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Climate Tribune



- **IPCC Sixth Assessment Report: What does it tell us?**

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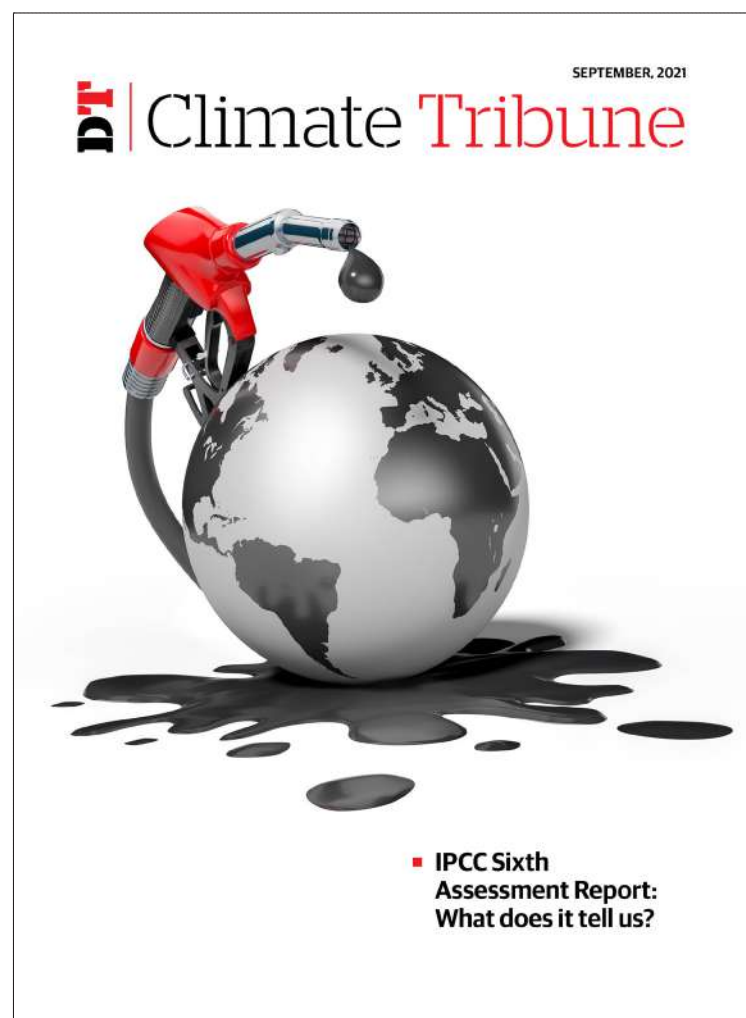
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COVER PHOTO: PIXABAY

Who is an adaptation expert?

WHILE THE INTERNATIONAL COMMUNITIES HAVE EMPHASIZED FOR FUNDING TO REACH THE GRASSROOTS LEVEL COMMUNITIES, THE MONEY FOR ADAPTATION AND HOW IT IS TO BE SPENT STILL REMAINS WITH ACTORS NOT DIRECTLY IMPACTED

“ While the international communities have emphasized for funding to reach the grassroots level communities, the money for adaptation and how it is to be spent still remains with actors not directly impacted ”

Saleemul Huq and Sirazoom Munira

Most fragile ecosystems across the world have a sombre similarity. Its settings are faced with gradual deterioration through wide-ranging geological and hydrological processes - pushing its communities towards imminent risk of displacement, threats, and insecurities. When the least developed and climate vulnerable countries tackle these adversities, those with the least capability remain the hardest hit.

In Bangladesh, this represents the 30 million lives at risk to be displaced from the coastal areas - awaiting a looming future with severe implications on livelihood, habitat, economy, and overall survival. This reality also makes them best positioned to identify the right priorities to formulate solutions which internalize their vulnerability standpoints. However, even today, their inclusion is at unsatisfactory levels when it comes to the overall decision-making process of planning and implementing funds directed to climate change. While scientific advice from global experts is indispensable, grassroot level frontliners often has a marginal representation in these processes, irrespective of them being the real adaptation experts in the ground.



S M SHAHIN ALOM

Who speaks for the global front-liners?

There has been a recent push to include the voices of the front-liners to evidence-based policymaking. This is an effective advocacy for building stronger allies in the science-policy interfaces and enhanced knowledge sharing. As such, North-South and South-South collaboration is expected to build more effective partnerships within governments, local government, CSOs and local NGOs for the overarching attainment of the Sustainable Development Goals (SDGs) which aims to leave no one behind. While the international communities have emphasized for funding to reach the grassroots level communities, the money for adaptation and how it is to be spent still remains with actors not directly impacted. This makes it important to ask: who then speaks on behalf of these frontliners, or local adaptors, and why is it not a direct exchange itself?

Choices and trade-off

It is necessary to discuss how local adaptors really adapt -

although it may only capture a partial picture. Local adaptors are constantly trading off financial security with efforts to bounce back from the aftermaths of their concurrent tragedies. Their decisions are optimal with regards to the limited available resources they find first in hand. Choices of these individuals are structured through time and resource constrained factors while accounting for the various challenges they operate under. Essentially so, their actions are curated with respect to conservation, resilience, sustainability and other core perspectives. Therefore, their ideas capture the notion of uniquely suiting solutions benign to the socio-ecological contexts of ground realities.

Local experts as global teachers

There are still questions whether adaptation is locally-led 'enough' while grassroots communities continue to set examples through their indigenous, context-specific adaptation solutions. Areas like Central Rift Valley of Ethiopia experience pressing problems from changing

climate throughout the year. Despite the harsh realities, local communities continue to integrate adaptation strategies into their livelihood - particularly those working in climate-sensitive sectors like agriculture. Taking the case of small holder farmers in Ethiopia, where 90 percent of farmers have perceived climate variability, study reveals 85 percent already made attempts to adapt in agricultural incorporating proven and effective practices. This includes locally-led initiatives of changing patterns like crop diversification, date adjustments for planting, conservation practices of soil and water etc. Further South, fishermen in Bangladesh respond to weather warnings and adjust their fishing patterns accordingly. With marginal resource and knowledge, groups of rural fishing communities benefit from their strong social bond which in turn foster unity ahead of any uncalled emergence.

Finally, it is needless to reiterate the role of women in their tireless fight against climate change. Women residing in climate vulnerable hotspots are constantly challenged by recurring incidents - testing their bodily and psychological capacities to cope. However, their abilities to bounce back despite these episodes make them global leaders in resilience - and even 'agents of change' to demonstrate transformative adaptation.

Limit of adaptation and way forward

Most of the local adaptive strategies by the adaptors and its dwindling catch take into considerations of natural, cultural and heritage factors. While communities use their limited resources economically, they are also adequately prepared for a single incident which can take away all that was conserved for months. As a result of their excessive loss, expanding research has shown that many climate-affected people are acute sufferers from post-traumatic stress disorder and major depressive disorders, among others - happening due to complicated and suppressed grief retained over long period of time. Yet, local adaptors continue to 'adapt' - opening up the Pandora's box with the big questions; where do we draw the line and; what is the limit of adaptation? Therefore, local adaptors and their voice need to strengthen and pro-poor, gender-sensitive, and participatory mechanisms are critical to be established.

A roadmap for the sustainable growth and empowerment is imperative for local adaptors, who are the real ground level experts of adaptation. This will pave ways for these communities to contribute to the larger human development spectrum. Jobs and livelihood opportunities which are resilient, reliable and sustainable should be introduced to them. Efforts to bring in various stakeholders to foster trust and collective effort for the adaptation efforts is also critical. As such, their journey towards resilience will help set an example for tracking and even measuring adaptation progress - making the pathway distinctive in terms of its larger contribution to define the global adaptation goal. ■

“ It is needless to reiterate the role of women in their tireless fight against climate change. Women residing in climate vulnerable hotspots are constantly challenged by recurring incidents - testing their bodily and psychological capacities to cope ”

Is cryptocurrency bad for climate?

INSTEAD OF REJECTING CRYPTOCURRENCY BECAUSE OF CLIMATE CONCERNS, THE FOCUS GOING FORWARD SHOULD BE MAKING THE INDUSTRY GREENER AND USING RENEWABLE ENERGY

Towrin Zaman Raya

Interest in cryptocurrency has recently skyrocketed, with the number of people adopting it surging to 221 million globally as of June this year. Cryptocurrency users doubled in the first half of this year. Factors like the spike in prices, recognition and support of crypto-related transactions and services, and approval of governments across the world have contributed to this rise in interest.

A cryptocurrency is a form of decentralized digital currency with transactions secured by cryptography. The validity of cryptocurrency is provided by a blockchain, which is a digital ledger of transactions. Records of new transactions are added to the blocks, which are chained together.

Bitcoin is the first and most famous cryptocurrency to have used blockchain. Following its success, several alternative cryptocurrencies called Altcoins were launched, deriving from Bitcoin. Altcoins address and improve upon shortcomings of Bitcoin such as price volatility, high energy consumption, and the time required to make new transactions.

As of March 2021, nearly 9,000 cryptocurrencies have emerged, with altcoins accounting for 40% of the total cryptocurrency market, according to Coinmarketcap which tracks the cryptocurrency market actions. Ethereum is the most popular altcoin, reportedly being the most used blockchain in 2020, mainly owing to having one of the most sophisticated blockchain platforms. However, Bitcoin remains the most widely accepted cryptocurrency, with many large companies now adopting it as a form of payment.

Bangladesh's stance on cryptocurrency

Bangladesh Bank does not recognize cryptocurrency as a legal means of trade or transactions and consider it a violation of the Money Laundering Prevention Act, 2012. Only eight other countries have banned cryptocurrency, whereas nine others, including Russia and China, have imposed restrictions on it instead of a ban. 111 countries, however, now recognize it as legal.

Bangladesh is now in the minority when it comes to accepting cryptocurrency. Roughly 23 billion dollars have

“As of March 2021, nearly 9,000 cryptocurrencies have emerged, with altcoins accounting for 40% of the total cryptocurrency market”

been invested in developing blockchain-based technology globally. Experts believe that if Bangladesh sets strong policies to legalize cryptocurrency slowly, it will help the country to compete in the global race in the long run.

Strengths of cryptocurrency

The biggest positive of cryptocurrency is considered to be its decentralized nature. It is not controlled by any singular authority like the central bank. The value of money decreases with time because banks control the circulation of money, and resultant inflation or deflation in the economy, by determining when and how much money to print.



PIXABAY

Cryptocurrencies cannot be printed and are created through a complex process of mining. Most cryptocurrencies are finite in supply, with an upper limit of circulation. For instance, only 21 million Bitcoins can be mined or brought into circulation for all time, and no more. Since there is no provision for unlimited printing, Bitcoin enthusiasts believe that its value will not decrease in the future like traditional money.

Another convenient quality of cryptocurrency is its peer-to-peer transactions without agents like banks or mobile financial services. This also makes the transactions immutable or irreversible. This can be a double-edged sword that makes the transactions more susceptible to criminal or fraudulent activities. Only transactions themselves can be traced, not those making it. Many countries are also developing anti-laundering solid policies to support smooth cryptocurrency adoption.

Concerns plaguing cryptocurrency industry

Despite its growing popularity and acceptance, criticism still exists regarding the industry. These issues include using cryptocurrency to engage in illegal activities, cybersecurity, price volatility and climate concerns.

There have been many instances of hackers stealing

money through hacking cryptocurrency systems. In fact, hackers stole \$600 million as recently as April 2021, exploiting the vulnerability of Poly Network, a decentralized finance platform. Nevertheless, losses from such crime in the overall cryptocurrency market reportedly dropped to \$681 million, from \$1.9 billion for the whole of 2020 and \$4.5 billion in 2019.

Another concern related to cryptocurrency is using it for money laundering and criminal activities. However, reports estimate the illegal share of all cryptocurrency transactions dropped from 2.1% in 2019 to only 0.34% in 2020. A 2020 SWIFT report also found that laundering cases through cryptocurrencies remain relatively small compared to traditional transactions.

The price volatility or unpredictable fluctuations in the real-world value of cryptocurrency makes it a riskier investment than others. The potential environmental repercussions of Bitcoin and other cryptocurrencies have also caused concerns. The market value of Bitcoin fell by more than 10% after Elon Musk, the founder of Tesla, announced that his company would not accept Bitcoin as payment due to climate concerns related to it. While these issues have made critics term cryptocurrency as a financial bubble that will soon burst, its enthusiasts are only growing in numbers.

Climate concerns surrounding cryptocurrency

The major climate concerns regarding cryptocurrency come from the mining process, which involves using sophisticated computers to solve complex algorithms which require massive amounts of energy consumption.

This also arguably carries a large carbon footprint. Bitcoin, in particular, consumes a massive amount of energy. The University of Cambridge Bitcoin Electricity Consumption Index estimated that Bitcoin currently consumes roughly 130 kilowatt-hours of electricity annually, more than Argentina, Netherlands and the UAE. According to this index, one Bitcoin transaction equals an average of 300 kg of carbon emission or a carbon footprint of 735,121 Visa transactions. However, proponents of cryptocurrency have called it an exaggeration. Also, these estimates are not 100% concrete.

Countries like China and Iceland are popular hubs for Bitcoin mining due to their cheap electricity prices. In fact, two-third of the total global Bitcoin mining is done in China, which relies on coal for electricity. To put things into perspective, the flood-led shutdown of a coal mine in Xinjiang coincided with a drop in Bitcoin's computing power by one-third in April this year. China recently enforced a strict ban on digital asset exchange and severe restrictions to discourage crypto mining to reduce energy consumption and develop its cryptocurrency.

Despite several studies ominously reporting about Bitcoin and cryptocurrency's massive carbon footprints, their estimates broadly vary. Also, experts believe that it is difficult to correctly translate the electricity consumption of cryptocurrency into carbon emission footprints. Besides, only Bitcoin has such a high rate of energy consumption. 1 Bitcoin transaction costs roughly 707.6 kilowatt-hours(kwh) of electricity per hour, while Ethereum only costs 62.65 kwh. Others like XRP only use 0.12 kwh.

Bitcoin supporters say that estimates of its carbon footprint are overstated and using renewable energy to support mining activities will be sufficient. Several companies are already investing in making Bitcoin a greener investment.

The climate concerns related to cryptocurrency cannot and should not be ignored. However, this industry is here to stay and grow, considering its unprecedented growth. No other industry has seen such exponential growth in real-world value. The value of any medium of exchange lies widely in its acceptance, and cryptocurrency is now precious. So, instead of rejecting cryptocurrency because of climate concerns, the focus going forward should be making the industry greener and using renewable energy, which several companies are already doing. Bangladesh should also develop a plan to slowly adopt cryptocurrency, with anti-laundering solid policies and compliance with environmental standards. ■

“ The University of Cambridge Bitcoin Electricity Consumption Index estimated that Bitcoin currently consumes roughly 130 kilowatt-hours of electricity annually, more than Argentina, Netherlands and the UAE ”

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Quest for survival or to the claws of death?

EVERY YEAR, MANY PEOPLE DIE FROM TIGER ATTACKS IN THE SUNDARBANS, WHERE DEPLETION OF THE FORESTS OFTEN DRIVES THE ANIMALS INTO HUMAN LOCALITY

Sumaiya Binte Anwar and Mahmuda Akter

Sundarbans, the great wilderness with a maze of mangrove trees and waterways, stretches along the coastline of Bangladesh and India. It is a delicately balanced ecosystem with a heart of steel protecting one of the most densely populated places on earth from the extremes of nature. Close to four million people live in and around the Sundarbans. Many of them are farmers or fisher folk, and another two million people from the country's southern parts are directly or indirectly dependent on the mangrove forest (Sundarbans: A fight for survival, 2021).

This is one of the trickiest and dangerous places to live with, crisscrossing saline channels, streams, and creeks guarded by estuarine crocodiles, king cobras, and pythons. Every river split like veins into narrow streams where the tiger lurks. Storms and floods kill thousands of people every year. Adding to this, upstream pollution increases the salinity of the freshwater sources and the gradual depletion of the forests. One of the respondents mentioned, *"The forest is a place of great difficulty, our heart no longer wants to go there"*



Rabeya, A Tiger widow of Golalkhali, Shyamnagar, Satkhira

SUMAIYA B ANWAR



Just the spot outside Rabeya's home where the Bengal Tiger was found sleeping not too long ago

SUMAIYA B ANWAR

(FGD with mixed group, Munshiganj union, Shyamnagar Upazila, Satkhira, February 2020). But, the greatest peril for those who enter the forests remains the notoriously famous tiger. Every year, many people die from tiger attacks and snake bites in Sundarbans.

Most people in the Sundarbans region relying on the forest and the river are fishermen, bawalis (wood fellers) and, *mawalis* (honey and wax collectors). Collecting honey is one of the most dangerous jobs in the area. It has traditionally been more accessible for villagers who cannot afford the equipment or boats needed to undertake the other main profession of this region – fishing. Ironic as it is, their quest for survival often takes them to the claws of death.

April 1 each year marks the start of the official honey-collecting season. Hundreds of boats gather in the Sundarbans and race towards the forest braving all dangers to find the best honey spots. The honey collectors always travel in bands, armed with primitive weapons such as axes, tangis, ballams, bows and arrows. However not all them return alive.

During the field visit in Golakhali Village of Shyamnagar Upazila, Satkhira, a small town on the border between India and Bangladesh, the Tapestry team interviewed *Rabeya*- who is a tiger widow.

Three decades ago, Rabeya's husband- a local honey collector, encountered a Bengal Tiger and never returned. During the season, her husband would generally go into the forest along with his group to collect honey early in the morning and come back home as soon as the sun came down. One fateful day, as they were walking in a line inside

“ Hundreds of boats gather in the Sundarbans and race towards the forest braving all dangers to find the best honey spots ”

the forest, a tiger suddenly jumped at him from behind and pounced in the neck. Rabeya's husband died on the spot. The others in the group could not help Rabeya's husband. The attack had been so smooth that even the next man had not noticed until it was too late. They came back home, gathered more men, and returned to retrieve his body, which was not eaten.

After the death of her husband, Rabeya settled in Golakhali. She makes her ends meet by fishing. Fishing has saved her. Already grieving the loss of their partner, women like Rabeya become 'tiger widows' (*in Bengali: bagh bidhoba*) overnight. They become pariahs in their homes and villages at a time when they most need support. They are often left with little means to support themselves or their families. There are many with the similar fate as her.

Being close to the forest, her family can see the tiger prowling outside Sundarbans, next to the canals on a regular basis. One day as the light of dawn seeped into her room, Rabeya rubbed her tired eyes and walked to the courtyard to find the wild cat sleeping next to her vegetable garden. Frequently the neighbours sight Bengal Tiger casually strolling on the muddy grounds or roaming around the mosaic of paddy fields. Sometimes they launch silent attacks on domestic goats and swiftly runs back deeper into the forest. Despite measures to deter them with waist-high blue net on the river bank, the villagers of Golakhali have become used to such encounters with the cunning beast. (FGD with mixed group, Golakhali Village, Shyamnagar Upazila, Satkhira, March 2021).

“Majestic and clever” are the words the group of women used to describe the Royal Bengal Tigers during the FGD. “The Tigers come out of nowhere. You do not see or hear them. This entire place, it is like their playground. They know it inside out. They attack you from behind, and by then, it’s too late,” they explain.

The locals reckoned that the tiger moved into the locality in search of food. The most likely causes are depletion of their natural habitat and a shortage of prey. With a million people living on the fringes of the mangrove forest, food scarcity is a problem for humans and tigers alike, with each poaching the other’s prey. Tigers are an endangered species, and it lives a much harder life too. Twice a day, hundreds of kilometres of the forest disappear under the currents of the high tide, pushing the tiger to drink saline waters and lead an amphibious life. Climate change and human development are reducing their wild habitat. Moreover, regular cyclone fatalities might have been habituating them to easy human meals, often forcing them towards villages searching for food.

In the quest for livelihood and survival, the fisher and honey-collector’s most powerful shield is alertness. The battle is half-won if one becomes aware that he is being stalked. He can then choose his position and path with care. One of the fishers explained that the tiger does not strike impulsively. Even when it is stalking a team, it targets only one individual and continues to seek a chance to attack him or her. Thus, when the team has become aware that it is being stalked, it can take suitable precautions. Often, despite precautions, someone from the middle of the field would be missing. His absence would be noticed suddenly, without any sound or forewarning.

A fisherman Shahjahan of Datinakhali explains, “When you see a tiger in front of you and think that you will run away, or climb up a tree, you will not be able to save yourself. If you encounter a tiger in front of you, the only way to save yourself is, not to lose eye contact with the tiger.”

When eye contact with the tiger is established, it is important to do two things—to show no sign of weakness and try looking at the tiger, preferably directly at its eyes. According to the experience of the local fisherman, a tiger tends not to attack from the front, particularly when the

prospective prey is staring back. (FGD with a mixed group, Datinakhali Village, Burigoalini Union, Shyamnagar Upazila, Satkhira, March 2021).

The findings of the long-term and ongoing research in the Sundarbans delta under the TAPESTRY project reveal that people who have to rely directly on the Sundarbans for their livelihoods are highly vulnerable to environmental changes and are most at risk. People near Sundarbans are already struggling for sustenance. Moreover, declining resources due to climate change and the frequent effects of cyclones leads to increased human-tiger conflict.

Due to the uncertainty of life and livelihood, many now want to change their traditional livelihood patterns. However, despite the wish for a change, most alternative sources of income are out of the question, especially considering that the terrain and individuals’ education do not allow for

“Already grieving the loss of their partner, women like Rabeya become ‘tiger widows’ overnight”

much options. As an alternative, many are now migrating to other parts of Bangladesh and even India in search of work. However, none of them wants their children to choose the same profession going inside the forest because it is more likely to make them face death.

In countries with the highest risks of climate uncertainty like India and Bangladesh, TAPESTRY focuses on the marginal group to find transformational adaptive approaches and how such approaches can be scaled up. Going forward, if the resources of the Sundarbans cannot be preserved, in a few years, there will be no one left to go into the forest to practice traditional livelihood like their ancestors. ‘Bawali’ and ‘Mawali’ will then only become words used in fables.■

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Critical discussions on Nature-based Solutions (NbS)

DECIPHERING THE MISSING LINKS AND COUNTER ARGUMENTS



JEFFREY BARBEE, WETLANDS INTERNATIONAL

Ali Mohammad Rezaie and Farah Anzum

Nature-based solutions (NbS) have drawn global attention as long-term solutions to social and environmental issues, promoting nature as a vital option for climate mitigation and adaptation. It presents a new narrative about biodiversity and ecosystem services in line with economic growth goals and the potential for transformational pathways to sustainable development.

Recent assessment report from Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES), Intergovernmental Panel on Climate Change (IPCC), and the Global Commission on Adaptation has action track on NbS, and it was one of the nine key action tracks at the 2019 UN Climate Action Summit.

Furthermore, the World Economic Forum's (WEF) Global Risks Report 2019 identified biodiversity loss and ecosystem collapse as economic risks, as well as the need for nature-positive business solutions. NbS are increasingly being

seen as a way to restore and enable long-term economic development with environmental stewardship.

While NbS has a strong scientific and practical discourse, the concept has also received several counter arguments. Firstly, on the legal definition, NbS is often interwoven with ecosystem related approaches such as Ecosystem-Based Adaptation (EbA), Ecosystem-based Disaster Risk Reduction (EcoDRR), Community Based Natural Resource Management (CBNRM), etc.

This interlinkage leads to debate whether NbS is a part of these interventions or should be considered as a separate approach. While IUCN framed it as an umbrella concept, many argue about its' value addition to the existing ideas. Concerns also exist in terms of the ambiguity and optimality of biodiversity benefits, as articulated in the NbS definition.

For example, if climate mitigation policies encourage NbS with low biodiversity value, such as afforestation with non-native monocultures, trade-offs may arise. This can lead to maladaptation, which is particularly dangerous in a rapidly

changing world where biodiversity-based resilience and multi-functional landscapes are essential.

Secondly, about NbS's governance mechanism and contribution to societal challenges, questions arise on who prioritises the challenges and how to ensure land rights, environmental justice, equity and measure its overall benefits. The IUCN 2020 guidelines on NbS promotes governance mechanism that are participatory, transparent and legitimate. It should also comply with national and local regulations, policies and plans.

The World Rainforest Movement (WRM) contends in their recent bulletin that NbS can lead to 'nature-based dispossessions' if the approach is overtaken by profit driven polluting industries. Additionally, conventional biodiversity

“ While NbS has a strong scientific and practical discourse, the concept has also received several counter arguments ”

offsetting practices provide compensation for developing infrastructure and lead to “habitat banking” that disregards the concerns and rights of the indigenous and local communities. Such as Monoculture commodity forestry done for a speedy and financial return at the expense of native and diverse forests represent a backward step and a maladaptive practice.

The identification of “marginal” lands for forestry projects risks displacing indigenous people and subsistence farmers. Hence, it can overlook the systematic discrimination, forced relocation of indigenous people and unresolved land conflicts with displaced communities by funding conservation of protected areas.

Finally, on the funding and feasibility, concerns include “greenwashing” and the efficacy of nature to solve societal and natural problems. In addition to the negative socio-political implication of NbS by companies and private sectors, several practitioners and indigenous communities are dismayed with the idea of nature as ‘natural capital,’ where nature is made up of a number of unbundled, separable resources and services to people.

The fear is that the ‘economically beneficial’ aspect of NbS can discard and divest the ethical, cultural, and spiritual values of nature to people. Additionally, powerful companies can manoeuvre these ‘economic benefits’ to expand private appropriation in lands and territories where communities and people live intimately with nature as well as depend for food and livelihood security. Furthermore, national intentions to deploy NbS have yet to be fully translated into evidence-based targets and ground action.

There are few studies that compare the cost-effectiveness of interventions to alternatives and even fewer integrated assessments that consider broader social and ecological outcomes. In comparison to engineered alternatives, there are also concerns about their reliability and effectiveness.

Nonetheless, NbS opens up the possibility and opportunity to thrive for greater human-nature harmony. Challenges persist, and the approach can be debated; however, NbS attempted to encompass multiple socio-economic and political factors related to conservation and sustainable usage of nature.

The 2020 IUCN standard for NbS also encapsulates criteria on rights, legal and regulatory provisions, in addition to its environmental, societal and economic benefits. The standards promote to the preservation of indigenous and local communities’ rights and consent which can be strengthened by developing finance mechanisms that can support community and locally-led conservation projects and activities.

There are also scopes for developing monitoring and evaluation metrics that will enable different actors to track progress, assess NbS interventions’ efficacy, and create an iterative process that will warrant adaptive management and transformation.

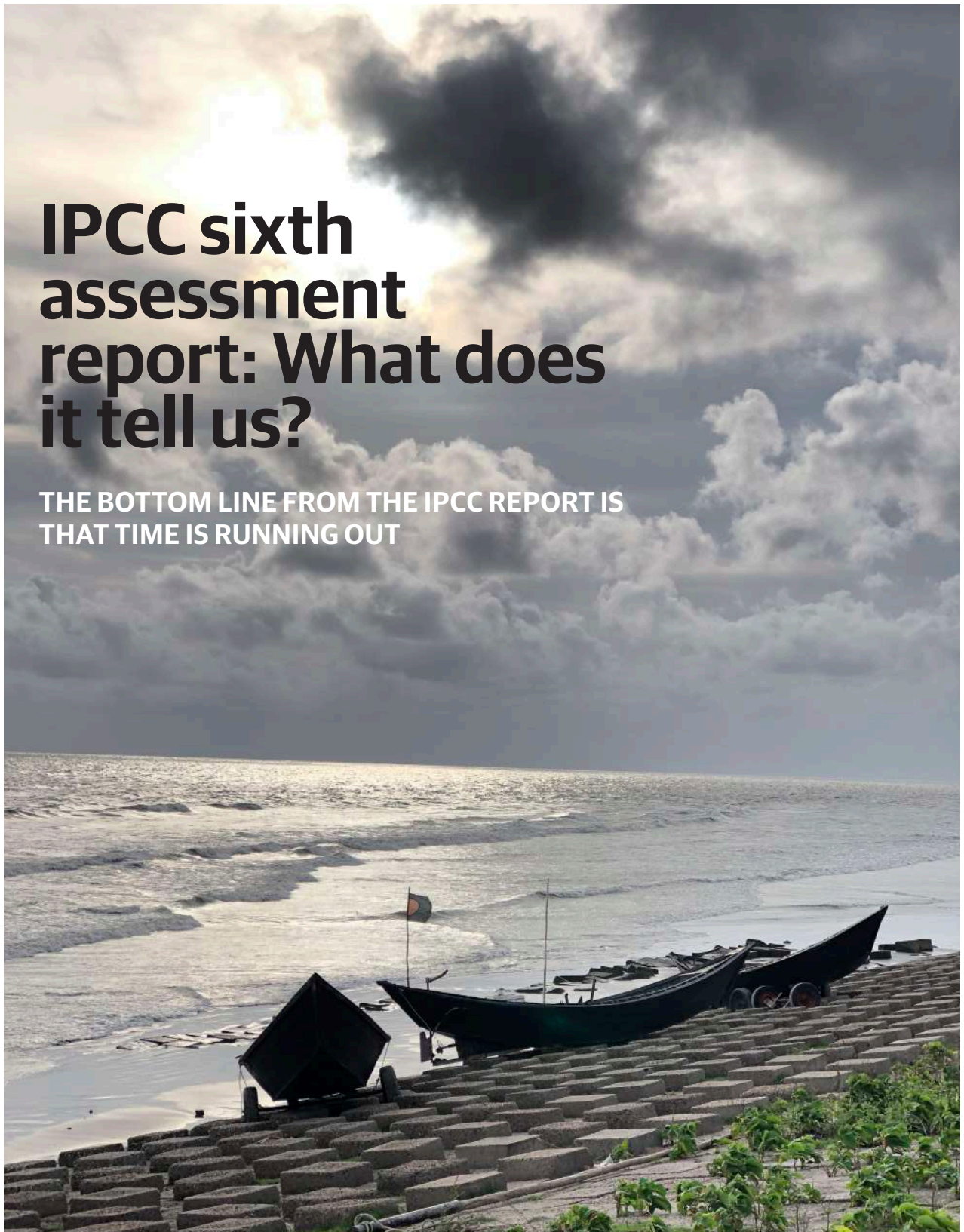
As the world continues to recover from the pandemic and economic recession, it is imperative to unite for a common ground where future investments, policies and knowledge are crafted for the benefits, health and well-being of both people, nature and the planet. ■

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IPCC sixth assessment report: What does it tell us?

THE BOTTOM LINE FROM THE IPCC REPORT IS THAT TIME IS RUNNING OUT



Bangladesh is considered to be one of the most vulnerable countries when it comes to climate change. Due to its deltaic nature and geo-positioning, its coastal region becomes susceptible to tidal surges, sea level rise and flooding

COURTESY

The Intergovernmental Panel on Climate Change (IPCC) released the first in three reports of its sixth assessment in August. Highlighting the science of climate change, the report paints a bleak picture of future scenarios. António Guterres, United Nations Secretary-General has termed it “code red for humanity”. Over 200 scientists worked on compiling the report. They found that “without immediate, rapid and large-scale reductions in greenhouse gas emissions, limiting warming to close to 1.5°C or even 2°C will be beyond reach”.

Taking a look at the background of these assessment reports, the Intergovernmental Panel on Climate Change (IPCC) was formed by the United Nations in 1988. It comprises a collection of climate scientists who assess published research to create comprehensive pictures of the state of climate change and what is needed to tackle it. The IPCC consists of three working groups, each with a specific focus. Working Group I (WG1) analyses the physical climate system; Working Group II (WG2) examines the natural and socio-economic impacts of climate change; and Working Group III (WG3) looks into the assessment of mitigation options.

“The Paris Agreement targets of limiting 1.5-2 degrees of warming will be beyond reach unless there are deep reductions in greenhouse gas emissions right away”

The following are the five key takeaways from the recently released report from WG1:

Firstly, without a speck of a doubt, human activity is causing the climate crisis. Human activities have resulted in extreme weather, sea-level rise, more severe and frequent heat waves, heavy rainfall and droughts. Already, immense amounts of greenhouse gases are locked in as countries have continued to emit these gases, ensuring further warming of the planet.

Secondly, the Paris Agreement targets of limiting 1.5-2 degrees of warming will be beyond reach unless there are deep reductions in greenhouse gas emissions right away. While some changes in the climate system are beyond recovery, others can be slowed down upon immediate action of limiting global warming.

Thirdly, all across the globe, every region is affected by climate change in a multitude of ways. Unless warming is reduced immediately, these changes and impacts will be exacerbated and increased in frequency as well as intensity.

Fourthly, The changes in the climate are widespread, rapid and intensifying. All direct impacts of climate change are predicted to get fiercer as soon as the coming decade.

Lastly, There is still hope: only if top-emitting countries respond with aggressive efforts to reduce greenhouse gas emissions.

In the next ten years, the planet’s very future is going to be determined: whether we are approaching catastrophic doom or will we have a small yet crucial chance to offer the future generation a prosperous, better home. Dr Saleemul Huq, Director of International Centre for Climate Change and Development (ICCCAD), who has also been a lead author in the IPCC’s third, fourth and fifth assessment reports, says “From now on, every record-breaking extreme weather event can be reasonably attributed to having been exacerbated by human-induced climate change. This is in effect ushering in a new era of loss and damage from human-induced climate change for the foreseeable future for all of humanity”

With that being said, the bottom line from the IPCC report is that time is running out. We must start taking action and plan our steps moving forward. Anthropogenic interventions have resulted in significant and alarming changes, including:

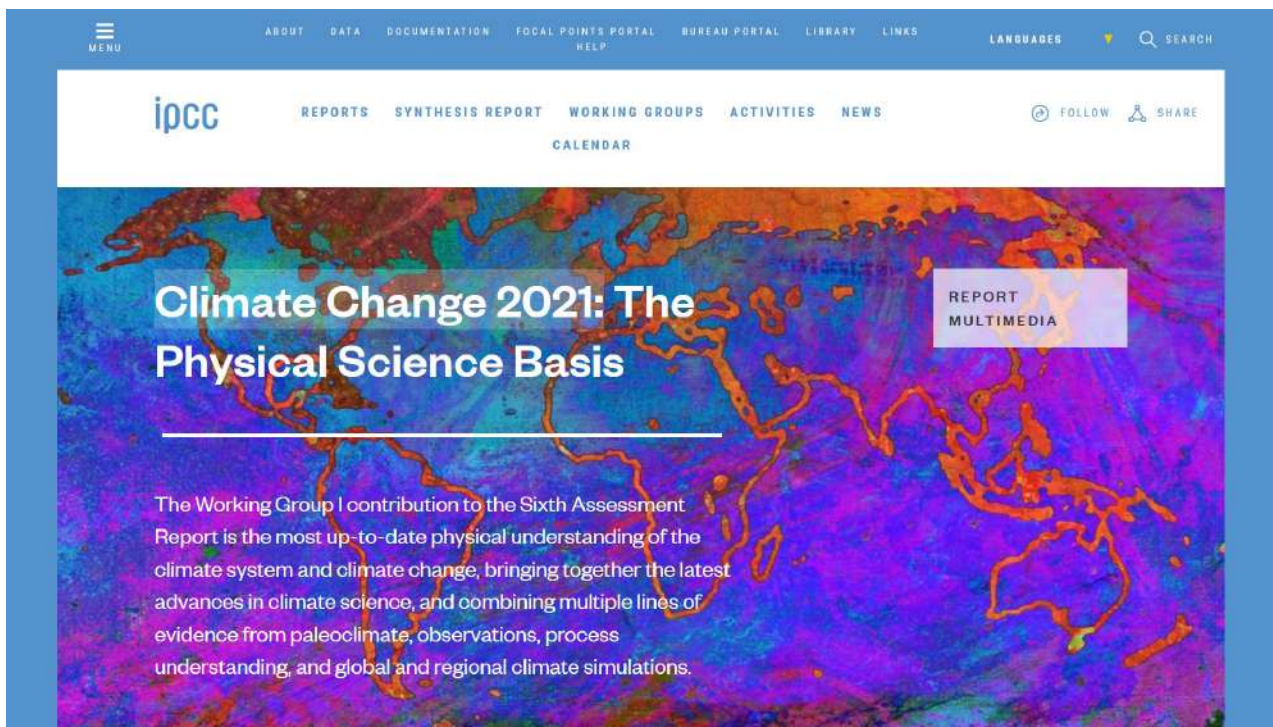
The global temperature increased at an unprecedented rate

Carbon Dioxide concentrations have been the highest in at least the past two million years

The fastest rate of sea-level rise in at least 3,000 years

Exceptional Arctic Sea ice and glacier melt in at least 1,000 years.

All these issues together allow us to safely extrapolate that each record that we break can be attributed to exaggerated climate change. This exaggeration leads us to have more turbulent climatic and environmental problems, allowing for extreme droughts, heavier rainfalls, acidification of oceans etc.



If we are to bring in our perspective and focus on what that means for the global south, Bangladesh has already been at high risk from climate change due to its geo-positioning, where it is exposed to sea-level rise and extreme weather events. Granted the country's vulnerability, the IPCC Asia fact sheet also states that the South Asian region will now be at a higher risk from heat waves and humid heat stress, and both the annual rainfall and summer monsoon precipitation will increase, further exacerbating the situation.

The purpose of the IPCC assessment paper is to be policy prospective; it is to provide instructions on how to act for the global audience, it shows us information on what is happening and what are the necessary steps required to mitigate the problems that arise from greenhouse gas emissions. The actions are meant to be done by the global audience, both collectively and individually. The ball is firmly in the people's court, how they decide to act with the available information will determine the survivability of the human race. ■

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“ If we are to bring in our perspective and focus on what that means for the global south, Bangladesh has already been at high risk from climate change due to its geo-positioning ”

Is environmental communication the key to inclusive growth?



xxxxx

PIXABAY

Magnus Mayeen Ahmed

Communication is the most crucial aspect of any modern-day world issue. It often makes or breaks for desired objectives and designed plans. Proper communication is the bridge that determines whether we are taking the route to success or failure.

As it is the age of specialization, even communication itself has taken many forms. One such form is environmental communication. It is the form of Communication which is focused on enlightening, educating, and raising awareness regarding environment-related topics. It is a crucial aspect of effectively disseminating content related to environmental

matters.

Climate change is an immediate danger that threatens the entire human race. It is an issue that looms large for all people regardless of their race, religion or class in society. That is why it is imperative to have a clear line of communication between the environmental experts who have the knowledge regarding the 'to-dos' and 'not-to-do's' and the general public who might be oblivious to the path of self-destruction.

Inclusive growth is crucial when adversity as widely relevant as climate change imposes itself. In order to effectively retaliate against it, the entire humanity needs to unite in its thinking and planning to get ahead of the task at hand.

“Potent and effective environmental communications can appeal to the people’s conscience and explain to them in relatively understandable terms why it is crucial to do the necessary here and now”

It will be futile if only environmentally aware and educated people keep up their advocacy efforts and the general people are left behind with their limited knowledge of the challenges they face in the immediate future.

To gain sustainable momentum and bring about changes in the mass practices that have slowly built up this catastrophic issue, the masses simply need to be included. A colossal behavioural change needs to take place, which is impossible without intelligent and effective communication.

Like any sort of Communication, “Environmental Communication” intends to penetrate a target audience, who the content is designed for and disseminated to. Target audiences can differ as they can be one particular community or an entire country.

Each target audience is unique in the sense that they respond to different messages and the medium the message is conveyed through differently. For example, the envisioned communications material might be intended for a community located in a remote village.

Thus the materials will have to be designed according to the means available in the targeted location in order to reach maximum efficiency. The target audience may not have access to social media due to a lack of proper internet

connection, so the envisioned Communications content must adopt a more conventional medium which maximizes outreach, like community radio.

Bangladesh being a country marred by natural disasters every fiscal year, has a plethora of environmental issues to deal with. Thus, Environmental Communication plays a pivotal role in managing natural catastrophes, which devastate numerous communities living on the brink of climate disasters and uncertainties that tag along.

It is crucial, though, to make it as relatable and straightforward as possible. Not everyone holds the requirements or ability to perceive an environmental finding or fact, which are usually jam-packed with scientific and formal terms, but it could be as relevant to them as it is to a scientifically competent person.

Therefore, it is widely believed that Environmental Communication should adapt a tone that is relatable to the common person, should be independent from over detailed analysis, have good analogies, present itself in infographics, represent genuine human stories which resemble the daily lives of a common person and fundamentally influence people into starting dialogues with each other and force them into thinking rather than ignoring the environmental issues which are largely considered to be a “problem for generations to come”.

Potent and effective environmental communications can appeal to the people’s conscience and explain to them in relatively understandable terms why it is crucial to do the necessary here and now. Climate Change is already here and creating devastating waves around the globe, evident through the catastrophic floods in Germany and the hurricane-related floods in the United States of America, while disasters till now were considered to be “third world disaster issues”.

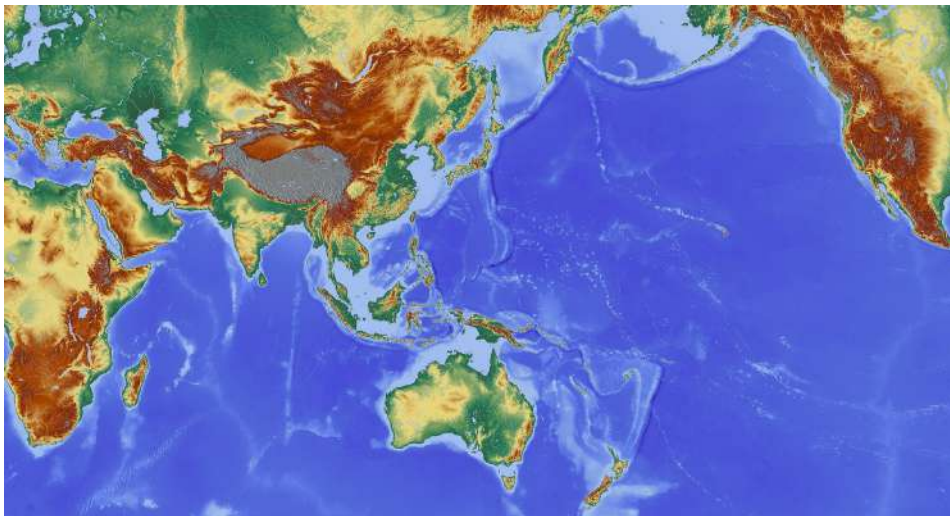
Going ahead, Environmental Communication will be imperative for organizations and experts working day in, day out to bring about necessary changes in practices and environmental adaptation to rescue the environment from the fast track path of total environmental destruction which is a result of years of ignorance and miscommunication on everyone’s part.

Environmental organizations and experts can utilize the medium’s nuances to effectively share the scientific information that are related to tackling climate change and other environmental issues. Environmental Communication goes a long way in simplifying over-complicated scientific matters for the general people, who are the majority, and if the majority become aware and responsible citizens with the sense to make environmentally responsible decisions, achieving environmental progress will become a realistic possibility. ■

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Environmental migration and climate change in the Indian Ocean littoral

CLIMATE CHANGE-INDUCED MIGRATION IS A GROWING CONCERN. IT DEMANDS ENGAGEMENT WITH THE GRASSROOTS COMMUNITY AND COMMON MEN'S PERSPECTIVES ALONGSIDE EXPERT OPINION, AS IT CANNOT BE UNDERSTOOD FROM ONE SINGLE PROCEDURAL PERSPECTIVE



PIXABAY

Juel Mahmud, Samina Islam, and Debojyoti Das

Migration of people triggered by ‘extreme weather events has emerged as one of the most challenging outcomes of global environmental change. Increasing sea level rise, unpredictable rainfall pattern, periodic drought conditions, recurrent cyclone, flooding, and river-bank erosion - all these extreme weather events are menacing livelihoods - often forcing the affected population to move out of their natal home.

According to a World Bank report (2018), there will be approximately 140 million internal climate migrants by 2050 in South Asia, Sub-Saharan Africa and Latin America. It is true that linking climate change and migration unswervingly is challenging as migration and mobility are generally multicausal. There are numerous reasons for people to be on the move. There are many drivers of migration - social, political, economic, demographic and environmental - but climate change can affect all these factors, which is why it is

regarded as a threat multiplier.

The term ‘climate refugee’ or ‘environmental refugee’ has emerged as a passionately debated topic in migration and development literature. The International Organization for Migration (IOM) defines environmental migrants as “persons or groups of persons who, predominantly for reasons of sudden or progressive change in the environment that adversely affects their lives or living conditions, are obliged to leave their habitual homes, or choose to do so, either temporarily or permanently, and who move either within their country or abroad.” While this definition is very comprehensive and flexible to demonstrate the complex migration pattern even when it is environment driven, yet a legal definition is absent, several other semantics exist to categorise peoples’ movement in relation to environmental changes.

There has been an increasing resurgence in the literature on climate change-related migration. Nonetheless, more brazen research is needed to examine how migrants

overcome their ‘vulnerability’ and enhance their individual and collective agency to successfully deal with health and livelihood challenges in climate hotspot countries in the global south. Keeping this in mind a collaborative and trans-regional research project has been initiated to investigate the challenges faced by environmental refugees in four case study countries in the Indian Ocean littoral rim.

The project entitled “Environmental Refugees: Climate, Health and Livelihood in the Indian Ocean World” - a consortium based on researchers from four Indian Ocean countries (India, Bangladesh, Tanzania and Mozambique) is sponsored by the US-based Social Science Research Council (SSRC).

The study was originally commissioned in 2020 and has gathered some evidence during its planning phase (September 2020- August 2021), and it will continue to generate more knowledge during this uncertain Covid-19 times (September

“ This trans-regional collaborative research project aims to build a transdisciplinary, participatory community-driven research platform ”

2021 to August 2022) by putting to test a few key questions: (i) Is migrating out of disaster-prone areas the only way forward to mitigate climate change impact on society and economy? (ii) How do we place migrant agency and their social capital? (iii) What does vulnerability and resilience mean to them, and (iv) how can we learn from our shared cross-country experience of migrant lives. (v) How does migration affect the health and wellbeing of migrants?

The project team comprises an interdisciplinary cohort of experts who will bring their skills and knowledge working with climate migrants on health, well-being and livelihood issues. In Bangladesh, the International Centre for Climate Change and Development (ICCCAD) has been working with migrants in Ersadnagar Slum of Dhaka and Sundarbans (Shyamnagar Area) to map community experience through PhotoVoice and Digital Diaries developed by community participants in the project as a participating organisation.

PhotoVoice is a tool to collect general information about a community. Local people will take pictures through which they will demonstrate their reasons for migration, the problems they face during and after migration, the benefits from migration and such.

After collecting a large amount of pictures from the

community - the researcher will store them and ask the community persons who took the photos about the reasons behind it; this will also be asked to others of the community to determine whether the photos/ reasons behind the photos mean the same to them or not. This way the migration information of a community can be collected from a large group easily.

The researcher will then prepare a report based on all the collected data achieved through the pictures and discussion. Digital Diary is a tool to collect more specific information on a particular issue from a particular group - it is more focused.

Through Digital Diary, local people will be able to present their migration-related issues and there will be no interventions from the researcher. The local people will be able to freely share their problems. This is like a life diary; the migrants share their migration story through it. This is a long process - one person will share their story for 3 - 4 months, ensuring that no information is missing.

Besides, during the Covid situation, the risk of collecting data from the field is mitigated by using these tools. Both PhotoVoice and Digital Diary will capture the general and specific issues related to migration from the selected communities and help raise voice from the frontline without any influencing factors from the researchers.

Climate change-induced migration due to natural disasters is a growing concern. It demands engagement with the grassroots community and common men’s perspectives alongside expert opinion, as it cannot be understood from one single procedural perspective.

This trans-regional collaborative research project aims to build a transdisciplinary, participatory community-driven research platform involving academic institutions and scholarly networks and governments, policy stakeholders, think tanks, and civil society actors.

The proposed study equally spotlights the gendered narratives as climate change has a distinct impact on men and women. More broadly, the consortium aims to address the emerging climate change-related challenges by critically engaging with climate change-induced migration debates focusing on the Indian Ocean region from a south-south perspective. ■

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Youth Adaptation Network: Connecting youth and climate change

■ Lamia Mohsin, Nusrat Naushin, and Rupita Tahsin

As per the Global Climate Risk Index (2020), Bangladesh ranks 7th, making its perpetuated vulnerability to climate change-induced occurrences a globally recognized narrative. Apart from being a crisis with a global and national impact, the effect of climate change on various segregated demographics, communities and groups remain contextually heterogeneous. Climate change poses the biggest threat to the most marginalized communities, for whom adaptation needs remain wide-ranging and include primarily financial, technological needs along with capacity building, livelihood, access to healthcare and education.

Given the intergenerational nature of climate change, many of us might not be around to experience the brunt of climate change, while today's young generation will be fighting wildfires. Understanding the need of the hour, youth worldwide are spearheading conversations, debates and movements as advocates for a climate - resilient present and future. Globally youth movements have been the harbingers of social change, fuelling meaningful social, economic and political needs. The need for capacity building, empowerment and inclusion of the youth voices is unanimously recognized today, and their perspectives are taken into due consideration.

GCA Global Youth Adaptation Network (YAN)

Young people bring new ideas, and radical ambition and efforts to empower and educate youth on climate change mitigation and adaptation are seen by many as a crucial element in our fight against climate change. Therefore, the Global Center on Adaptation (GCA), an international organization that works as a solutions broker to accelerate action and support adaptation solutions, aims to put youth in the driving seat.

Global Center on Adaptation is a global expertise centre that supports nations, organizations, and businesses with knowledge and advice in climate adaptation. Founded in 2018, the Netherlands hosted the worldwide office of Rotterdam, with regional offices in Africa, South Asia and the Asia Pacific, and a knowledge and research hub based in Groningen. GCA aims to engage in innovative solutions to drive adaptation at scale through the evolving network of offices, high-level

policy development, new research contributions, advocacy, communications, and work with our partners to deliver action on the ground.

GCA has launched a global Youth Leadership Programme in partnership with a group of leading international companies, aiming to mobilize the next generation of adaptation leaders around the world, empowering youth to make a case for adaptation on the global stage and make their communities more climate-resilient through various initiatives centering around youth involvement in climate adaptation, training

“ Youth Adaptation Network in South Asia will focus on youth from the global South and promote the need to adapt to human-induced climate change's adverse impacts ”

and capacity building, employability, along with women leadership.

The Youth Adaptation Network (YAN) aims to provide a platform for its members to access adaptation knowledge and campaigning materials, offer opportunities to implement adaptation action on the ground and connect them with the leaders at the forefront of the global response to climate change.

The Youth Adaptation Network will engage, empower, and amplify the role of young people in the adaptation plan. By creating an environment where young people are involved as equal stakeholders in climate adaptation actions and providing them with learning opportunities, the Youth Adaptation Network will translate knowledge into action by engaging and participating in the design and implementation of local and national adaptation plans. The Youth Adaptation Network works with partner groups, networks, and education institutions in more than 110 countries and is always seeks to connect with more.

Youth Adaptation Network in South Asia and Bangladesh

In September 2020, the South Asian Regional Office of GCA was jointly launched by Prime Minister Sheikh Hasina

“The Youth Adaptation Network (YAN) aims to provide a platform for its members to access adaptation knowledge and campaigning materials”

and former UN Secretary-General Ban Ki-moon. Shortly afterwards, Saima Wajed Hossain, the thematic ambassador for Vulnerability of the Climate Vulnerable Forum (CVF) launched the Global Youth Adaptation Network (YAN), GCA's flagship initiative for, by and of the youth.

As a transformative approach to building and promoting youth leadership, the Youth Adaptation Network (YAN) is set to commence with a series of national and regional consultations with youth across the world.

Youth Adaptation Network in South Asia will focus on youth from the global South and promote the need to adapt to human-induced climate change's adverse impacts. As a platform advocating for creation, dissemination and translation of adaptation knowledge among the youth, the network will not only seek to connect youth from diverse

backgrounds, ethnicities, diaspora and communities within Bangladesh and across the South Asia region but also play the role of a bridge between them and policymakers, climate change experts, researchers, academicians and environmentalists.

In the long run, the Youth Adaptation Network seeks to support the needs of the young people and build their capacities through a three-pronged approach of knowledge creation, knowledge dissemination and knowledge-based action.

By partnering with leading organizations leading the climate change arena locally, regionally and internationally, via country partners and focal points, YAN will mobilize the youths, community groups and like-minded stakeholders to actively engage within the Youth Adaptation Network.

In the current climatic context, the youth demographic will inevitably be on the receiving end of adverse climate change impacts in the upcoming decades. From Greta Thunberg's 'Fridays for Future' to the nameless, faceless young climate change advocates based in remote coastal villages of Bangladesh- young voices everywhere are striving to create platforms to disseminate their call for concerted and cohesive climate action, making us realize that every small step matters.

Unfortunately, in Bangladesh, individual climate action remains scattered and unrecognized, more often due to the limited capacities of youth to mobilize as collective forces through strong, country-wide networks. Youth Adaptation Network (YAN), thus, will act as a platform seeking to address the prolonged absence of a regional platform bringing all climate activists under one umbrella.

It is high time that we recognize the role of the youth in upscaling local adaptation efforts across diverse socio-economic settings. Our next generation of leaders must be prepared to tackle climate change. This cannot be realized until vital regional and national agendas recognize that the time for action is now. ■

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The perks of implementing urban Nature-based Solution in Dhaka City

URBAN ROOFTOP GARDENING CAN BE A SOLUTION TO THE CLIMATE CRISIS

Afsara Binte Mirza

The urban population in Bangladesh is predicted to rise 46% by 2030 and 58% by 2050 (CPD, 2020) with worsening climatic events. In urban areas, rooftops are mostly abundant and underused resources for

the city and are mainly used for drying clothes. The Ministry of Agriculture's agriculture information service Dhaka stated that about 450,000 roofs cover around 4,500 hectares of space.

In this case, urban rooftop gardens can be considered as an urban Nature-based Solution (NbS). NbS fosters methodical



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approaches for social, environmental, and economic challenges by restoring, and safeguarding the ecosystem and causing sustainable urbanization.

For a densely populated city like Dhaka, rooftop gardens can be an instrumental NbS to tackle climate change. Rooftop gardening can enhance food security and nutrition in urban and peri-urban areas by meeting part of Dhaka city's growing population's demand for fruits and vegetables.

Rooftop gardening also encompasses social benefits by fabricating spaces for recreational benefits and creates job opportunities. Most importantly, it provides environmental benefits to urban infrastructure by acting as insulators to cool down the temperature of buildings by absorbing heat, and minimizing the need for air-conditioning. It also improves air quality by producing oxygen and acts as a carbon sink to adapt and mitigate the impacts of climate change.

Additionally, rooftop gardens can promote innovation by encouraging the diversion towards a circular economy-based

“Rooftop gardening also encompasses social benefits by fabricating spaces for recreational benefits and creates job opportunities”

Nature-based Solutions approach. This can substantially contribute to climate change mitigation by ameliorating sustainable material management and decarbonisation.

Circular Nature-based Solution can increase the resilience of the ecosystem through reuse, reduce, recycle, remanufacture and repurpose strategies. These lead to the closure of material and energy loops and terminate waste generation. Nature-based Solution entails the circularity concept, for example, it understands that inedible food by-products and human waste have phosphorus and nitrogen which can be used as inputs for producing something new.

For instance, rooftop gardens can be a destination for food waste, which can be converted into organic fertiliser and boost plants' growth. This minimizes the usage of potentially harmful chemical fertilisers and can help in waste management issues. Dhaka North and South City Corporation can conduct consultations with private companies to establish fertilisers made from urban organic waste to peri-urban farms to support local food sourcing.

Rooftop gardening is mainly traditional gardening, vertical gardening, and hydroponics, etc. Traditional gardening

involves producing fruits, vegetables, medicinal plants, herbs and spices utilizing flowerpots, planter boxes, plastic or metal drums.

At the same time, vertical gardening is a way of growing vegetables on vertical surfaces and can be done in small rooftop spaces with minimal investment than traditional gardening. On the other hand, hydroponics is the cultivation of vegetables without soil, using water and a plant nutrient solution. It needs consistent monitoring to ensure that accurate chemical balance is maintained. Hydroponics requires less space

A real challenge, which is the lack of awareness raising and know-how platforms, can hinder the process. Therefore, it is crucial to establish physical community centres or platforms that can be community governed to offer accessible knowledge about inputs (ie, seeds, seedlings, saplings, suitable plant species and fertilisers) and support implementing urban Nature-based Solution, as rooftop gardening.

Youth, existing private sector players in gardening such as Prakriti, Nagarkrishi, and Green Savers, schools, universities, urban city planners, engineers, practitioners, NGOs, Civil Societies, local governments can be key players in establishing this centre. Real estate companies can raise the landowners' awareness of the benefits of rooftop gardening and make the roofs waterproof (apply polyester built-up systems, fluid applied membranes, concrete admixture) to refrain the roofs from getting damp. Some households might find it expensive to eliminate this hindrance.

Dhaka North and South City Corporation and local municipalities can collaboratively set up a financial scheme providing citizens with grants up to 80-100% of the upfront cost of urban agriculture projects. Citizens who desire to experiment with agriculture practices in their rooftops and self-owned spaces can apply for it.

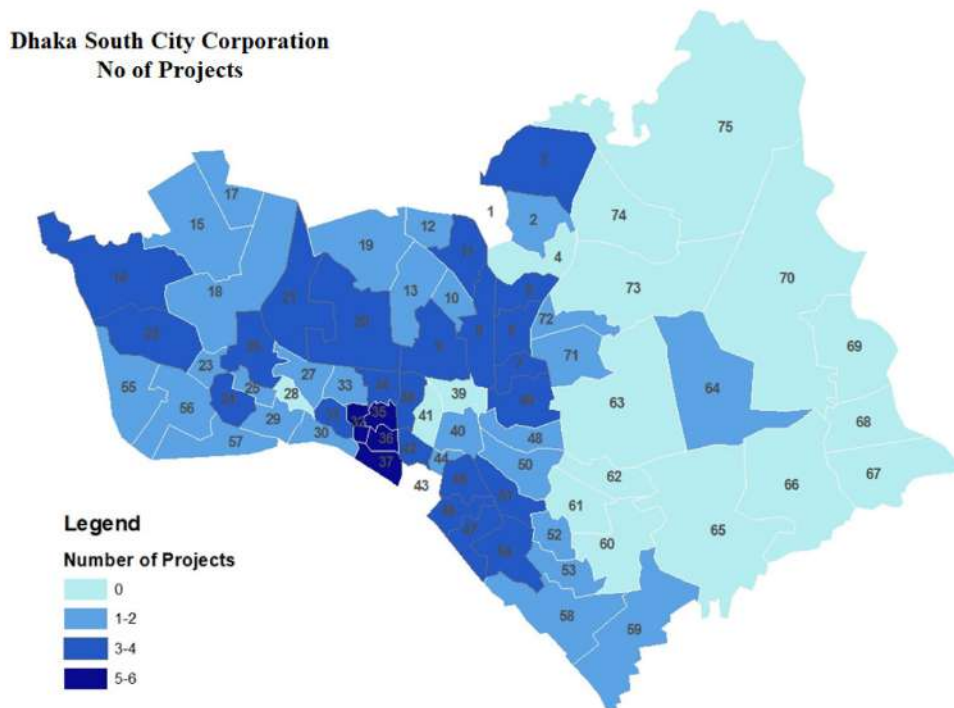
Nonetheless, the government of Bangladesh has established a policy to motivate homeowners to utilize their rooftops for gardening and planting trees and plants. On March 2021, the Honourable Minister Tajul Islam, Ministry of Local Government, Rural Development & Co-operatives (LGRD), declared that the government will provide a 10% holding tax rebate to city residents who practices rooftop gardening.

Hence, it will be crucial to raise awareness on this policy and inspire citizens to build their own rooftop gardens to reduce the impacts of climate change. A monitoring framework of the tax rebate policy will be vital to document the lessons learnt and track the benefits and constraints of urban nature-based solutions. ■

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How inclusive are the donor agencies in DSCC working for poverty reduction?

THE CITY CORPORATION SHOULD ACT AS A BRIDGE TO CONNECT COMMUNITY-BASED ORGANISATIONS TO OTHER DONOR-LED PROJECTS



The Map of Dhaka South City Corporation with Number of Projects being carried out

SOURCE: UNDP

Rupita Tahsin, Adiba Nahreen, and Mohammad Kamruzzaman Palash

Poverty reduction in urban areas is accompanied by enormous challenges in scale and complexity. These challenges become more gruelling for megacities in developing countries, such as Dhaka. One of the key features of Bangladesh’s fastest economic growth is rapid urbanization. A study found out that Dhaka, being the capital city, attracts around 300,000 to 400,000 migrants from rural areas to reap the benefits of the city’s improved living standards, and in turn, the new migrants contribute greatly to Dhaka’s economic growth by providing much-needed labour

to manufacturing, services, and other sectors.

As one strolls around Dhaka, omnipresent poverty is found everywhere, clearly manifesting the growing inequality between rich and poor. The slum dwellers of Dhaka South City Corporation (DSCC) are deprived of basic services like secure and hygienic shelter, water, sanitation, electricity, health, and education since these slums are not established upon legal lands. Hence, donors’ participation is needed in these circumstances to put greater resources into urban infrastructure and service provision. However, in reality, a gap exists between what is needed to reduce urban poverty in developing countries and insufficient responses by the donors due to their limited capacities

A study by UNDP found that currently, in Dhaka South City Corporation (DSCC), around 15 projects connected to the urban poverty reduction are actively working which have funding agencies like UNICEF, Concern Worldwide, Irish Aid, WaterAid, Charity, European Union (EU), Foreign, Commonwealth and Development Office (FCDO), and Government of Bangladesh (GoB).

These projects aim to provide organised support to

“The DSCC authority should persuade all project stakeholders to develop a holistic spatial plan covering all Wards”

marginalized urban communities focusing on a participatory approach and enhancing government and donor resources. However, given the size of the city corporation and the influx of rural-urban migration, the projects are not in a position to cover all the urban poor. Rural-urban migration happens when people are pushed away by river erosion, socioeconomic, and climate change factors. The climate migrants who relocate to big cities, such as Dhaka, are forced to leave their forefathers' lands and assets just to safeguard themselves from rising sea levels, unanticipated storms and flooding, water scarcity, desertification and other climate-induced changes to the

environment.

These factors affect the job opportunities, especially in the agricultural sector, the driving force of the rural economy. According to the International Organization for Migration, approximately 70% of slum dwellers in Dhaka moved here after experiencing environmental hardship. These urban poor settles in precarious land with high eviction rates and insecure land tenure with limited access to health care programs and social safety nets. Referring to the slum census 2014, DSCC has around 1,755 slums with 1,47,056 inhabitants.

Referring back to the development projects, most of the focused sectors of these projects are governance, environment, and health. Also, some projects are working on nutrition, education, WASH (Donor Efforts Mapping in DSCC, 2020). While mapping out the donor projects, some overlapping projects have been found working for the same sectors in some wards with a good potential of creating inter-project coordination. Six projects are working on the governance and environment sector, while five projects are currently running on the infrastructure sector. Most of the funds are concentrated in the Wards of Zone 3, 4, and 5. The projects are also working to build the capacity of the local government staff and the local elected representatives. Furthermore, some of the projects are supporting the local government to activate and strengthen the standing committees.

Since multiple projects are working in common sectors, their incongruous delivery may confuse the Local Government if there's no coordinated approach followed for project delivery. While at least two projects are being implemented at each Ward. Six projects are running simultaneously at Wards 16, 17, and 31.

That means ward-level coordination is required among the projects to minimize duplication and maximize the beneficiary coverage within Wards. The spatial disparity is observed in the north-eastern part of DSCC. While some wards have multiple projects it is found certain areas such as Zone- 6, 8, 9 do not have any projects there which means a major part of the city corporation is being overlooked, as no donor-aided project is currently operational in this area.

DSCC had a comparatively low employment rate, but the situation got better when one of the largest urban poverty projects called Livelihoods Improvement of Urban Poor Communities Project (LIUPCP) started working on settlements living conditions, socio-economic and livelihood improvement including the training, workshops, campaigns, socioeconomic grants like- skills development, business start-up, education; awareness rising; linkage & advocacy; local economic development strategy; working on small scales to uplift the poverty conditions.

Some donor-aided projects are involved with infrastructural improvements, such as roads, footpaths, street lights, drainage, etc. Although DSCC offers a decent

footpath facility with a proper lighting system, the matter of concern is the poor drainage system because drainage is directly correlated with the longevity of roads, water supply, and sanitation. A significant repercussion of poor drainage systems is water-logging, which is a widely spread phenomenon in DSCC; the authority has identified over 50 water-logging prone areas, but there is no visible improvement because of lack of coordination among the implementing agencies.

To ensure inclusiveness in project delivery and to minimize redundancy of funding into similar projects, a Working Group on Project Coordination should be formed to maintain a concordant relation among the project authorities under the leadership of DSCC. One representative with decision-making authority from each project should be a member of this group. This group will oversee the management of the running projects, take discussions to incorporate future projects.

The DSCC authority should persuade all project stakeholders to develop a holistic spatial plan covering all Wards. This will make sure all project benefits can reach the maximum number of poor.

Also, the authority should take steps to scale up the projects which are currently running only in selective parts of the city. Special attention should be given to increase project activities in the Wards, where poverty is critical. Besides, the City Corporation should enable the decentralized and standing committees to actively contribute to their respective areas with the effective authority of decision making. Since there are many projects related to governance, the city corporation should harvest the benefit from these projects to build the capacity of these standing committees.

Moreover, the city corporation should act as a bridge to connect community-based organisations (CBOs) to other donor-led projects. These projects can be more participatory and inclusive and support the community organisations for self-sustaining to boost their capacity interventions. Specific policies need to be incorporated in the spatial plan to manage the influx of climate migrants. This phenomenon is expected to continue because of the country's vulnerability to climate change due to geographical disadvantages. ■

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“To ensure inclusiveness in project delivery and to minimize redundancy of funding into similar projects, a Working Group on Project Coordination should be formed”

Involving children in tackling climate change and environmental threats

CASES FROM THE DEVELOPING WORLD



PIXABAY

Fatema Akter, Savio Rousseau Rozario, Adeeba Nuraina Risha, Afsara Binte Mirza, and Ali Mohammad Rezaie

Children are at greater risk of injuries, death, displacement, loss of caregivers and post-traumatic stress due to climate change and environmental hazards. Climate change also threatens children's development through reduced access to food, water, health care and education; increased exposure to abuse and violence; and increased prevalence of vector-borne diseases and acute respiratory infections.

Despite being identified as one of the most vulnerable groups, very little is done to educate or involve children in the measures taken to counter the impact of climate change. In some cases, the children are left out, getting no help from the relief organizations. If the adaptation & mitigation action by children at the community level can be promoted it will increase the capacity building tools and information to enhance impact.

Children can act better when they are involved in the decision-making process, and truly understand the science and complexity of climate change. Institutional support, particularly with tools, knowledge and finance, are crucial to

translating children's ideas into actions. This article analyses cases from the developing world on how children can be involved in climate change adaptation and mitigation.

As per WHO fact sheet, 2021, drowning is the 3rd leading cause of unintentional injury death worldwide, accounting for 7% of all injury-related deaths. In Bangladesh, drowning accounts for 43% of all deaths in children aged 1-4.

Drowning risks increase with floods particularly in low and middle-income families where people live in flood-prone areas. The situation is more difficult for females who don't learn to swim and fall victim to such extreme events, often bound by social and cultural customs.

In July 2013, the government committed to ending preventable child deaths, including drowning of children

“ In Bangladesh, drowning accounts for 43% of all deaths in children aged 1-4 ”

of five, before 2035. In response to the high numbers of child drownings, the government made swimming lessons compulsory in primary schools in April 2015, awaiting implementation. Teaching children swimming and CPR can be implemented through targeted strategies, improved community infrastructure (water supply, bridges, embankments etc.) and driving public awareness. A community-based, supervised child swimming program for children can reduce drowning risk.

In India, the Hasmathpet Primary High School at Hyderabad city has had about 900 students, and the majority of them come from a poor economic background. In recent years, non-arid conditions and extreme heat wave events due to the rising temperature have become a regular phenomenon leading to various social challenges.

In the past the school had no facilities to provide safe drinking water to the children and the only water source was the government-owned water tankers (5000 litres capacity). However, the supply from the water tanker was often irregular and the storage was considered unsafe. Thus, the children had to carry water in bottles from their residence to quench their thirst for the entire day and the water bottles would hold insufficient amounts of water (0.5 litre).

The scarcity of pure drinking water and unsafe, contaminated water consumption made the children vulnerable to various diseases and affected their health. Therefore, SaciWaters with support from WaterAid installed LifeStraw water filters (2 units) at the school to ensure accessibility to safe drinking water for the children. After the installation of the filters, the consumption of water increased and enhanced the welling-health of the children.

A child-centered climate change adaptation project in the Philippines aimed to increase the resilience of vulnerable children, youth and their communities in forty Barangays (administrative divisions) and strengthen the evidence base for child-centred climate change adaptation that informs policy and practice.

Children involved in this project learned about the importance of protecting local ecosystems in their local disaster risk reduction group, protecting mangrove forests from being cut down for charcoal, and spearheading mangrove rehabilitation campaigns to restore their local ecosystems.

With support from Plan International, children's groups educated others on how to protect mangroves, held community meetings, formed teams to replant mangrove trees, used local media to raise awareness and distributed information, education and communication materials.

These activities not only informed the importance of natural resources to tackle the impacts of climate change but also allowed both the children and other members in the community to learn how to adapt.

In coastal areas, salinity intrusion problems are increasing every day due to climate change. It's challenging to find pure drinking water for the local communities. There were several initiatives, but they were not financially viable and were time-consuming.

A community school-based water testing program can be explored that will work towards identifying pure drinking water. In Tajikistan, a UNICEF-initiated school-based hygiene and sanitation project accomplished extensive, reliable water testing, led by children as researchers who sought to assess the quality of water at their schools and communities every week.

Within a short time, it was possible to generate a comprehensive map of the quality of water and sanitation in hundreds of schools and communities, an achievement that would have required considerable time and money if done through surveyors.

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The ‘Green School’ environmental project was introduced in 286 primary schools in Suriname in October 2013. The objective of this project was to enhance the capacity of the primary school children to safeguard the biodiversity (Tree plantation and gardening), and the environment (Waste management, Renewable energy usage, Recycling) through participatory measures and bring in behavioural change.

The interactive sessions included- environmental sports, the establishment of environmental brigades, creative thinking for doing it yourself activities etc. For the baseline study, 76 schools were monitored for 6 months. After the training period, the schools witnessed a significant improvement of 17%, 4%, 48%, and 69% increase in terms of school cleanliness, gardening, recycling, energy, and water-saving.

As illustrated in the cases, community, local and national level initiatives that involve children can build societal resilience and enhance environmental and economic benefits.

These initiatives should be taken on multiple forefronts such as knowledge, advocacy, policy and practice.

Finally, with the on-going pandemic and intensifying impacts of climate change, human health and environment are in dire need of protection. Thus, our collective efforts should focus on the present situation and invest in building the future generation who are well-informed and capable of tackling these intertwined threats. ■

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Scenario of GHG emission in Bangladesh

THOUGH BANGLADESH'S CONTRIBUTION TO THE GENERATION OF GREENHOUSE GAS EMISSIONS IS INSIGNIFICANT, BANGLADESH IS STILL TRYING TO MINIMIZE THE AMOUNT OF EMISSIONS NOW AND IN THE FUTURE, IN ADDITION TO INCREASING RESILIENCE TO THE EFFECTS OF CLIMATE CHANGE



PIXABAY

Rayha Afroza and Mahmuda Akter

According to the latest Intergovernmental Panel on Climate Change report globally and in every region, climate change is occurring. By the world's latest and most diligent scientific assessment of the physical basis of climate change, the report states change that are unparalleled in thousands if not hundreds of thousands of years.

It must happen immediately, as it highlights that there is still time to act. Restrictive climate change urges strong

and sustained reductions in greenhouse gas emissions from human activities such as burning fossil fuels (Action, 2021).

The increases in monsoon precipitation due to warming from GHG emissions were prevented by the reduction of rainfall due to cooling from human-caused aerosol emissions over the 20th century (high confidence) over South Asia, East Asia, and West Africa.

Since the 1950s human influence has probable increased the chances of compound extreme events including the increases in the frequency of simultaneous heat waves and droughts on the global scale (high confidence). Also, weather

of fire in some regions of all inhabited continents (medium confidence); and compound flooding in some locations (medium confidence) (IPCC, 2021)

There is a cumulative tendency of greenhouse gas (GHG) emissions worldwide in arrears to human activities that show a substantial increase in atmospheric concentrations of carbon dioxide (CO₂), methane (CH₄), nitrous oxide (N₂O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF₆). Carbon dioxide is the most foremost GHGs (greenhouse gases) which accounted for 77% of the total global GHG emissions were CH₄, N₂O and other gases contributed 14%, 8%, and 1% respectively. All countries in the world emit more or less GHGs into the atmosphere which causes climate change and global warming (Sarkar, et al., 2015).

“As Bangladesh industrializes and develops coal reserves, the country will pursue the transfer of state-of-the-art technologies from developed countries so that it makes sure of the country follows a low carbon growth track”

In Bangladesh, agriculture is the foremost contributor, with 39% of total emissions coming from the following agriculture sub-sector activities: paddy cultivation (32%), enteric fermentation (31%), manure left on pasture (12%), and the rest from five other sub-sectors.

The Energy sector is the second-highest emitter, and there are also energy sub-sectors as follows: heat production and electricity (46%), other fuel combustion (21%), construction and manufacturing (20%), and transportation (14%). Land-use change and forestry (LUCF) and Waste represent the third and fourth highest emitters, accounting for 31% and 18%, respectively (Sarkar, et al., 2015).

Though Bangladesh's contribution to the generation of

greenhouse gas emissions is insignificant, Bangladesh is still trying to minimize the amount of emissions now and in the future, in addition to increasing resilience to the effects of climate change.

Bangladesh is encouraging more energy and cost efficiency in the development and utilization of conventional energy. Importance is also given to the development of renewable energy, especially solar homes, and biogas plants so that emissions are as minor as possible without exposing the excess to energy.

As Bangladesh industrializes and develops coal reserves, the country will pursue the transfer of state-of-the-art technologies from developed countries so that it makes sure of the country follows a low carbon growth track.

Moreover, as part of the roadmap for NDC implementation, the power, industry and transport sectors have been considered to provide GHG emission reduction required to meet the overall GHG reduction targets. The other mechanism is REDD which is reducing emissions from Deforestation and Forestry.

Presently, Bangladesh has two Clean Development Mechanism (CDM) projects concerned with solar energy and waste management (BCCSAP, 2009). According the World Bank data, the CO₂ emissions (metric tons per capita) is 0.5 and this is the most recent value (Washington, 2020).

It's been obvious that the government of Bangladesh, with the support of global partners, has already initiated some plans, programmes, and activities to address mitigation and adaptation approaches to climate change.

Moreover, in the Nationally Determined Contribution (NDC) 2015, Bangladesh pledged to reduce unconditional emissions from various non-agricultural sectors including power, transport and industry, by 5% and conditionally by 15% of total emissions from business-as-usual level by 2030 (Begum, et al, 2019).

Bangladesh has also prepared a Roadmap and Action Plan for Implementing Bangladesh NDC to manage growing emissions without compromising the required developments and to allow Bangladesh to play its role in global efforts to limit temperature rise to two degrees or preferably 1.5 degrees above pre-industrial level.

Nevertheless, there is still need some concrete strategies and actions to reduce CO₂ emissions in power generation, manufacturing, transportation, residential and other sectors. Therefore, mitigation preferences are important to reduce GHG emissions that can stimulate sustainable use, reduce global warming as well as environmental sustainability. ■

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