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VOICE FOR RESILIENCE

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TETRA

Ensuring Access to Safe Drinking Water in Southern Coastal Belt

■ Shahana Alam, Sadia Ishrat Nisa

Access to clean drinking water remains a far cry for the dwellers of the country's southwestern coastal belt due to saline water intrusion, which is home to about 43 million people as per the Bangladesh Bureau of Statistics (2022). While water salinity makes access to freshwater difficult for locals, the women in the region, especially young girls, are particularly vulnerable as they become more prone to skin-related diseases due to prolonged exposure to saltwater. Prolonged exposure to saline water has led to severe health issues among women in Mongla and Shyamnagar. In Mongla, 69.7% of women suffer from severe skin diseases, 33.8% experience hair fall, and 42.3% report skin burns or darkening. Similarly, in Shyamnagar, 92.31% of women endure skin diseases, 41.88% face hair fall, and 35.04% report skin burns or darkening (Journal of Migration and Health, 2024).

The situation is equally dire for pregnant women, whose ingestion of saline water compromises the health safety of both the mother and the child. As per a 2024 Journal of Migration and Health study revealed that over half of women in two subdistricts, (Mongla and Shyamnagar) of Southwestern Coastal region experienced vaginal or uterine infections or inflammation, while one-third reported menstrual hygiene issues. Additionally, one in five women reported hypertension during pregnancy. Additionally, many of the women and teenage girls often face harassment while waiting for long in queues to collect drinking water from water plants located at distant places.

“ Journey of Tetra is an example of the power of locally driven, innovative solutions to address global challenges like water scarcity and climate vulnerability ”

Addressing the issues, Tetra, a climate tech innovator, has designed a solar-powered desalination and dispensing system that purifies saline water, making it drinkable and delivers it to the low-income households in the salinity affected coastal communities at a rate of 0.5 BDT/L. The idea of Tetra started back in 2018 when the team of 4 young brilliant minds of BUET-Mubasshir Tahmid, Sabrina Rashid Sheonty, Asif Hossain Tamim and Sabbir Rudro started a student project in their final year to develop a cost-effective solution to tackle the growing water scarcity in salinity affected coastal belt. Their innovative project got several prestigious innovation awards. Notable among them are Hult Prize where Tetra became the campus winner and presented in the Regional Summit at Kuala Lumpur, Malaysia and UNDP Safe Water Challenge 2018 where Tetra became the champion and then collaborating with UNDP, tested their idea practically in multiple coastal villages across Satkhira and Bagerhat.



From that point, the four pioneers of Tetra started thinking of turning this project into a sustainable venture. As a result, Tetra evolved as a climate-tech startup. From 2019 to 2023, Tetra conducted several R&D and pilots across coastal belt in the districts of Khulna, Bagerhat, and Satkhira. Leading startup incubators and WASH entities like YY ventures, Aqua for All, Young Water Solutions, Expo City Foundation (organizers of COP 28) acknowledged the unique approach of Tetra and has supported this initiative. In collaboration with ICCCAD, Tetra has piloted an advanced water desalination system in Khulna.

“ Tetra’s eco-friendly and sustainable technology has not only managed to ensure safe drinking water for locals but also emerged as an entrepreneurial platform for local women, who now, equipped with necessary training via their projects, 'Project Shulov & Project Women for Water,' maintain the water treatment plants ”

In 2024, International Water Association (IWA) has awarded Tetra with the Silver medal in the “Project Innovation Award” under Governance, Institutions and Social Enterprise Category. One of the founding members of Tetra, Sabrina Rashid Sheonty is awarded with the Young Leadership Award from IWA for her contributions in the water sector. She is the first ever Bangladeshi to receive this award. Sabrina Rashid Sheonty acknowledged this recognition as an inspiration towards their larger goal of creating impact in the lives of 1 million by 2030. She said, “This recognition will serve as a powerful reminder of the importance of addressing water challenges in marginalized communities.”

“ In 2024, International Water Association (IWA) has awarded Tetra with the Silver medal in the 'Project Innovation Award' under Governance, Institutions and Social Enterprise Category ”

Tetra's eco-friendly and sustainable technology has not only managed to ensure safe drinking water for locals but also emerged as an entrepreneurial platform for local women, who now, equipped with necessary training via their projects, "Project Shulov & Project Women for Water," maintain the water treatment plants. Dipa Kabiraj added, "Being a woman micro entrepreneur for Tetra has given me the opportunity to earn some extra money which I can utilise for buying something nice for my family". Further advancing their horizon, Tetra launched an awareness raising campaign under their project 'Project Nirapod'- an educational campaign that teaches climate change adaptation of local vulnerable low-income families through workshops and community outreach programmes.

Our field executive Jubayer Hasan Shoikat added, "Previously, the community was unaware regarding the reasons behind several consequences they were facing such as skin issues and several other diseases. Our Project Nirapod helped the community in realizing how consuming saline water has harmful affects on them in both short term and long term."

“ Access to clean drinking water remains a far cry for the dwellers of the country's southwestern coastal belt due to saline water intrusion, which is home to about 43 million people as per the Bangladesh Bureau of Statistics (2022) ”



Tetra's design not only caters to local development needs, but also reaches to victims in Ukraine where conflict has left many without access to clean water. Moving forward, they now aspire to expand to all across coastal belt and also in other climate vulnerable communities. One of the co-founders of Tetra, Mubasshir Tahmid, pointed out that, "What we are doing at Tetra to support climate-vulnerable communities at coastal Bangladesh is not an isolated problem. We believe our model can be replicated to tackle similar climate challenges in other regions in the world too." Journey of Tetra is an example of the power of locally driven, innovative solutions to address global challenges like water scarcity and climate vulnerability. With its eco-friendly desalination technology, community-centered approach, and emphasis on empowering women, Tetra is transforming lives in Bangladesh's coastal regions while providing a scalable model for other climate-affected communities worldwide.

The writers currently serve as Strategic Assistant and Research Coordinator at Tetra, the ICCCAD Innovation Grant winner of 2024. They can be reached at to.shahana.46@gmail.com and ishrat1014@gmail.com, respectively.

Bangladesh's Bede community at a crossroads with tradition and modernity

■ Khandaker Robin and Tahira Shamsi Utsa

Traditionally a renowned snake charmer, herbal medicine practitioner, and cultural performer, the Bede community, also known as 'River Gypsies', has coexisted with Bangladesh's river systems for centuries. However, their traditional lifestyle now faces unprecedented threats from climate change and the pressures of modern society.

A recent study titled "Ripples of Change: Climate Variability and Changing Livelihoods among River Gypsies-Bede of Bangladesh" chronicles how climate variability is fundamentally disrupting the Bede people's age-old way of living. Often referred to as the 'River Gypsies', this community is experiencing profound social and cultural transformation due to the impacts of climate change. The study highlights how climate change acts not only as an environmental force but also as a catalyst for deeper social and cultural changes. These changes include shifting gender roles, evolving economic strategies, and the gradual erosion of traditional knowledge systems. The qualitative research, conducted by Khandaker Robin and Tahira Shamsi Utsa under a research grant from ICCCAD, was carried out in collaboration with the Embassy of Sweden in Dhaka. The study reveals a generational divide in the adaptation strategies within this ancient riverine community, which is struggling to maintain its cultural identity amidst environmental and socio-economic challenges.

A striking contrast in adaptation strategies is observed across generations. The older members of the community, aged 51-80 years, remain closely tied to their river-based traditions.

“ Traditionally a renowned snake charmer, herbal medicine practitioner, and cultural performer, the Bede community, also known as 'River Gypsies', has coexisted with Bangladesh's river systems for centuries ”



ISTOCKPHOTO

However, they are increasingly unable to navigate the changing river patterns and environmental conditions. This age group highlights the community's struggle to continue traditional occupations in the face of climate change and shifting river dynamics. The middle generation, aged 26-50, serves as a bridge between the old and new ways. They strive to hold on to their heritage while adapting to modern economic realities. Meanwhile, the younger generation, aged 15-25, has largely abandoned traditional occupations in favour of mainstream employment opportunities.

Climate change has thoroughly disrupted the Bede people's age-old practices. Changing river patterns and erosion have made traditional navigation routes hazardous. Frequent and stronger storms have destroyed essential equipment, and the habitats of medicinal plants have been wiped out. Snake populations have dwindled, undermining the practices of herbal medicine and snake charming. The economic response to these challenges has been varied. Younger members of the Bede community increasingly seek wage labour, small businesses, or government services for more stable livelihoods.

“ Climate change has thoroughly disrupted the Bede people's age-old practices, with changing river patterns, erosion, and dwindling snake populations undermining their traditional livelihoods ”

However, this shift comes at a significant cultural cost. Older members are deeply concerned about the loss of social status and cultural identity, as opportunities to pass on traditional skills and knowledge to younger generations diminish.

The research also documents significant changes in the gender dynamics of the community. Traditionally, men were the primary participants in river-based livelihoods, while women focused on snake charming and herbal medicine preparation.

However, these gender divisions are breaking down. Women are now engaging in a wider range of economic activities, including occupations previously dominated by men. Climate change may have acted as a catalyst for these social transformations within the community.

“ The study highlights how climate change acts not only as an environmental force but also as a catalyst for deeper social and cultural changes, including shifting gender roles and the erosion of traditional knowledge systems ”

“ A striking contrast in adaptation strategies is observed across generations, as older members hold onto traditions, the middle generation balances heritage and modern realities, and the younger generation pursues mainstream employment opportunities. ”

The research reflects a complex future for the Bede community. While increasing integration into mainstream Bangladeshi society provides economic opportunities and enhanced social mobility, it threatens the survival of their unique cultural identity. Necessary adaptations to environmental and economic pressures must occur, but not at the cost of their valuable cultural heritage.

“ The research concludes that without proper support and carefully designed interventions, the Bede community risks losing its distinctive cultural heritage while adapting to climate change ”



ISTOCKPHOTO

The findings emphasise the need for an integrated response that balances economic needs with cultural preservation. This response must combine modern adaptation strategies with the retention and revitalisation of traditional practices and knowledge systems. The research concludes, without proper support and carefully designed interventions, the Bede community risks losing its distinctive cultural heritage while adapting to climate change. This underscores the urgent need for policies and programmes that can help traditional communities face the challenges of climate change while preserving their cultural identity and practices for future generations.

Khandaker Robin and Tahira Shamsi Utsa serve as researchers. Robin holds an M.S.S from ISWR, DU, and has led research projects funded by ICCCAD. Utsa studied Mass Communication and Journalism at Bangladesh University of Professionals. They can be reached at kmrobin70@gmail.com and tahirashamsi90@gmail.com, respectively.



BEHIND KUAKATA'S BEAUTY

Unaddressed struggles of Kalapara dwellers

unsplash

"I have to give a significant portion of my daily catch to moneylenders from whom I have borrowed at very high interest rates. They give me little money in exchange, which is barely enough for our day-to-day living," he said, adding that they are not prohibited from selling their catch elsewhere.

■ Suraiya Siddique Khushboo

Kuakata is often celebrated for its serene beaches and peaceful atmosphere, a breathtaking destination in Patuakhali's Kalapara upazila. Visitors are captivated by the panoramic views of the Bay of Bengal, but behind its beauty lies a stark reality that many, especially the communities around the area, face every day. As an International Centre for Climate Change and Development (ICCCAD) youth fellow, I had the opportunity to visit two of these villages—Hossainpara and Modhukhali. What I witnessed during my visit opened my eyes to the untold struggles of those who call this region home. In one of the villages, I met Abdur Mia, a fifty-six-year-old fisherman, whose harsh reality left me almost speechless.

“ Kuakata is often celebrated for its serene beaches and peaceful atmosphere, but behind its beauty lies a stark reality that many, especially the communities around the area, face every day ”

Abdur's words echo the common experience for the area's fishermen, who often pledge their remaining assets to moneylenders for loans. These high-interest loans, used to buy fishing equipment and sustain their families during fishing bans, leave them in a perpetual state of poverty. With meagre earnings from their catch, they struggle to meet basic needs such as food, healthcare, and education—issues that further perpetuate hardship for future generations. In addition to these economic struggles, the women of Kalapara face challenges unique to their gender. Early marriages, poor access to healthcare, and a lack of educational opportunities for children make it even harder for them to break the cycle of poverty.

Furthermore, there are no health cards at local health centres, and the absence of community doctors for home visits exacerbates the problems.

“ Abdur's words echo the common experience for the area's fishermen, who often pledge their remaining assets to moneylenders for loans, leaving them in a perpetual state of poverty ”

ENVIRONMENTAL DEVASTATION

Payra Power Plant



Modhukhali, located near the Payra Thermal Power Plant, offers another glimpse into the hardships faced by the local communities. The power plant, built on agricultural land, has severely impacted the livelihoods of the people who once depended on farming for sustenance.

The land where the plant now stands was falsely claimed to be single-crop land by local leaders, allowing its appropriation for industrial use. Promises of job opportunities for the locals have largely gone unfulfilled, with workers from outside the community being hired instead.

“ The Payra Power Plant, built on agricultural land, has severely impacted the livelihoods of the people who once depended on farming for sustenance, while its emissions and excessive groundwater extraction have led to widespread environmental degradation ”

Despite receiving some rehabilitation efforts from the government, villagers continue to face significant challenges. The environmental impact has also been severe, with plant emissions leading to widespread air, soil, and water pollution. The plant emits toxic gases, including carbon monoxide and nitrogen oxides, causing locals to suffer from numerous health problems such as allergies and breathing difficulties. Additionally, its excessive groundwater extraction has caused the water levels to drop significantly, leading to freshwater scarcity for locals.

Furthermore, the sand used to fill low-lying areas for the plant has dissolved into the river water, making it unbreathable for the fish. This, coupled with air pollution, has drastically reduced agricultural productivity. Despite repeated visits to the local agricultural office for advice, little guidance has been received on alternating crops and farming techniques. Many local women have resorted to animal rearing, but poor living conditions have caused their livestock to perish as well. Other challenges include the absence of cyclone centres in the region and inaccessible healthcare services during natural calamities, as the nearest one is located significantly far away. However, there has been one positive development—the introduction of electricity to the village, a luxury previously unavailable to them. Nevertheless, with high unemployment rates and a lack of financial stability, the villagers find it difficult to pay their electricity bills, further adding to their financial burden.

Despite these numerous challenges, the strength and resilience of the Modhukhali community is undeniable. Yet, it is clear that more support is needed to ensure these villagers can lead healthy and fulfilling lives.

The stories from Hossainpara and Modhukhali made me realise that beauty, often celebrated in tourist destinations like Kuakata, can mask the harsh realities faced by local communities.

“ Despite receiving some rehabilitation efforts from the government, villagers continue to face significant challenges, such as freshwater scarcity, health problems, and reduced agricultural productivity ”

Although economic growth is often touted as a sign of progress, it is essential that development efforts also prioritise the well-being of these vulnerable populations. Policymakers and the government need to implement better solutions to alleviate the struggles faced by these communities. To address the challenges faced by the villagers in Kalapara, a multifaceted approach is necessary to ensure access to freshwater and healthcare, create local jobs, build shelters, improve flood resilience through better infrastructure, initiate rehabilitation projects for resettlement, empower local women, and provide education to the local populace.

The writer is an ICCCAD Youth Fellow and climate activist pursuing a degree in Environmental and Resource Economics. She has led youth leadership and climate projects across six districts and can be reached at surayia.khushbu@gmail.com



From Teesta's shifting waters to sustainable farms

■ Faique Md. Tajdiqul Haque

In 1989, my father, Dr Md Sarwarul Haque, joined the Department of Agriculture Extension (DAE), where he spent the next 32 years working on various agricultural projects across Bangladesh. From 2018 to 2020, he served as the deputy director in the Rangpur district, during which, I had the opportunity to observe his involvement in a range of initiatives focused on agricultural adaptation.

My father was involved in a number of agricultural projects throughout his career, including the four-crop-based cropping pattern initiative introduced by the Bangladesh Agriculture Research Institute in Tepamadhupur Union, Kaunia. He also helped implement a safe garlic production project in the char lands of Gangachara upazila, contributing to climate-smart agricultural practices in floodplain areas.

“ From 2018 to 2020, my father served as the deputy director in the Rangpur district, during which I had the opportunity to observe his involvement in a range of initiatives focused on agricultural adaptation ”

Additionally, he played a role in the establishment of the "Climate Change Adaptation of Rural Households in Charland of Bangladesh" project in the Chargonai union of Kaunia, which aimed to increase agricultural employment in rural households through the cultivation of high-value seed nuts. As a soil specialist, my father was particularly concerned about soil degradation caused by the heavy use of chemical fertilisers, which was a significant issue in the char lands. These areas, being sandy and less fertile, required large amounts of fertiliser for agricultural production. To address this, he introduced vermicomposting as a way for farmers to produce organic fertiliser in their yards, helping reduce soil degradation caused by chemical inputs.

“ As a soil specialist, my father was particularly concerned about soil degradation caused by the heavy use of chemical fertilisers and introduced vermicomposting as a way for farmers to produce organic fertiliser in their yards ”

Growing up, I observed my father's commitment to supporting farmers and improving their living conditions. However, when I began studying environmental science, my attention turned to the shifting patterns of the Teesta River. Being from Rangpur, I had always wondered why the river seemed to be growing so large and how it impacted the local community.

This curiosity led me to propose a research project on the climate vulnerability and adaptation strategies of the Teesta floodplain.

After framing a proposal, I was fortunate enough to receive a research grant, which encouraged me to dive deeper into the subject. On June 27 this year, I started collecting data in the Teesta floodplain with my research assistant, Mehedy Hasan Shaon. Over the next ten days, we observed various agricultural adaptation strategies in some of the most vulnerable areas of Kaunia. During a focus group discussion with senior farmers, I learned that agricultural production had improved in the last 5-6 years due to solar irrigation, better seed quality, and new technologies. However, it was my father's sweet pumpkin project that seemed to have had a major impact, with farmers now planning to expand their vegetable cultivation in the char lands. It was meaningful for me when one of the farmer leaders, Shadhin Mia, mentioned my father's contributions by name, highlighting the enduring effects of his work.

“ During a focus group discussion with senior farmers, I learned that agricultural production had improved in the last 5-6 years due to solar irrigation, better seed quality, and new technologies ”

During my visit, I also saw many women from agricultural families preparing nuts in their yards, a reflection of another project my father had initiated – Climate Change Adaptation of Rural Households in Charland of Bangladesh. The adoption of new cropping patterns and the widespread use of vermicomposting in the community showed the positive outcomes of these initiatives. The primary goal of my research is to assess the vulnerability of agricultural communities and to understand how they are adapting to climate change and the uncertainties related to transboundary water disputes. My field observations confirmed that while the shifting of the Teesta River poses challenges to the community, the adaptation strategies being implemented offer hope. Although there are still gaps, I believe that with cooperation from all stakeholders, it is possible to create a more resilient and sustainable environment for the community.

“ The primary goal of my research is to assess the vulnerability of agricultural communities and to understand how they are adapting to climate change and the uncertainties related to transboundary water disputes ”



Now, at 62, my father is preparing for retirement, and I have begun my journey in the development sector. Reflecting on his contributions to climate-adaptive agriculture, I feel a strong sense of responsibility to continue the work he started. As his next generation, I see it as my responsibility to contribute to a more sustainable future. I believe that the concept of inter-generational responsibility is crucial to global sustainability. I hope that parents can raise their children with this mindset, fostering a collective responsibility for creating a better future for all.

“ Reflecting on my father’s contributions to climate-adaptive agriculture, I feel a strong sense of responsibility to continue the work he started, fostering a collective responsibility for creating a better future for all ”

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Photo: Kalerkantho

ADRIFT IN THE WAVES

Sunamganj's Haor Region Faces Unique Climate Challenges

■ Md. Tahseen Ahmed

“We cannot escape the Afal [wind-driven violent waves in large enclosed water bodies], but we can prepare better,” said a primary school teacher from Tahirpur, Sunamganj, describing the ongoing struggles of communities in the Haors of northeastern Bangladesh.

This picturesque landscape of bowl-shaped wetlands, a source of life, is also prone to recurring climate-driven disasters. Flash floods, prolonged waterlogging, and the destructive phenomenon of ‘Afal’ create a cycle of vulnerability that threatens both education and livelihoods. However, the region’s resilience is evident in its efforts to find solutions tailored to its unique needs.

The disasters in the Haor region are interconnected, with one event compounding the next. Flash floods are a common calamity, often triggered by intense rainfall in the Indian highlands of Meghalaya and Assam during the pre-monsoon and early monsoon months (April to June). Recent studies show that rainfall exceeding 250 mm in Meghalaya or 400 mm in Sylhet leads to severe flash floods, which rapidly inundate homes, roads, and schools.

“ Flash floods, prolonged waterlogging, and the destructive phenomenon of ‘Afal’ create a cycle of vulnerability that threatens both education and livelihoods ”

“Every monsoon, the water rises overnight, cutting us off from the rest of the world. We have no choice but to halt classes,” said a teacher from Borodol Govt. Primary School. While some schools serve as flood shelters, inadequate facilities such as insufficient space, clean water, and sanitation hinder their effectiveness. Following flash floods, waterlogging becomes a persistent issue, exacerbated by the region’s flat terrain and poor drainage. This disrupts mobility, fosters waterborne diseases like cholera, and delays agricultural activities, creating economic strain and food insecurity. “By the time schools reopen, students have fallen far behind, making it hard to catch up,” noted a teacher. The Afal phenomenon, a wind-driven wave event, adds another layer of challenge. “When the Afal hits, it’s not just the journey to school that’s dangerous; our homes are at risk, too,” said a student.

Afal causes erosion, damages infrastructure, and makes boat journeys perilous, amplifying disruptions to education and livelihoods. These challenges are intensified by climate change, which alters monsoon patterns and increases the frequency of disasters. “The monsoon used to be predictable. Now, we don’t know when the floods will come or how long they’ll stay,” lamented a farmer from Tahirpur. The region’s economy, based on agriculture, suffers due to delayed planting cycles and reduced harvests, forcing families to prioritize survival over education. A 2021 report by IIED highlights the importance of locally-led adaptation (LLA) in building resilience, particularly in regions like Sunamganj. Principles such as inclusive participation and empowering local actors are essential for improving resilience in both education and agriculture.

In Haor, schools are not only educational centers but also flood shelters, making them vulnerable to annual flooding and Afal damage. “The exposed lintels and eroding foundations are beyond what our limited funds can address. By the time repairs are completed, another flood season sets in,” said the Head Madam of Borodol Govt Primary School.

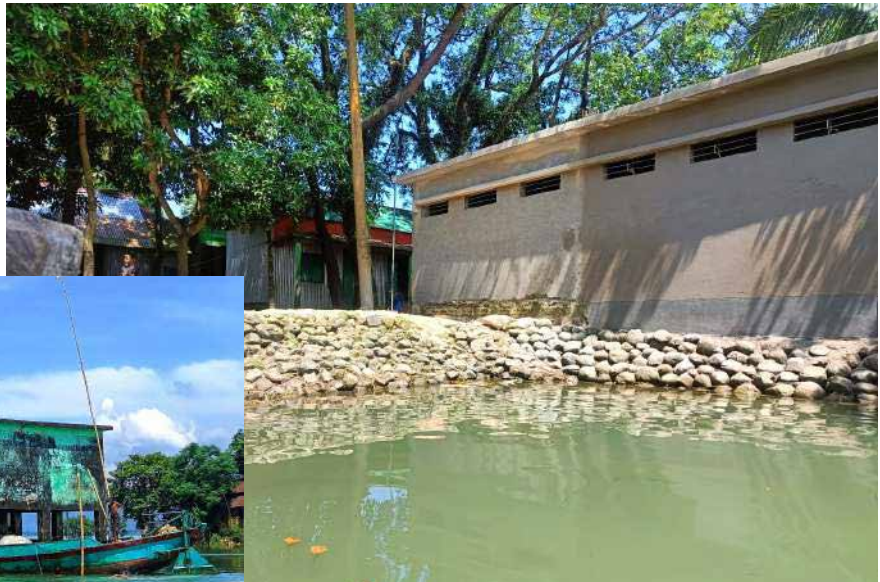
This cycle of destruction and rebuilding strains resources and hinders progress. Attendance drops during the harvest season when children are needed in the fields. “During the harvest season, many of our students are absent because their families need them in the fields,” said a teacher. Teachers often struggle to conduct classes in makeshift settings with limited resources.

“We try our best to teach with what little we have, but it’s hard to maintain quality education when even basic supplies are scarce,” said a teacher during a focus group discussion. Despite these difficulties, the Haor region’s communities demonstrate resilience and innovation. Several strategies are being explored to address the region’s challenges. Adjusting school calendars to align with the flood and harvest seasons can help minimize disruptions, ensuring consistent learning. Elevated structures can ensure the safety of students and staff during prolonged waterlogging. Boat schools, though scarce and underfunded, provide an innovative way to adapt or maybe reutilized as make-shift community-driven tuition schools. “These floating schools represent a starting point,” said a community member, emphasizing the need for community-driven solutions.

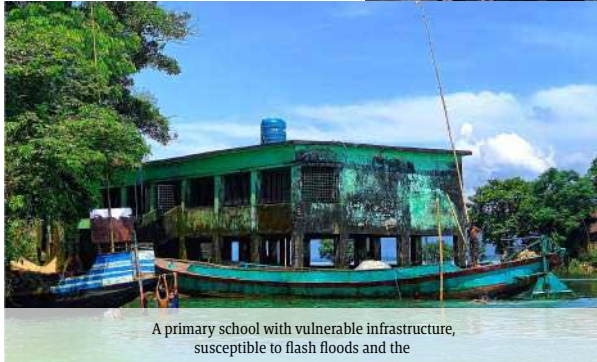
“Elevated structures can ensure the safety of students and staff during prolonged waterlogging, and boat schools provide an innovative way to adapt to the region's challenges”



Primary school that doubles as a flood shelter, featuring raised ground floors for flood protection and boats for communication



Locally Constructed Stacked-Stone Embankment as a Resilience Strategy Against the Impacts of "Afal"



A primary school with vulnerable infrastructure, susceptible to flash floods and the

Empowering school management committees and local communities to implement flood-resilient infrastructure aligns with the principles of locally-led adaptation. Supporting these efforts with flexible funding ensures that solutions meet the region's unique needs. The Haor region's cascading disasters and climate vulnerabilities underscore the urgent need for innovative, community-driven solutions. By fostering collaboration among local actors, policymakers, and international frameworks, the region can overcome adversity, ensuring access to education and a brighter future for its children. This article is based on fieldwork conducted by ICCAD's Locally-Led Adaptation Team under the CAP-RES Project, funded by SIDA. The research explores the impacts of climate change-induced disasters on education and strategies for resilience in the Haor region.

“ The Haor region's cascading disasters and climate vulnerabilities underscore the urgent need for innovative, community-driven solutions to ensure access to education and a brighter future for its children ”

The writer is a Youth Fellow Assistant at ICCAD's CAP-RES Project, focusing on climate change adaptation and disaster risk reduction. He holds a B.Sc. in Coastal Studies and Disaster Management from the University of Barishal and is pursuing an M.Sc. in DRR at BUET. He can be reached at tahseen.email@gmail.com.

Green Leadership

The driving force we need for climate action

■ Md Fahim Hossain

Leaders are the catalysts of change, capable of driving both positive and negative outcomes. To navigate the escalating climate crisis, an urgent shift in mindset is required across all sectors. Climate change is progressing faster than our ability to draw conclusions and take decisive action. To address this challenge, we must prepare current and future leaders to confront the realities of this unprecedented crisis. Leaders must not only grasp the urgency of the planetary crisis but also spearhead initiatives that accelerate climate action. Leadership during the climate crisis demands a unique set of traits. Traditionally, a leader is seen as a visionary driving toward a goal.

However, the climate crisis calls for a leadership style that prioritises care for both people and the planet. Climate change impacts every aspect of life, from education and healthcare to food systems, housing, and mobility. The modern lifestyle and fast-paced civilisation have inflicted significant damage on the environment. Now is the time to rethink and reshape how we approach every aspect of our existence. Green leadership is essential to advancing humanity through the climate crisis while sustaining progress on Earth. Every leader must embrace the principles of green leadership, particularly in sectors most vulnerable to climate change. A green leader views the world through an environmental lens, recognising that our survival and well-being are intrinsically linked to the planet's health.

“ Leaders must not only grasp the urgency of the planetary crisis but also spearhead initiatives that accelerate climate action ”

“ Green leadership is essential to advancing humanity through the climate crisis while sustaining progress on Earth



To become a green leader, one must embody three core values. A leader must genuinely care about the people and the planet. This empathy may stem from personal experiences with climate change or witnessing its effects on the frontline. A true green leader feels a deep internal drive to create meaningful change. A green leader must have the courage to confront environmental issues and identify their root causes. The pervasive "profit-at-any-cost" mindset often overshadows sustainability, and it takes bravery to challenge this approach and advocate for sustainable practices. Climate change presents unique challenges in different locations, and there is no universal solution. A green leader must be adaptive and open to ideas from local communities, recognising that tailored solutions are essential for addressing specific climate-induced challenges. A systematic change in leadership is crucial to tackle climate-induced challenges. To this end, I initiated Green Lead to drive climate action through green leadership. Leaders come in many forms and play critical roles, from managing responses to cyclones in coastal villages to shaping decisions in corporate boardrooms.

Current leaders who hold positions of responsibility—whether in governments, corporations, or communities—must be enlightened about the importance of climate action. Simultaneously, we must prepare the youth, our future leaders, to confront the reality of climate-induced challenges and advocate for urgent action.

Present leaders must recognise the severity of climate change, act with urgency, and implement policies that accelerate climate action. We must advocate for the concept of green leadership, inspiring decision-makers to approach their roles with accountability and a focus on sustainability.

“ A green leader views the world through an environmental lens, recognising that our survival and well-being are intrinsically linked to the planet’s health.

Adopting green leadership is easier said than done. Often, the need for action is recognised, but motivation and a supportive framework to act are lacking. Green Lead aims to ignite a movement for climate action by empowering both current and future leaders. We have only one Earth to protect, and we must work together against the common threat of climate change. By embracing green leadership, we can strive for a sustainable and livable planet for generations to come. Let us join forces to ensure a green world and a promising future for our successors.

The writer is an ICCCAD Youth Fellow, and Youth Innovation Grant Winner. He is the founder of Green Lead; a nonprofit organization dedicated to climate action in Bangladesh and can be reached at fahim@greenleadglobal.org



■ Afsana Alim

Young people are taking amazing initiatives to build climate resilience in Bangladesh as their future is at stake due to climate change. ICCAD's emphasis on capacity-building and climate innovation among youth captured my interest, especially through the Youth Fellowship Programme and Youth Innovation Fund.

When the opportunity arose to visit funded youth initiatives and witness how young people are driving climate resilience in Bangladesh, I was eager to participate. As I had never visited the southern districts, the chance to experience the famous land of Chuijhal and the Sundarbans was exciting.

On 28th October 2024, our field visit commenced. Sumaiya Binte Selim, Gausia Islam Keya, Md Al Mamun Rakib, and I departed Dhaka, energised by the prospect of meeting inspiring young innovators. Driving through Bangladesh's lush green landscape, I glimpsed the iconic Padma Bridge connecting the southern districts to Dhaka. By afternoon, we reached Khulna and met Jubayer Hasan Shoikat, a member of the youth-led social enterprise Tetra. After savouring Khulna's renowned Chuijhal meat, we headed to Dakop.

Exploring the land of mangroves and 'Chuijhal'

Tetra, supported by the Youth Innovation Fund, has established a water treatment plant in Botbunia village, Dakop, providing safe drinking water through an innovative ATM-style system. Residents use a digital card to access purified water at a nominal cost of 0.50 taka per litre. The profit-sharing model sustains the plant and involves a local community member in operations and card recharges.

“ Tetra, supported by the Youth Innovation Fund, has established a water treatment plant in Botbunia village, Dakop, providing safe drinking water through an innovative ATM-style system

This initiative exemplifies how tech-enabled, localised solutions can address climate-induced challenges like water scarcity and salinity. Sixty families now enjoy 24/7 access to safe water, improving both health and economic opportunities.

Later, we returned to ADAMS Integrated Training Institute in Khulna and shared experiences over a relaxed dinner. The next day, we visited Batiaghata to observe the impact of Eco-Narratives, an initiative by Sumi Khatun, a 2024 Youth Fellow and recipient of the Innovation Fund. Eco-Narratives uses art to inspire local youth to raise climate awareness and advocate for environmental justice. At Amtala Government Primary School, located by the Shoalmari River, students participated in an art competition on climate change. Witnessing their creativity and enthusiasm, even in a climate-vulnerable region, was deeply moving. The initiative helps these bright young minds understand climate change in a relatable and creative way. Painting materials were distributed, and selected winners received gifts in appreciation.

“ Eco-Narratives uses art to inspire local youth to raise climate awareness and advocate for environmental justice, helping students understand climate change in a relatable and creative way ”

“ YouthNet mobilises young activists to combat environmental harm, such as illegal tree-cutting along embankments, and fosters community support by addressing superstitions like 'Bagh Bidhoba' (widows of tiger attacks)

Later, Mithun Boiragi, a local teacher, shared stories of his students' resilience amidst water shortages and other climate challenges. He stressed that quality education equips today's youth to address these issues more comprehensively. After visiting Sumi's team, we enjoyed another round of Chuijhal mutton at Abbas Hotel, a culinary landmark in Khulna, before heading to Barsa Resort in Shyamnagar, Satkhira. The coastal landscape, with its raw beauty, captivated us as the day ended. The following morning, we met members of YouthNet Satkhira, a 2023 Youth Innovation Fund recipient. This network engages in capacity-building for local youth, empowering them to advocate for climate justice.

Md Hafizur Rahman and Imam Hosen shared how YouthNet mobilises young activists to combat environmental harm, such as illegal tree-cutting along embankments. Jubayer Mahmud, a local journalist and YouthNet volunteer, highlighted their efforts in dispelling superstitions surrounding "Bagh Bidhoba" (widows of tiger attacks) and fostering community support.

Crossing the Kholpetua River, we visited Jannatul Mouwa, Executive Director of Bindu Nari Unnayan Sangtha. Her project, a Community Climate Adaptation Centre (CCAC), one of the winners from 2024 Innovation Fund, educates students on climate change and resilience. The centre also serves as an emergency shelter, powered by solar panels that support lights, fans, and communication devices during disasters. This youth-led innovation demonstrates the dual benefits of education and disaster preparedness, strengthening community resilience and trust in youth-led projects. We ended the day with a local delicacy, soft-shelled crab fry, enjoying shared stories over dinner.



“ A Community Climate Adaptation Centre (CCAC), led by Jannatul Mouwa, educates students on climate change and resilience while serving as an emergency shelter powered by solar panels during disasters

Initiatives like Tetra’s water ATM, Sumi’s climate education through art, YouthNet’s activism, and Jannatul’s adaptation centre illustrate the creativity and resilience of youth-led projects driving climate adaptation efforts in coastal Bangladesh

As we returned to Dhaka on 31st October, I reflected on how young people in coastal Bangladesh are driving climate adaptation efforts. Initiatives like Tetra’s water ATM, Sumi’s climate education through art, YouthNet’s activism, and Jannatul’s adaptation centre illustrate the creativity and resilience of youth-led projects. Witnessing their dedication reaffirmed the importance of supporting youth voices in climate action—an integral goal of ICCAD’s Youth Innovation Fund.

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Resilience of Munshiganj's fishermen

Battling nature and policy challenges



■ Nawshin Jahan Chaity

Abdur Gafur, an 85-year-old fisherman from the Munshiganj range of the Sundarbans, has weathered more storms than most can imagine. In 2007, Cyclone Sidr robbed him of 13 family members. Now, it's just him and his wife, navigating life against the odds, sustained by their unyielding connection to the sea. When I met him, a three-month ban prevented fishermen from entering the Sundarbans. Asked why he remains steadfast in his profession despite such hardships, Gafur said, "I have lived as a fisherman and will continue to do so, even if I fail to ensure two square meals every day."

Despite losing 13 loved, I still chose to stay by the sea because this is my home." Gafur's resilience reflects the spirit of the entire fishing community in Shyamnagar's "Jele Para." These men and women depend heavily on the Sundarbans for their livelihoods, yet they face an uphill battle against climate change, natural disasters, and restrictive government policies.



Gafur's resilience reflects the spirit of the entire fishing community in Shyamnagar's 'Jele Para,' who depend heavily on the Sundarbans for their livelihoods but face an uphill battle against climate change, natural disasters, and restrictive government policies

Photo: Collected.

The double-edged sword of conservation

Government policies aimed at conserving the Sundarbans often leave local communities in dire straits. Between June and August every year, a ban restricts access to the forest and the sea to allow fish populations to reproduce. While crucial for biodiversity, this policy leads to sufferings for around 50,000 people in Satkhira alone who rely on fishing, honey collection, and wood gathering, according to The Business Standard report published this year.

Unable to pursue their usual livelihoods, many fishermen resort to unsustainable practices. A common alternative during the ban is the illegal hunting of shrimp and crab minnows, which fetch Tk 1,000 for every 100 minnows. While this provides temporary relief, it undermines the very purpose of the fishing ban by disrupting aquatic ecosystems.

“ Government policies aimed at conserving the Sundarbans often leave local communities in dire straits, as the annual three-month ban on forest and sea access impacts around 50,000 people in Satkhira alone ”

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A common alternative during the ban is the illegal hunting of shrimp and crab minnows, which provides temporary relief but undermines aquatic ecosystems and the purpose of the fishing ban

Gaps in government support

The fisheries department provides a 56 kilogrammes of rice as subsidy to fishermen affected by the ban, but accessing this aid is fraught with obstacles. To begin with, fishers must hold a “Fishermen Card,” which requires costly registration—an unaffordable burden for many who live hand-to-mouth. This loophole leaves most without support, forcing them into harmful practices or migration. Some migrate to work as labourers in brick kilns or on farmlands, while others leave permanently for cities like Dhaka. Those who leave seldom return, draining the region of its traditional fishing expertise.

The vicious cycle of poverty and environmental harm

Erratic weather patterns, over-exploitation of resources, and indiscriminate practices like minnow hunting, are creating a vicious cycle. Fishermen report dwindling fish stocks in open waters, a consequence of both natural and human-induced factors. Meanwhile, illegal shrimp farming and forest exploitation have exacerbated salinity levels, further jeopardising the Sundarbans’ delicate ecosystem.

A call for sustainable solutions

Despite a noteworthy effort, the fisher community in Munshiganj are faced with challenges which can only be solved via sustainable alternatives. To break this cycle, stakeholders must work together to introduce sustainable livelihood options tailored to the region. Policies must also be inclusive, addressing the needs of the local community without contradicting conservation goals. By adopting a holistic approach, it's possible to ease the struggles of fishermen like Abdur Gafur, who fight daily battles against poverty and the cascading effects of climate change. With the right support, they can preserve their way of life while protecting the Sundarbans for generations to come.

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“ By adopting a holistic approach, it's possible to ease the struggles of fishermen like Abdur Gafur, preserving their way of life while protecting the Sundarbans for generations to come ”

The writer is currently pursuing her Master's in Disaster Management & Resilience at BUP. She previously worked as a research intern at ICCCAD and aspires to contribute to climate change solutions through research and evidence. She can be reached at nawshinjahanchaity22@gmail.com.