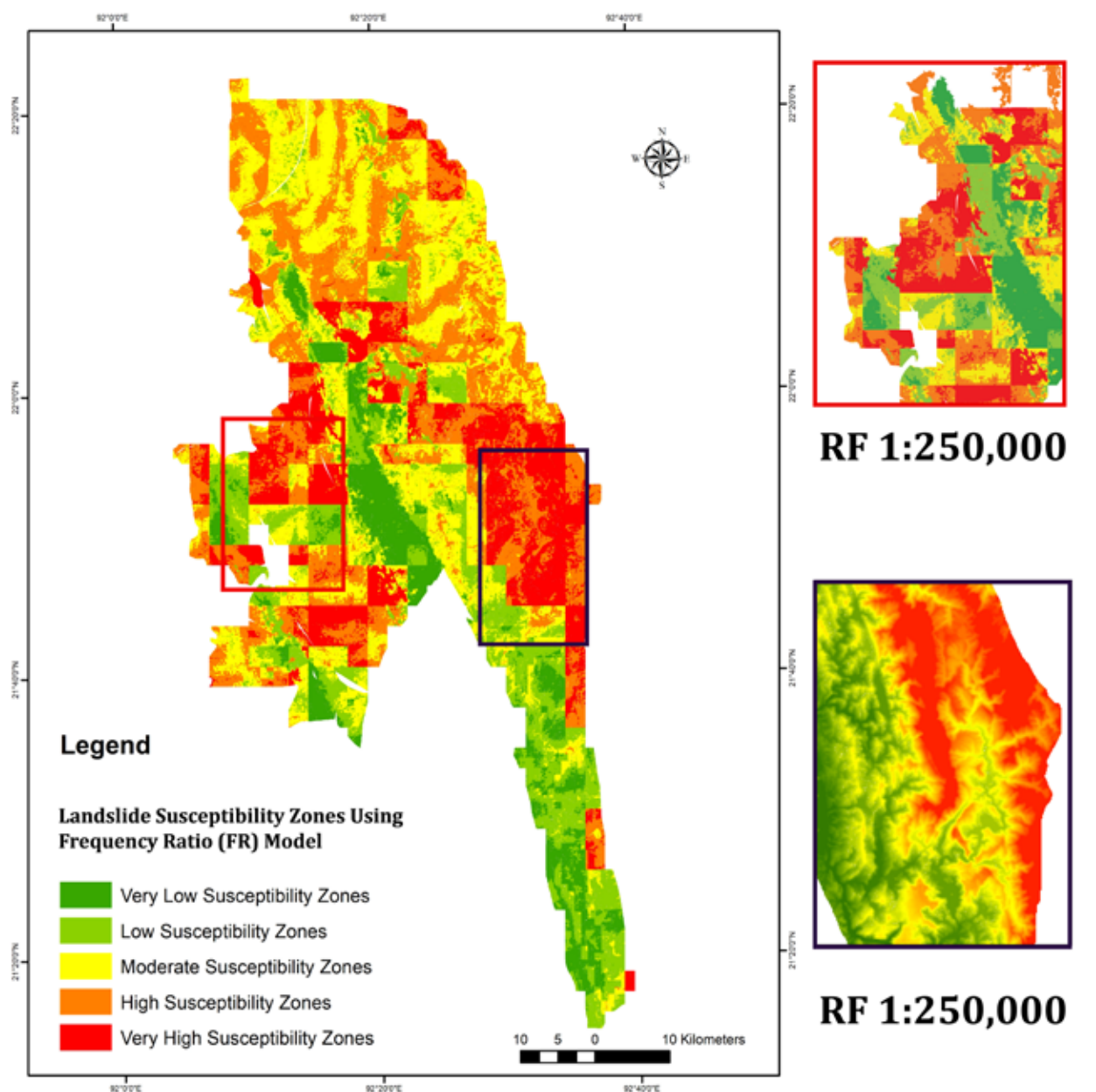
The study provides locations where stringent landslide prevention interventions have to be followed to reduce the vulnerabilities stimulated by landslide susceptibility. Responsible stakeholders need to put forth the effort to reduce the risks and prepare to take actions before the monsoon season starts to initiate delirious landslide consequences in CHT.

With monsoon downpours resulting in serious casualties in other South Asian counterparts, it is imperative for Bangladesh to prepare itself in each monsoon season. Caritas Bangladesh and Forewarn have laid the groundwork with their study for responsible stakeholders to venture in precautionary measures at vulnerable sites of Rangamati and Bandarban. The findings from this study can be used as a tool by civil authorities and local stakeholders to better equip themselves to predict and prepare for future landslide scenarios. ●

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### FOREWARN, BANGLADESH