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| Climate Tribune



**SALT WATER
WARNINGS** > Pg10

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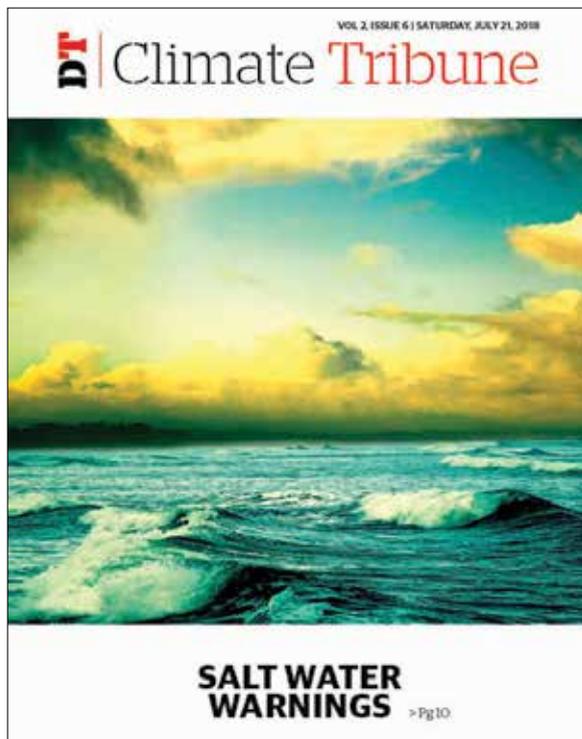
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There's a storm coming, and we're already feeling it.

While world leaders quibble about the implementation and funding of widespread green policies, countries most vulnerable to climate change are already experiencing its effects.

Here in Bangladesh, the south west regions of this deltaic country are already reeling from the effects of the seawater rise. The increased salinity of the waters is affecting everything from agricultural practices to maternal health. The future is looking salty, and that's not a good thing.

This issue of Climate Tribune discusses the challenge of regional cooperation on the matter of controlling emissions (still the biggest contributor to climate change), and then takes us on a saltwater expedition to the south west regions of Bangladesh to give us a close look at the palpable effects of the hungry tides. ■

THE HUNGRY TIDES IN GABURA

A SOCIOLOGIST-TO-BE INVESTIGATES SALINITY ISSUES IN GABURA



Travelling by motorbike to my field site

RAKA SEN

Raka Sen

After being called Piya enough times, I decided to pick up a copy of *The Hungry Tide* by Amitav Ghosh. Like Piya, the protagonist, I am an American of Bengali descent studying the Sundarbans. Unlike Piya, I am a proud Bengali speaker, though my accent betrays my *bideshi* roots. While reading, I was surprised to find that what stood out to me the most was not the Raka-Piya parallels, but instead Ghosh's portrayal of the Sundarbans:

“Staring at it now, she was struck by the way greenery worked to confound the eye. It was not just that it was a barrier, like a screen or a wall: It seemed to trick the human gaze in the manner of a cleverly drawn optical illusion. There was such a profusion of shapes, forms, hues, and textures, that even things that were in plain view seemed to disappear, vanishing into the tangle of lines like the hidden objects in children’s puzzles.” - the Hungry Tide (Ghosh, 125)

Being the sociologist-in-training that I am, I perceived echoes of Ghosh's words everywhere I looked, noting parallels between the Sundarbans' natural illusions and the illusory nature of the people who live within it.

Notes from the Field (July, 2018)

We stopped abruptly in front of a semi-stable wooden treehouse perched upon slender stilts atop a small canal, rather than a traditional tree for stability. People were yelling "*Bideshi eshe gatche!*" -- the foreigners are here! I reflected on my own upbringing in the United States, my *jonmosthan*, which is a 24-hour flight (layover somewhere in the Middle East), 4 hour drive, 30 minute boat ride, and a 20 minute motorcycle ride away from Gabura Upazila in Shyamnagar, Bangladesh where I now found myself. I quickly hopped off the motorbike and was directed towards the treehouse. I was wary of entering, as doing so meant balancing on a thin plank that was sure to give out beneath my newly formed *bhat* (rice) belly that was currently concealed beneath my freshly-purchased maternity clothes from Aarong. Almost instantaneously, the empty treehouse, a makeshift meeting room for the villagers of Gabura, was teeming with people staring at me with an intensified curiosity. As I contemplated confessing that I, too, like my sugar with a tiny bit of tea in it to establish a connection, I realized that one of the things I haven't yet learned after my first year of graduate school is whether to embrace being an outsider or attempt to blend in. I'm early enough in my PhD in sociology at the University of Pennsylvania that I have yet to outgrow my Britney-Spears-not-a-girl-not-yet-a-sociologist complex.

Before starting my PhD, I spent two years working at Rebuild by Design -- a design competition to make the northeast

United States more resilient after Hurricane Sandy devastated New York, New Jersey, and Connecticut in late 2012. In that time I had many conversations with community members about climate change and resilience issues, but I had a feeling that none of those skills would help here. Using the lens of climate justice and gender and development inequalities, my research focuses on addressing the question of how the disaster changed gender relations in the disaster-prone Sundarban region of India and Bangladesh by forcing a shift from agriculture to more informal work in cities for the men of the region. The methodology for selecting this site was simple: I chose one of the most vulnerable areas in one of the most vulnerable regions. Gabura was just the beginning.

Within five minutes of our arrival, a group of village women, realizing that the treehouse was too loud for my interviews, whisked me away to a neighbouring home, made of mud and wooden ornamentation. The women placed chairs on the square foot of mud that comprised the front porch area and we sat before a smaller, more intimate crowd. While I had a plastic chair, the women themselves all sat on the surrounding ground as if to acknowledge a hierarchy between us. I quickly removed the chair and sat down with the others, beginning the interview with questions about whether all the houses looked the same and whether they were comfortable. The first woman I interviewed fanned me with a slab of styrofoam as we chatted. We soon moved on to their personal backgrounds: Whether they were married, what type of work their family did, their age, the age of their children. Each interview slowly moved towards questions about the women's experiences and recollections of the Cyclone Aila that had devastated Gabura.



Concrete embankments are built to keep high tide out of the in-land
RAKA SEN

DISPATCHES FROM THE FIELD

Gabura, like most of the islands of the Sundarbans, is protected by a berm of elevated land around the edge, or a *bandh*, in Bangla. During Aila, this *bandh* was completely destroyed, and it took the *gramer lok* (village people) about 9 months to fix it. Meanwhile each house in Gabura would flood again twice a day during high tide. I was shocked by the timing; in New York, borders would be repaired in weeks, not months. Time itself in Gabura was marked by the pre-Aila golden age of “*mishti pani*” (translates to sweet-water but means fresh-water) and the post-Aila “*lobon pani*” (salt-water). It has been more than 9 years and Gabura has not recovered.

In *The Hungry Tide*, Ghosh discusses time in the Sundarbans as one of the forest’s many illusions:

“The tide country’s jungle was an emptiness, where time stood still. I saw now that this was an illusion, that exactly the opposite was true. What was happening here, I realized, was that the wheel of time was spinning too fast to be seen. In other places it took decades, even centuries, for a river to change course; it took an epoch for an island to appear. But here in the tide country, transformation is the rule of life: Rivers stray from week to week, and islands are made and unmade in days. In other places forests take centuries, even millennia, to regenerate; but mangroves can recolonize a denuded island in 10 to 15 years. Could it be that the very rhythms of the earth were quickened here so that they unfolded at an accelerated pace?” (Ghosh, 168).

Ghosh’s words put me on the lookout for remnants of these super-speed changes in the surrounding landscape. The lives of the people had slowed almost to a halt after the rebuilding of the *bandh* and their homes had been completed. The salinity has rendered both the land and water unusable. Traces of Aila were everywhere. One home had a beautifully carved wooden shelving unit in the kitchen, but the missing glass was a constant reminder of what once was.

Pre-Aila Gabura was a land of plenty, where the people, though remote, lived off the land, growing and catching their own food. Aila robbed Gabura of the ability to do this. It had simultaneously slowed time in Gabura while rushing its people into super speed: They now needed to add new tasks such as fetching water from 3 kilometers away, finding work outside of the island (with the associated commute), and tirelessly shaping their newly salty lives to resemble their previously *mishti* ones.

What struck me most during these interviews was the sheer will to survive in the face of crippling adversity -- this, I think, is the biggest illusion of all: That such a beautiful place could mask so much suffering, which is in turn connected to

a deep sense of community. I say this not to romanticize poverty, but to emphasize that life in Gabura is so much work that one must make a daily commitment to living. One interviewee referred to her life in Gabura as “*shob shomay ashanti*” -- always without peace. The only peace to be found, according to her, was in being surrounded by her family and suffering together. It was utterly impossible to interview just one person: Every question was met with a chorus of responses, to the chagrin of my transcriber. The women of Gabura’s voices are collective, as are their thoughts. Deeply personal questions were answered by the people around the interviewee, seemingly to spare the affected party. At one point, I asked them how often they think about leaving. The women replied that they discuss it often, but they have nowhere to go. This is their *jonmosthan* and they are stuck here.

For me, Gabura is a paradox. Time seems to stand still while moving at lightspeed. A place of many illusions, yet one thing remains clear. Gabura and its people agree that it is becoming increasingly unlivable. As I continue my research and learn more about the social changes caused by climate change, Gabura will always be the first people who bring the words off the page and into reality: A place of deep suffering and beauty, a place of peace and no peace at all. ■

Raka Sen is a doctoral student at the University of Pennsylvania studying the sociology of climate change, development, and disasters



Gabura is a small coastal village still devastated by the impacts of cyclone Aila in 2009
RAKA SEN

A MEDITATION OF SOCIETY AND CLIMATE CHANGE



Indian-author Amitav Ghosh asks why so few novels deal with the greatest crisis this planet is facing -- climate change

Jebi Rahman

If the Paris Agreement represents humanity's best plan to fight climate change, then Amitav Ghosh's book is a meditation on what this actually entails. Published in 2016, the same year the Paris Agreement went into force, "The Great Derangement: Climate Change and the Unthinkable" analyzes climate change from a cultural, historic and politics lens.

While Ghosh divides his non-fiction book into three sections -- stories, history, and politics -- the common theme woven throughout is an attempt to answer this question: Why has it been so challenging for modern society to truly grasp the significance of climate change?

Born in Calcutta, Ghosh describes his ancestors as "ecological refugees long before the term was invented." His family lived on the shores of the mighty Padma River, in a village in what is now Bangladesh; yet they were forced to move from the mid-1850s onwards when the great river changed course, drowning their home.

Stories

In the first section, "Stories," Ghosh reflects on the challeng-

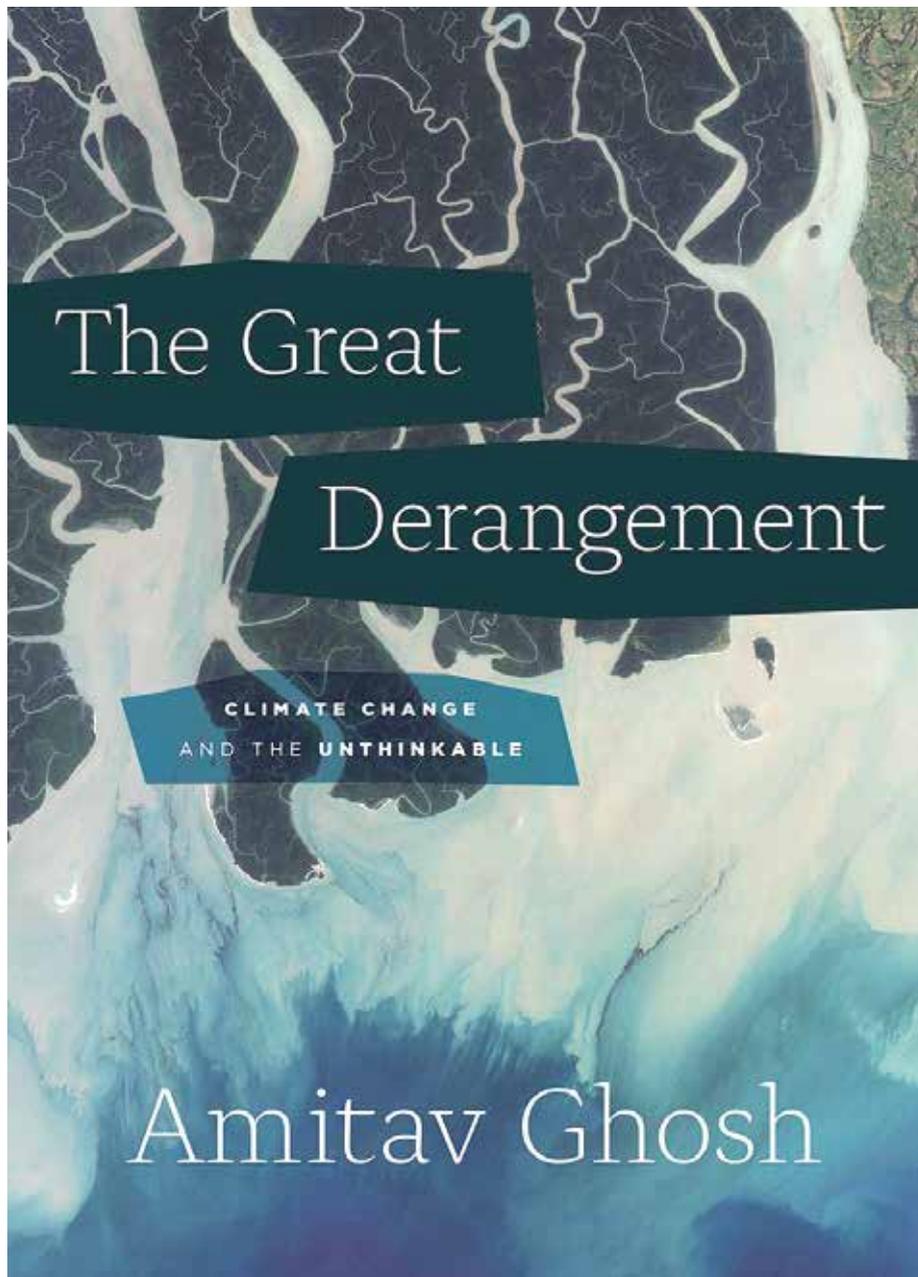
es of writing about climate change within the current literary forms and conventions of the novel, particularly in the realms of serious fiction.

The setting of the realist novel is bound by a limited sense of place and time, in contrast to global warming, which transcends nation states, and is "ultimately the product of the totality of human actions over time." There is no space for the improbable, as Ghosh finds out after experiencing a freak weather event in Delhi in 1978, where 30 people were killed and a further 700 injured, and he is yet to find a way to include it in his fictional works

This omission is what Ghosh describes as the "Great Derangement," when future generations look back at the art and literature of our time for signs of the altered world that they have inherited, they will find in its place a culture of concealment that prevented people from recognizing the realities of their plight.

A deeper reading reveals Ghosh's criticism of colonialism, and he suggests that the rise of realism in fiction in the 18th century coincides with the accumulation of anthropogenic carbon emissions in the atmosphere during the Industrial Revolution.

BOOK REVIEW



Ghosh meditates on society and climate change

What emerges is an almost arrogant or insular literary form, a dichotomy between the novel's perceived role as an individual moral adventure versus "men in the aggregate," that is, the individual versus the collective, isolation versus multilateralism, winners versus losers, culture versus nature; where the social concern, or the environment, in its nonhuman form, has no place in serious fiction, but is relegated to science fiction (and climate fiction, or cli-fi) and fantasies about an imagined future, but not the recent past, or more importantly, the present.

While the modern novel emancipates the protagonist, it adds fuel to the fire of climate deniers and oil and coal com-

panies by serving to divide, rather than unite us. In a world signed up to the 2030 Agenda for Sustainable Development, the novel, by Ghosh's reasoning, leaves the majority of people behind.

History

In "History," Ghosh takes to task the Eurocentric promotion of a singular modernity, and focuses on the case for Asia's centrality to the climate crisis.

Given the current humanitarian crisis on Bangladesh's doorstep, it is intriguing to reflect that the history of Burma's oil industry goes back possibly a millennium or more,

and was quite likely the largest in the world, until the British took control in 1885, and ran the mega-corporation known as Burmah-Shell until the 1960s. China and India, which jointly represent approximately 37% of the world's population, similarly have a long history of using fossil fuels, although most historians indicate 1859 Pennsylvania as the start of the modern oil industry.

Both these Asian nations are now often blamed for exacerbating the climate crisis, but Ghosh argues that the “empirical test,” for example, Britain preventing its colony India in the 19th century from developing its own coal-based energy system, revealed that not everyone on our finite planet can adopt a “modern” or ‘developed’ lifestyle: “Every family in the world cannot have two cars, a washing machine, and a refrigerator -- not because of technical or economical limitations but because humanity would asphyxiate in the process.” To believe otherwise, Ghosh posits, is the essence of humanity's present derangement.

Politics

Ghosh's final essay, “Politics,” circles back to the first, highlighting that climate change poses a serious threat to “the idea of freedom,” which is key to contemporary politics, and also the humanities, arts, and literature. Similar to “Stories,” we see that politics has become less about collective decision making, and more about questions of identity -- religion, caste, ethnicity, language, gender rights, and so on. The essay is rich in its ideas and examples, and merits further reading, and in it we come to the crux of Ghosh's position, that, “The distribution of power in the world [therefore] lies at the core of the climate crisis.” Ghosh goes beyond those that view capitalism as the main challenge to alternative economic pathways, to emphasizing the influence of empire and its disparities, and the importance of political and military dominance by those in power in maintaining the status quo.

Discussion

While Ghosh does well to lay out in detail the cultural challenges of climate change, he does little to offer solutions to this “wicked problem.” One glimmer of hope he provides is the increasing involvement of religious groups and leaders in the politics of global warming, arguing that a large number of people can be mobilized, and that religion transcends national boundaries. However, this conclusion seems hasty and ill-thought through, as it plays into the identity politics that Ghosh has so far accused literature and politics of being blind sighted by. Furthermore, if climate change is seen as the biggest long-term threat to the powers that be, and the surveillance of environmentalists and climate activists is a top priority by intelligence services, in a post-9/11 world, protestors with a religious affiliation will be doubly targeted.

By highlighting the emergence of multiple modernities in “History” and essentially implicating us all, Ghosh seems to

“ The essay seems to end on a positive note, proposing that this will allow the act of reading to change again, as it has many times before ”

throw off kilter the principle of “common but differentiated responsibilities,” which in climate negotiations has allowed many developing countries to argue that their lack of historical responsibility for climate change means that they should have different obligations with respect to responding to the crisis than those of developed countries. This principle remains fully enshrined within the Paris Agreement, albeit adjusted by the addition of “in the light of different national circumstances,” which now implies larger developing countries such as India and China. On the other hand, small, low-lying developing countries, such as Bangladesh, depend on this principle to remain intact, and the financial flows, new technology and enhanced capacity building frameworks it brings, in order to adapt to rising sea levels.

At the close of “Stories,” Ghosh very briefly indicates how the shift from print technology, which served to block images from readers for text only, to the internet, where we are back to more visual forms of communication, could lead to new hybrid forms of storytelling that are taken seriously. The essay seems to end on a positive note, proposing that this will allow the act of reading to change again, as it has many times before. Nonetheless, like his conclusion in ‘Politics’, this is abrupt and does not consider how these new hybrid forms might avoid being judged in the same way as science or climate fiction that have tried to raise the alarm on global warming for a number of years in the post-colonial, Great Acceleration period. Ghosh knows well that time is not on our side; however, the urgency of the unthinkable means that leaders and politicians will not be the only ones to blame for failing to address the climate crisis. Artists and writers might be equally culpable, as Ghosh makes clear that increasingly, they -- himself included -- have the important task for the survival of our common home, which is, “the imagining of possibilities.” ■

Jebi Rahman is an international and sustainable development consultant, currently based in the mega-city of Dhaka. For the past decade, she has worked on issues of poverty alleviation, quality education, climate change, gender equality, and leadership

MATERNAL HEALTH



SALT WATER WARNINGS

BANGLADESH SEES 27.77% RISE OF PRE-ECLAMPSIA
CASES SINCE 2012



Abu Siddique

Nine-months-pregnant, on May 18 this year, 22-year-old Rekha Begum was brought to Dacope Upazila Sadar Hospital with trouble breathing.

“I could not even breathe let alone speak and I was panicking. So my mother brought me here,” the resident of Gourdas Kathi village in Bagerhat’s Rampal Upazila told the Dhaka Tribune.

“This is my second pregnancy and I did not feel this way when I had my first child five years back.”

“When salinity is at its highest, during the dry season (November to May), more pre-eclampsia patients are admitted to hospital”

Dr Md Mozaammel Haque Nizami, Dacope’s medical and family planning officer, explains that Rekha was suffering from gestational hypertension. He attributes it to increased levels of sodium chloride (salt) in drinking water in the coastal region.

“Although it is not uncommon during pregnancy, what is alarming is that the frequency of such cases is on the rise,” added the doctor who runs the government hospital.

Gestational hypertension causes pregnant mothers to suffer from very high blood pressure and poses the risk of maternal death and stillbirth—according to the doctors at the Sadar Upazila hospital.

Like Rekha, many other women have been admitted to the hospital in last few years with similar symptoms. Between 2011 and 2014, the hospital’s records show a 36.9% rise in cases of pregnant women with hypertension.

Dr Sontosh Kumar Mojumder, the hospital’s gynaecology consultant, points out that many of the cases in recent years have transgressed the category of chronic and gestational hypertension and falls into that of pre-eclampsia, where patients endure high blood pressures alongside excessive muscle spasms.

The frequency of such cases has spiked 27.77% between 2012 and 2017 according to the hospital’s records.

Sontosh links the hikes in these cases to increased salinity of the coastal belt because, when salinity is at its highest, during the dry season (November to May), more pre-eclampsia patients are admitted to hospital.

Additionally, Research examining the correlation between drinking water salinity and maternal health in Bangladesh, by London Imperial College and the Bangladesh Center for Advanced Studies, in 2008, found that the frequency of pre-eclampsia and gestational hypertension were higher in coastal areas when compared to non-coastal areas.

The study titled ‘Drinking Water Salinity and Maternal Health in Coastal Bangladesh: Implications of Climate Change’ also found that frequencies of these medical conditions hike during dry season.

MATERNAL HEALTH



The salt predicament

Bangladesh's coastal population, comprising of approximately 40 million people, relies heavily on natural water sources like ponds, rivers and tube-wells to obtain drinking water.

However, seawater intrusion caused by environmental change, and man-made factors (including poor water management and shrimp farming) have severely salinated these sources—as found by a government study conducted in the coastal region.

Bangladesh's Department of Public Health and Engineering (DPHE) determined that the salinity of groundwater in most areas in the coastal districts is several levels above the acceptable drinkable level—also when measured against amounts established by the World Health Organisation.

The study found that in most coastal areas, the level of salinity (chloride count) in the main or second aquifer ranges from 103 to 12433 milligram/litre during the dry months and 34 to 11366 milligram/litre in the rainy season.

In both cases, the extremes are far above the prescribed 300 milligram/litre for fresh water and drinkable range of 300-600 milligram/litre.

Meanwhile, the 5th Assessment report of Inter-governmental Panel on Climate Change (IPCC) places Bangladesh at a specific risk from climate change because of its exposure to sea-level rise and extreme events like: salinity intrusion, drought, erratic rainfall and tidal surge.

Already, salinity has encroached on areas more than 100km inland from the Bay of Bengal, and the impacts are projected to be exacerbated by sea level rise caused by climate change—This jeopardises the country's food supply, endangers public

health and minimizes any security for livelihoods.

A study by Centre for Environmental and Geographical Information Service (CEGIS), a subsidiary of Bangladesh's water resources ministry, measured the average extent of seawater intrusion in Bangladesh's coastal area, and classified it into Three sections.

The study titled, "Assessment of Sea Level Rise and Vulnerability in the Coastal Zone of Bangladesh through Trend Analysis," which is based on 30 years of data, found that on average, seawater intrusion in the Ganges tidal floodplain is 7-8mm per year; in the Meghna estuarine floodplain, it is 6-9mm per year; and the Chittagong coastal plain 11-20mm per year.

“ Bangladesh's Department of Public Health and Engineering (DPHE) determined that the salinity of groundwater in most areas in the coastal districts is several levels above the acceptable drinkable level ”

The poor pay more

While rich and urban people spend more for food, housing, water, and sanitation than those living in marginalised areas, the scenario is different in Bangladesh's coastal belt.

Food, housing and sanitation are costlier in cities, but coastal area residents have to expend far more for water due to the salinity problem.

Those living in Dhaka, the capital, pay Tk8.49 for a 1000-litre unit of water for household use from Water Supply and Sewerage Authority. Those living in Khulna, a city on the coastal belt, gets it for nearly half that price, Tk 4.50.

But his is as far as the logic extends. Unfortunately, the situation across 19 coastal districts further south, towards the coast, which have been crippled by increased salinity, is completely different.

Even those living just 20 kilometres from Khulna have to pay at the rate of Tk 10 for 20 litres of desalinated water.

So for a 1000-litre unit, the people living in the coastal regions would have to pay Tk500, roughly 100 times more than what residents of the nearest city corporation, Khulna, pay.

Sacrificing well-being

Due to high costs, residents in the coastal region try to harvest rainwater to meet their needs during the three to four month monsoon.

“During monsoon, we collect rainwater in our own harvesting pots for drinking” said Taposhi Gayen, a resident of Dacope's Saheber Abad village. “The rest of the months, we have to buy our drinking water.”

On average, the rates charged by both private and public providers are similar, Tk0.50 per litre.

“So, we try to use water from the ponds or rivers for washing, cooking and bathing -- as using desalinated water would be impossible to afford,” added Taposhi.

“ So for a 1000-litre unit, the people living in the coastal regions would have to pay Tk500, roughly 100 times more than what residents of the nearest city corporation, Khulna, pay ”

Incidentally, the salinity-affected districts fall mostly under the Barishal and Khulna divisions -- both of which recorded a monthly household income below the national average during a survey conducted by the Bangladesh government in 2010.

The Bangladesh Bureau of Statistics said in the report titled “Household Income and Expenditure Survey 2010,” that the national average income stood at Tk 11,479—while Barishal's was Tk 9,158 and Khulna's was Tk 9,569.

Mira Gain, a 45-year-old mother of three, buys drinking water for her family from a saline water treatment plant of the local union parishad complex in Dacope.

The five-member family can only afford Tk300 per month for drinking water, which, at the standard rates, gets them 600 litres. Each member must sustain themselves on just four litres of desalinated water per day.

“Thus, they try to make up the shortage by using saline water for cooking and other purposes, which ends up having severe health impacts on the long run,” hydrologist Prof Ainun Nishat said. ■



8 TAKEAWAYS FROM THE GREEN CLIMATE FUND MELTDOWN



The latest meeting of the Green Climate Fund Board occurred in Songdo, South Korea early July

Megan Darby

Longstanding tensions at the Green Climate Fund came to a head in Songdo, South Korea, as it opened talks on raising a new round of contributions.

On top of that, the head of the secretariat abruptly resigned, adding top level recruitment to the fund's woes.

As the dust settled, Climate Home News spoke to several participants and observers about what went wrong, the fall-out and next steps. Here are eight takeaways.

1. Absent Oquist

The meeting got off to a bad start when the Nicaraguan co-chair failed to show up. Okay, so things were pretty bad back home, with anti-government protests turning violent.

But it was ironic, given Paul Oquist had done a major U-turn to get the job. He notoriously refused to endorse the Paris Agreement in 2015, saying it was too weak. Nicaragua only joined last year when it became apparent Oquist otherwise had no chance at leading the GCF board.

In his absence, developing country board members complained they had not been properly consulted on the agenda, kicking off a protracted procedural dispute.

2. Trump towers

After president Donald Trump made clear he had no plans to put any more money into the GCF, you may wonder why the US still has a seat on the board.

Well, the country has already handed over \$1 billion and Geoffrey Okamoto is the Trump appointee charged with seeing it is spent wisely. But he can afford to be provocative, having no stake in the fund's sustainability.

His insistence that the replenishment process should be "donor-driven" did not go down well, on a board deliberately structured to give the developing world an equal say. Nor did his lobbying to end talks on time, while others were trying to salvage some agreement.

3. Fundraising

If there was any doubt on where the talks got stuck, a glance

“ The GCF is not expected to deliver all that investment, but is a totem of international cooperation. If it breaks down, it bodes poorly for the Paris Agreement ”

at the video page should dispel it. There are no fewer than six sessions recorded on “matters related to replenishment,” spanning more than 24 hours.

At heart, it is a rich-poor fight of the kind familiar to anyone who follows UN climate negotiations. Donor countries try to attach conditions to funding, while beneficiaries demand they quit stalling and deliver.

In previous meetings, the board has tended to push through some headline outcomes -- usually project approvals -- at the last minute, while deferring contentious policy decisions. This time round, representatives from Canada and Finland as well as the US were not prepared to just muddle through.

4. Performance review

Before it can raise new money, the fund will need to show donors what it has done with the initial round of contributions. This and other preparatory work is expected to take six months or so.

“If there is one thing we need to decide this time, it is to start a review, because that is a precondition to replenishment processes,” said Germany’s Karsten Sach in the meeting.

The problem was in deciding who should carry out the review. Most saw it as the natural remit of the fund’s independent evaluator Jyotsna Puri, but a handful of developing countries wanted to outsource it. So here too, there was no agreement.

5. Bamsey bails

After a weary-looking chair admitted defeat on replenishment, he dropped a bombshell: The fund’s top executive Howard Bamsey resigned with immediate effect.

Nobody blamed Bamsey for the chaos, which was essen-

tially political, or cast doubt on his explanation the move was for “pressing personal reasons.” The Songdo-based role had kept him away from his family in Australia. (He could not be reached for further comment).

But the timing took some -- including the secretariat’s communications team -- by surprise. He had been expected to oversee the replenishment process before leaving. His replacement must take on the heavy lift of fundraising and resolving a backlog of governance issues, while navigating the heated boardroom politics.

6. Projects in limbo

The collapse means a three-month delay for 11 projects bidding for nearly \$1 billion of GCF money. Solar panels in Tonga, water management in the Guatemalan highlands, and climate finance upscaling across 17 countries are some of the interventions that will just have to wait.

“The people and communities the GCF is meant to support -- those who are most vulnerable -- are the ones who suffer the most when progress is delayed,” said Action Aid’s Brandon Wu.

It does nothing to help the fund’s reputation for being slow to get money moving. Then again, with a cash crunch looming, the fund cannot afford to make cavalier spending decisions.

7. Political fallout

It comes in a critical year for the UN climate process. Ministers are due to take stock of global action at the Cop24 negotiations in Katowice, Poland this December.

Climate finance is a key part of that. The industrialized world has promised to mobilize \$100 billion a year by 2020. Many countries’ climate plans hinge on that support.

The GCF is not expected to deliver all that investment, but is a totem of international cooperation. If it breaks down, it bodes poorly for the Paris Agreement.

8. Optimism

Despite the public meltdown, everyone CHN contacted was hopeful of getting things back on track. There is time for the fund to redeem itself before Cop24, at the next board meeting in October. Behind the scenes, its advocates will knock some heads together in the coming months.

While finance people may be horrified at the inefficiency and game-playing, those coming from a climate negotiations background see the occasional political upset as par for the course.

“Anything about new money is always very thorny,” said Meena Raman of the Third World Network. “I don’t think we have given up on [the GCF] and I don’t think anyone should.”■

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THE GROUND BENEATH HER FEET

UNDERSTANDING DEPRESSION AMONG WOMEN IN DISASTER PRONE AREAS



The trauma of losing one's home is unparalleled

JOSHUA EARLE

Zinat Papia

When it comes to a natural disaster, the loss of property and livelihood are ultimately monetary issues that can be overcome. But how do you deal with the trauma that often comes in response to experiencing such world altering events? Such impacts cannot be dealt with solely with money.

While previous studies have examined the health impacts of cyclones and other natural disasters in Bangladesh, very few studies have looked into people's state of mental health. Fewer still have investigated depression many people face after experiencing such a cyclone.

Although it remains at taboo in Bangladeshi society -- according to the American Psychiatric Association -- depression is a seriously illness that "negatively affects how you feel, the way you think, and how you act."

“Very few studies have looked into people's state of mental health”

The World Health Organization reports that more than 300 million people of all ages suffer from depression and that it can cause or emerge from a plethora of physical illnesses. Moreover, more women globally suffer from depression than men.

Increasingly, studies show that changes in the climate and the subsequent disruption to social, economic, and environmental determinants of health may result in increased depression and other psychological problems.

To understand the relationship women have with depression in coastal Bangladesh, I decided to write my Master's thesis on the experiences of women living in Dalbanga South, a village in coastal Bangladesh in Barisal Division.

Dalbanga South village is situated in between two rivers, Biskkhali and Paira. Normally during the monsoon, the village is struck by tropical cyclones. There are about 200 families living in the village: 60% of them is male and 40% is female. Occupations vary, although most are farmers, fishers, day labourers, carpenters, and shopkeepers.

Meteorological records show that Dalbanga faces floods, cyclone, storm surges, and river erosion almost every year. For example, both cyclone Sidr in 2007 and cyclone Aila in 2009 as well as cyclone Mora in 2017 directly or indirectly hit the village.

To conduct the study, face-to-face interviews were used using the Patient Health Questionnaire (specifically PHQ-9) developed by an American pharmaceutical conglomerate, Pfizer Inc. Respondents with a score between 0-9 were categorized as having no depression and respondents scoring 10 and above were categorized as depressed.

Depression tends to significantly affect younger women, when other factors such as education, numbers of children, employment, etc. are controlled. My findings showed similar results with the prevalence of depression being highest among the young age group of women, much higher than

women from other age groups.

Women who reported to have not been working were found to be more depressed (84%) compared to those working (58%). Reasons for not working include a lack of employment opportunities, injuries they may have suffered, social obligations to take care of family in their households, or due to the underlying depression itself.

One of my respondents explained how she obtained a skin disease after being affected by water brought in-land by cyclone Sidr. She finally went to the Barguna Sardar Hospital when she realized that the skin disease was not going away. While she did not feel like she had a happy life before the cyclone, it was much worse after. For the last 10 years, she has suffered from not only this skin disease, but from depression, and is no longer productive. She tried everything she could to recover, but nothing worked including placing coal tar on her skin. She ended by confiding she did not want to have this disease until the day she died.

Similarly, another respondent from the village is the only the woman there who earns Tk10,000 a month from offering private tuition. However, even she does not want to stay in the village much longer, even though this is where she is from. She is attempting to save enough money so that she will be able to move. When asked why, she responds she cannot sleep anymore on rainy night. On rainy nights, she has flashbacks to cyclone Sidr and wants to escape.

Depression rates among women living in disaster prone areas are very high and different from the national prevalence rates. Special attention should be given to younger women living in disaster prone areas. As such, disaster risk reductions efforts should not only account for the physical damages caused by natural disasters, but also from the psychological damages. ■

Zinat Papia is a research officer at ICCCAD.



SHEKHOR MONDAL

SALINITY INTRUSION



Shrimp farms have rendered large regions in southwest Bangladesh saline

SALT ATTACK

UNDERSTANDING BANGLADESH'S MOST COMPLEX ENVIRONMENTAL AND MAN-MADE PROBLEM



MERAZ MOSTAFA

Meraz Mostafa

Most filmmakers that come to document climate change in Bangladesh include a segment on salinity intrusion in southwest Bangladesh. While is salinity intrusion is predicted to be amplified by the sea level rise, there is in fact numerous other contributing factors.

The first of which is tidal surges which occur in the aftermath of cyclones, which scientists predict will become more intense due to climate change. Although cyclone Aila was not a very categorically intense cyclone, the devastating effects

of its tidal surge have remained with many villages still struggling with the contamination from sea-water.

Second, there are regions in southwestern Bangladesh that are naturally more saline than others. For instance, rivers at times have been cut off from up stream flow resulting in an increase of salinization as shown by experts.

This leads to the third point, the Farakka Barrage opened in 1972 in West Bengal, which restricts the natural flow of freshwater from the Himalayas into Bangladesh during the monsoon season. With less freshwater (or *mishti pani*) arriving from upstream, more saline water from the Bay of Bengal intrudes into the Bengal river delta as a consequence.

Another reason saline water from the bay intrudes into Bangladesh is due to the construction of the polders. In the 1950s and 1960s, Dutch and American engineers attempted to “stabilize” land in Khulna Division by construction of what are now 139 polders. Polders are essentially islands protected from riverbank erosion through the construction of embankments on all sides. Unfortunately, one negative ramification of the construction of polders was that tidal flow could no longer disperse along the shore naturally due to the blockage of the embankments. As such, the tidal flow squeezed into tighter channels in-between the polders, and pushed deeper into the Bengal delta.

The final reason for the salinity intrusion witnessed in the region was the construction of shrimp farms from the 1980s on-wards. Originally funded by the World Bank and other aid organizations, shrimp farming massively transformed the southwest region of Bangladesh from primarily sustaining on rice paddy agriculture into shrimp aquaculture. Aside from the many complications this invoked, one significant one was as increase in soil salinity levels, meaning that nearby agricultural land was no longer cultivable.

These factors more or less combine to lead us to the present-day situation. Often described as one of the regions most vulnerable to climate change in the world, the regions vulnerability actually arises from a range of interconnected factors; and it is in this frame that adaptation projects should be proposed.

The question remains on whether or not the southwest region is salvagable from salinity intrusion; or does climate change make it an inevitable doom? The following two case studies examine alternative developments in the region which allowed for non-saline landscapes.

Polder 22: A story of resistance

The story of Polder 22 is unique in the history of southwest Bangladesh. Unlike other polders in the region, the people of Polder 22 were able to witness the negative consequences shrimp farming would have on their communities and decided to resist, successfully. Unfortunately, activist-leader Karunamoyee Sardar was killed during the protests and there stands today a memorial erected for her valiant efforts.

SALINITY INTRUSION



Polder 22 remains lush green, having been able to resist shrimp farms

MERAZ MOSTAFA

As Kasia Paprocki and Jason Cons report in their article “Life in a shrimp zone: Aqua- and other cultures of Bangladesh’s coastal landscape,” the difference between Polder 22 and the surrounding polders is stark. While Polder 22 is lush green with intensive on-going agriculture, the surrounding polders are grey with little growing in the soils.

Furthermore, when cyclone Aila struck in 2009, the people of Polder 22 reported that they experienced little to no salinity intrusion from tidal water. The reason being that, since they do not have shrimp farms, they do not have sluice gates; and ill-maintained sluice gates played a major role in the tidal surges intruding in the surrounding areas.

Polder 22 stands as an example of what the region might have looked like had it not seen the introduction of shrimp farming, which completely transformed the landscape and arguably rendered the region more vulnerable to the impacts of climate change.

Bilpabla: A story of freshwater prawn

Similarly, Bilpabla is located about 20km west of Khulna city. Unlike other villages in the region, rice paddy fields in Bilpabla were not transformed into *ghers* for shrimp farming, but into *ghers* for freshwater prawn farming. The *ghers* fill up with freshwater from the rain during the rainy season, allowing the cultivation of prawn and other freshwater fish. Although this land-use change prevented the cultivation of aman rice, villagers were instead able to grow boro rice during the winter season since the soil in the village was not saline and therefore cultivable.

Dr Ben Belton, sociologist at Michigan State University,

reports in his article “Shrimp, prawn and the political economy of social wellbeing in rural Bangladesh,” that people who lived in Bilpabla not only felt they had more sovereign control over their food production, being able to grow crops they culturally consume, but also contributed to an overall positive social well-being, especially compared to villages that had introduced saline shrimp farming.

While most adaptation projects to salinity in the region are small-scale interventions -- such as rainwater harvesting or saline-tolerant rice varieties -- perhaps a structural approach would ultimately be more effective. Given the experiences of these two case studies, perhaps soil mitigation efforts could be made to reclaim shrimp farms to allow farmers to grow crops again; particularly for agricultural farms that have only been recently converted to *ghers*. Tidal River Management (TRM) is another alternative to polder embankments that would require more labour, but would potentially be more sustainable allowing residents to manage tidal flow instead of blocking it. Perhaps the most difficult but most important task of all would be a water-sharing treaty with all countries situated in the Ganges river basin that would allow more freshwater to flow into Bangladesh.

Climate change is a “wicked problem” because of the ways in which it intersects with other environmental and development issues. As such, the most successful adaptation efforts worldwide will be ones which address this complexity. ■

Meraz Mostafa is a research officer at ICCCAD and in charge of providing content to the Climate Tribune

5 DEGREES OF SEPARATION

SPECIAL REPORT ON 1.5C LEAKED



Climate activists around the world mobilized to keep a 1.5C target in the text of the Paris Agreement **BIGSTOCK**

Laura Bahlman

A newly leaked draft from the International Panel on Climate Change -- the “Special report on 1.5°C” -- highlights the difference between a rise of 1.5°C and 2°C of global warming above pre-industrial level. The leaked report meant for international climate policymakers is expected to be published later this year.

The report emerges out of the 2015 UN climate talks held in Paris where world leaders came together to negotiate and decide upon a global plan to tackle climate change. The nego-

tiations resulted in the Paris Agreement, a global treaty that intends to reduce emissions to maintain “well below 2°C” of warming, compared to pre-industrial levels, with the aim at reaching 1.5°C or less.

However, despite agreements on the text, which represented a consensus of the representatives of the 196 parties and 174 countries, adopting this into their national legal systems, the question remains: Is a 2°C target enough? This is the question the report attempts to answer.

The draft report discloses, that at current rates of warming, we have already reached average global warming of 1°C, while some geographical regions have already surpassed that, furthermore within the next 25 years or less we are expected to reach 1.5°C.

The report specifically states that the economic impacts between 1.5 and 2 degrees of warming will require higher costs for adaptation and mitigation as well as loss and damage, while exceeding the adaptive capacity of already vulnerable systems.

Recommendations within the report state that emissions reductions must be made in order to maintain 1.5 degrees of warming. Across three broad approaches, which include, lowering the use of energy, lowering the emissions that come from energy supply, agriculture and land use and finally removing carbon dioxide from the atmosphere.

The report concludes there is a need for a more ambitious, rapid global response to climate change harnessing and embracing new systematic shifts in financial flows, investment patterns, coherence in governance while addressing issues of equity and capacities across and between generations and regions.

Dr Saleemul Huq, world-renowned climate change adaptation expert, concludes: “The leaked final draft of the IPCC special report on 1.5°C reinforces two very important claims made by the vulnerable countries when negotiating the Paris Agreement. The first is that there will be many hundreds of vulnerable and poor people on the planet who will not be saved with a 2°C long term temperature goal but who could be saved with a 1.5°C goal.

“The second message is that there is still time to keep global, temperature below 1.5°C but time is, running out quickly. So all efforts to reduce emissions of greenhouse gases must be redoubled.” ■

Laura Bahlman is currently doing her masters in international development at Massey University, New Zealand

WHY WE NEED TO TRANSITION TO A CIRCULAR ECONOMY

■ Anne-Laure Pilat

At the heart of the Paris Agreement lies mitigation -- the seemingly insurmountable task of reducing global greenhouse gas emissions to curtail the consequences of climate change. According to various studies, 65% of greenhouse gas emissions comes from fossil fuels combustion, 24% from industrial activities among which up to 67% is estimated to come from management of materials activities.

Since the Industrial Revolution, our modern economy has depended on the transformation of natural resources into products. This means that fossil energy and natural resources extraction and use were and still are the driving forces behind economic growth.

However, this linear economic model (“produce-use-dispose”) is characterized by an exhaustive value chain and copious waste production which couples with poor natural resource capital management resulting in drastic environmental degradation and greenhouse gas emissions, which are at the centre of climate change issue. Moreover, this depletion of resources and economic impact of climate change directly threatens the viability of businesses, which in the future will have to compete harder for access to primary resources.

Thus, it is urgent for our society to rethink the current economic model if we want to ensure future generations will be able to thrive on this planet. This calls for a deep and long term change in the way we think about the utilization of natural resources; particularly how they are transformed into capital. For instance, a forest provides both wood that can be utilized by the economy; but also plays important ecosystem services in terms of regulating temperature, providing oxygen, and even reducing the impacts of climate change by absorbing CO₂.

The concept of the circular economy, based on the idea of a closed economy, emerged to deal with the specific limitations of our current economic model and could help to cut up to 33% greenhouse gas emission from material management.

Indeed, according to the definition of the Ellen MacArthur Foundation, the circular economy is an “industrial system that is regenerative and restorative by design rethinks products and services to design out waste and negative impacts, and builds economic, social and natural capital” Moreover, a circular economy is seen as a third pillar of climate international policies and serves both mitigation and adaptation efforts.



**A circular economy requires a rethinking of our current economic system
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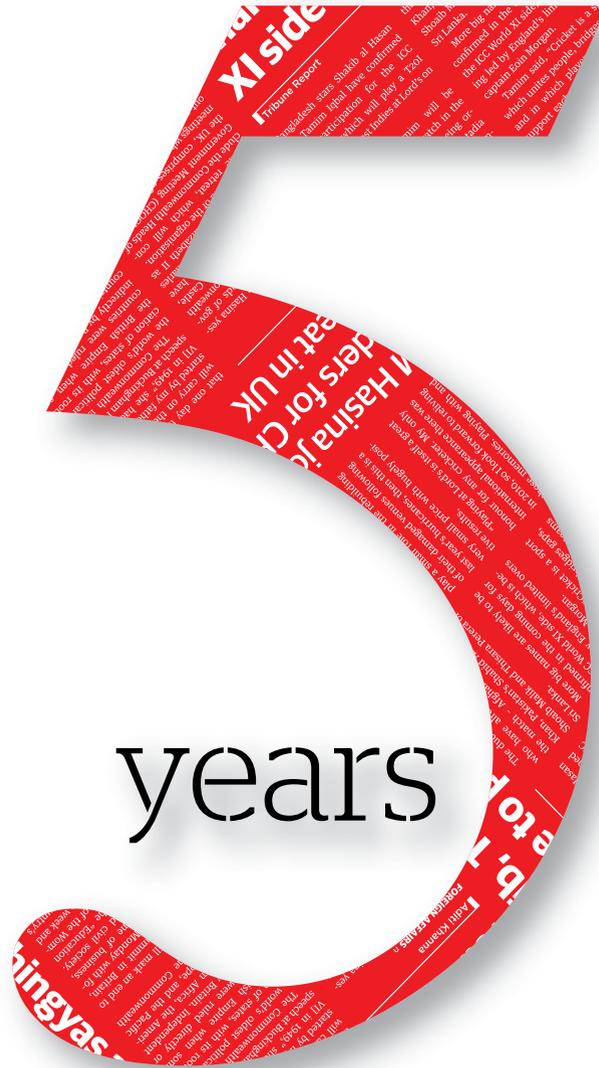
It supports mitigation actions by emphasizing a maximum use of already circulating resources, use of regenerative resources (as opposed to non-renewables), and better design of products for easier repair and recycling, thus allowing a reduction in greenhouse gas emissions from both natural resource extraction and from some industrial transformation processes.

Additionally, a circular economy can be a climate change adaptation approach in that it ensures interventions are not so resource intensive so that they cannot sustain into the future.

However, the actual design of a circular economy is still in development, and its potential has not fully been tapped. More research into value chains and the discipline of ecological economics (as opposed to environmental economics) are needed, which could render a circular economy a reality both in Bangladesh and abroad. ■

Anne-Laure Pilat is a visiting researcher at ICCAD with a background in Public and European environmental law.

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