Discussion paper 01

Non-economic Multiplicity of Loss and Damage

Whispers of Coastal Women in Bangladesh

CCDB
Member of actalliance
CHRISTIAN COMMISSION
FOR DEVELOPMENT IN BANGLADESH

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Whispers of Coastal Women in Bangladesh

Villagers came by boat to collect water from miles away
Photo: Elias Mahmood

oikoumene
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Abbreviations and acronyms

AOSIS	Alliance of the Small Island Countries
COP	Conference of the Parties
L&D	Loss and Damage
FGD	Focus Group Discussion
GAP	Gender Action Plan
KII	Key Informant Interview
NEL	Non-economic losses
UNFCCC	United Nations Framework Convention on Climate Change
WHO	World Health Organization
WIM	Warsaw International Mechanism
IPCC	Intergovernmental Panel on Climate Change

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EXECUTIVE SUMMARY

Loss and damage caused by climate change has become a pressing global concern demanding urgent attention on the part of governments and policy makers, funders and humanitarian organisations, and communities and other stakeholders. But over recent years, discussions and negotiations on loss and damage under the UN Framework Convention on Climate Change (UNFCCC) have been side tracked by developed countries. However, at COP21 in Paris (the 21st yearly session of the Conference of the Parties), an article specifically on loss and damage was included in the Paris Climate Agreement to address the issue of loss and damage as it affects communities in vulnerable and developing countries.

'Non-economic loss and damage' is a relatively new concept, understood to mean loss or damage that is 'not economic' and 'not traded' in markets. The loss may be directly linked to the adverse impacts of climate change (e.g. loss of biodiversity) or may be indirect damage to the community (e.g. early or forced marriage as a response to the economic impact of a sudden adverse climatic event). The UNFCCC technical paper on non-economic losses[1] described eight types of non-economic loss and damage such as losses of life, health, displacement & human mobility, territory, cultural heritage, indigenous/local knowledge, biodiversity and ecosystem services in the area of private individuals, society and environment.

Climate change affects everyone, but poor and marginalised people bear the brunt of its most adverse impacts. Climate change can have a significant effect on biological diversity, threatening the livelihoods of people who are dependent on natural resources, thus leading to or exacerbating poverty. Too often the stresses of threatened livelihoods add to the burdens of girls and women – often with long-term, long-lasting negative effects or even tragic outcomes.

In this paper, we discuss three aspects of non-economic loss and damage linked to climate change that specifically – and negatively – affect women and girls in Bangladesh: child marriage; impaired health; and extra workloads.

As women and girls are vulnerable to the adverse impacts of climate change, it is also widely accepted that they are at the forefront of adaptation and mitigation strategies. We therefore propose that there must be equal participation in efforts to combat the adverse effects of climate change. Our recommendations are as follows:

- introduce gender-specific climate change policies
- explain and specify the 'special circumstances' of the Child Marriage Restraint Act, 2017
- introduce income-generating options for young women
- education for marginal girls and boys needs to be subsidised
- introduce rainwater harvesting systems

It is hoped that these recommendations will encourage stakeholders to advocate strongly from gender perspective in policy making that addresses loss and damage caused by climate change.

1. THE CONTEXT:
LOSS AND DAMAGE CAUSED BY ADVERSE CLIMATE CHANGE IMPACTS

Village Ruhita on the verge of going into riverbed
Photo: Mousumi Halder

Climate change is accepted as one of the 21st century's most urgent challenges across the world, particularly in developing countries like Bangladesh. Bangladesh is a low-lying deltaic country with a population of nearly 167 million, with almost one in four Bangladeshis (24.3% of the population) living in poverty and 12.9% in extreme poverty.[2] The World Factbook[3] (2018) notes that Bangladesh has 580 kilometres of coastline. The coastal area of Bangladesh is home to more than 35 million people, with three million extremely vulnerable and exposed to adverse effects of climate change.[4] The warming of the ocean (thermal expansion), loss of glacial ice and ice sheets, and the reduction of water storage on land are all causing sea levels to rise. It is projected that more than 95% of the ocean area and about 70% of coastlines worldwide will experience sea level rises within 20% of the global mean sea level change.[5] Communities in coastal areas are particularly vulnerable to a number of natural disasters and other stressors such as sea level rise, saline intrusion, cyclones and tidal floods.

Intergovernmental Panel on Climate Change (IPCC) definition of climate change (2007)[6] reflects three components of vulnerability: exposure, sensitivity and adaptive capacity. Hence, a particular community's exposure and sensitivity to the negative effects of climate change, and its inability to effectively adapt, or not, to such change renders community vulnerability and can result in long-term loss and damage (L&D).

According to the UN Framework Convention on Climate Change (UNFCCC) working definition, 'loss and damage' refers to the negative effects of climate variability and climate change that people have not been able to cope with or adapt to.[7] Loss and damage can result from rapid-onset events (such as cyclones) as well as from slow-onset events (such as sea level rise) and affects both humans and the environment (ibid).

The issue of L&D was first raised in 1991 at the UN General Assembly when Vanuatu, on behalf of Alliance of the Small Island Countries (AOSIS), predicted 'sea level rise'. Since then, the establishment (after long negotiations) of Warsaw International Mechanism (WIM) at COP19 in 2013 and the separate L&D article in Paris Agreement at COP21 in 2015 have raised expectations for developing countries, although at the same time carefully excluding any mention of their legal responsibilities or financial obligations:

> *"Parties should enhance understanding, action and support including through the Warsaw International Mechanism, as appropriate, on a cooperative and facilitative basis with respect to loss and damage associated with the adverse effects of climate change."*
>
> *Decision 1/CP.21; Paris Agreement/ Article 8/Para 3* [a b c]

Table 1: Major milestones of L&D in the UNFCCC process, 1991-2017

1991	• First introduction of L&D in UN General Assembly by Vanuatu on behalf of AOSIS
2007	• L&D formally entered into UNFCCC negotiation process at COP13 in Bali
2010	• Open-ended work programme launched to address L&D at COP16 in Cancun
2012	• Decision made to establish institutional arrangements, such as an international mechanism, at COP18 in Doha
2013	• Warsaw International Mechanism (WIM) established at COP19 in Warsaw
2015	• Establishment of L&D as a stand-alone pillar in the Paris Agreement at COP21
2016	• Five-year rolling workplan of WIM on L&D adopted
2017	• Test version of WIM taskforce on displacement established and WIM clearinghouse on risk transfer developed

Source: Based on Troubled Journey towards Climate Justice by Shamsuddoha et al. (2018)[9] & Non-Economic Loss and Damage by Hirsch, T. et al. (2017)[10], with modifications by Halder

[1] A conference of the parties (COP) is the governing body of an international convention.

[2] The Paris Agreement is an agreement within the United Nations Framework Convention on Climate Change, dealing with greenhouse-gas-emissions mitigation, adaptation, and finance, signed in 2016. Till March 2019, 195 UNFCCC members have signed the agreement.

The concept of L&D is divided into two categories, namely economic loss and damage, and non-economic loss and damage. While economic loss and damage can be quantified and easily expressed in monetary terms, non-economic loss and damage is difficult to measure. The term 'non-economic loss' (NEL) was first coined at COP18 in Doha and became an action area of the WIM workplan in 2014 at COP20, with recognition in the Paris Agreement (2015), followed by establishment of the WIM expert group on NELs at COP22, and at COP23 NELs were inserted into the WIM five-year workplan (ibid). Along with non-economic loss and damage, gender balance and the participation of women in policy making and activity implementation from grassroots to global level was emphasised here. The decision of COP7 (in 2001) urged Parties to enable the participation of women in any body under the Convention or Kyoto Protocol (decision 36/CP.7); this was later endorsed by COP16 and COP18, which also emphasised gender balance in the Convention processes. Finally, at COP23 (2017), 'a gender action plan' was established under the Lima work programme on gender that had been adopted at COP20. The UNFCCC Gender Action Plan (GAP)[11] sets out five priority areas, where one of them (Priority Area E) focused on the "Information on the differentiated impacts of climate change on women and men, with special attention paid to local communities and indigenous peoples" (Decision 3/CP.23, Table 5, E.1 (a)).

Climate change-induced disasters affect both women and men, but the burden of coping falls heavily on women.[12] Women's lives may be difficult in every sector of Bangladesh society, particularly during natural disasters, but the problems are greater in coastal and char[3] areas, where life is more challenging and religious orthodoxy more prominent. Girls and young women living in these areas are often married off by their families at a young age. Early marriage ensue childbearing that has worse impact on women's health. Climate change can also make day-to-day lives of women more difficult as it leads to diminished natural resources, threats to livelihoods and the burdens of adaptation.

In this paper, we discuss three aspects of non-economic loss and damage linked to climate change that specifically – and negatively – affect women and girls in Bangladesh: a) child or early marriage b) impaired health/health problems c) extra workloads.

2. RESEARCH METHODOLOGY

The study was conducted in Patherghata upazila of Barguna district. The total area of Patherghata upazila is 387.36sq km, located between 22º 14´ and 22º 54´ north latitudes and between 89º 53´ and 90º 05´ east longitudes. It is bounded by Mathbaria and Bamna upazilas on the north, the Bay of Bengal on the south, by Barguna Sadar upazila and the Bishkhali river on the east, and by Sarankhola upazila and the Haringhata river on the west. Two villages named Padma and Char Lathimara, were selected for collecting primary data. Population status of Padma and Char Lathimara are shown in Table 2.

Table 2: Population of Padma and Char Lathimara villages

Name of Village	Total population			Inside the embankment[4]		Outside the embankment	
	Total	Male	Female	Population	Household	Population	Household
Padma	3,284	1,667	1,617	1,595	381	1,689	445
Char Lathimara	4,140	2,102	2,038	2,214	581	1,926	455

Source: Population and Housing Census 2011[13] and field survey of CCDB 2017 (Inside and outside the embankment)

The Padma and Char Lathimara villages of Patharghata upazila are located in the south of Bangladesh, near the Bay of Bengal, and are vulnerable to many natural hazards. These villages were selected for the study for their exposure to the Bay of Bengal, which is subjected to frequent disasters and hazards due to extreme climatic variation. These areas are ecologically sensitive and climatically vulnerable, because the processes of erosion or accretion may be accelerated. The people of this coastal area, especially women, are the worst affected by adverse climate events. The study was conducted to establish how these communities are managing their daily lives and livelihoods in adverse environmental conditions.

This study was completed using both primary and secondary data. As a source of primary data, qualitative work was structured that include focus group discussions (FGDs), key informant interviews (KIIs) and four case studies in the area to ensure comprehensive data was collected for a thorough data analysis. Four FGDs (two in each village) were conducted using open-ended questions; 12 women participated in each discussion. FGD participants were randomly selected from Padma and Char Lathimara villages. During the field study, women in the area were asked about hardships and health problems, and about the current situation or practice in their family and village regarding child marriage. Six key informant interviews were carried out with staff from the local administration, with local activists, and with social development workers.

Secondary data (published and grey literature) was the predominant source of information about the impacts of climate change on women in coastal zones in Bangladesh. The resources included government reports, relevant books, journals, articles, archival records, formal studies and reports, online publications, Google Scholar and relevant journal websites such as ScienceDirect and PubMed.

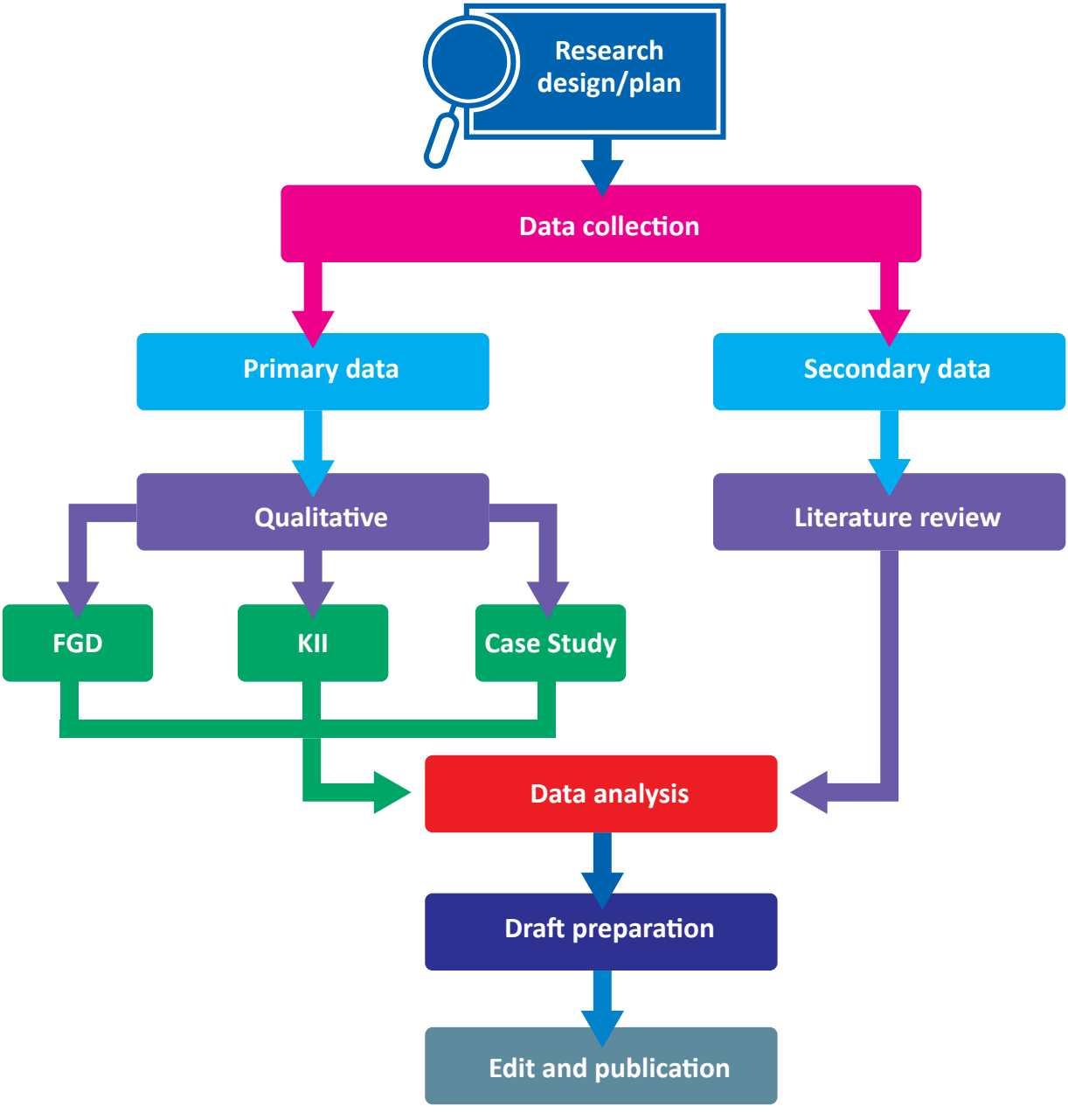
[3] The chars, otherwise known as charlands, are riverine lands located in the active river basins of the main rivers of Bangladesh. They are located on the banks of the river and islands in the mid-stream of the main channel that are created by the continual shifting of these rivers and emerge from the deposition of sand and silt mainly from upstream.

[4] Embankments, or dykes, separate the land from the main river system and offer protection against tidal floods, saltwater intrusion and sedimentation.

However, further aspects need to be considered. The relationship between climate change and other issues is not linear but rather extremely complex and multidimensional, therefore defining a climate change-induced effect as 'non-economic loss and damage' requires more clarity. Our idea was to raise those issues for further discussion and research.

The research work has been conducted through the following structure (Figure: 1).

Figure 1: Research methodology

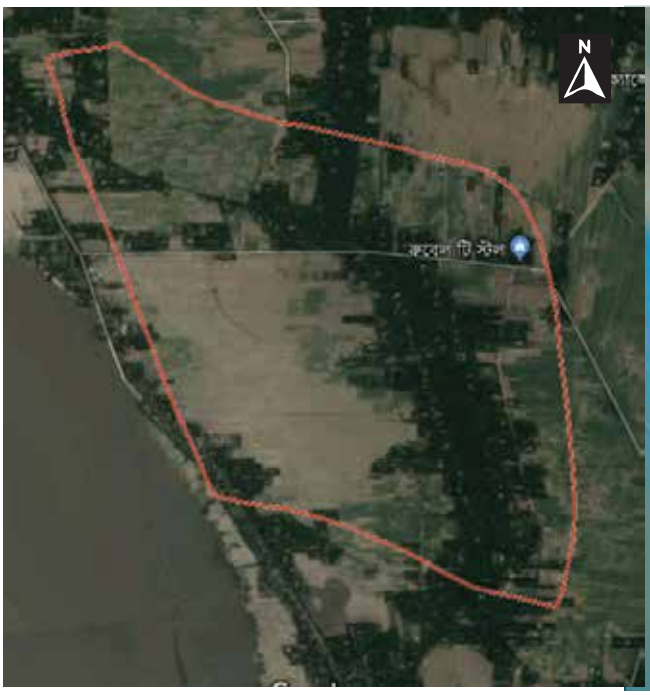


Maps: The study areas at Patharghata Upazila

Barguna district in Bangladesh

Barguna district

Patharghata upazila



Padma Village

Char Lathimara Village

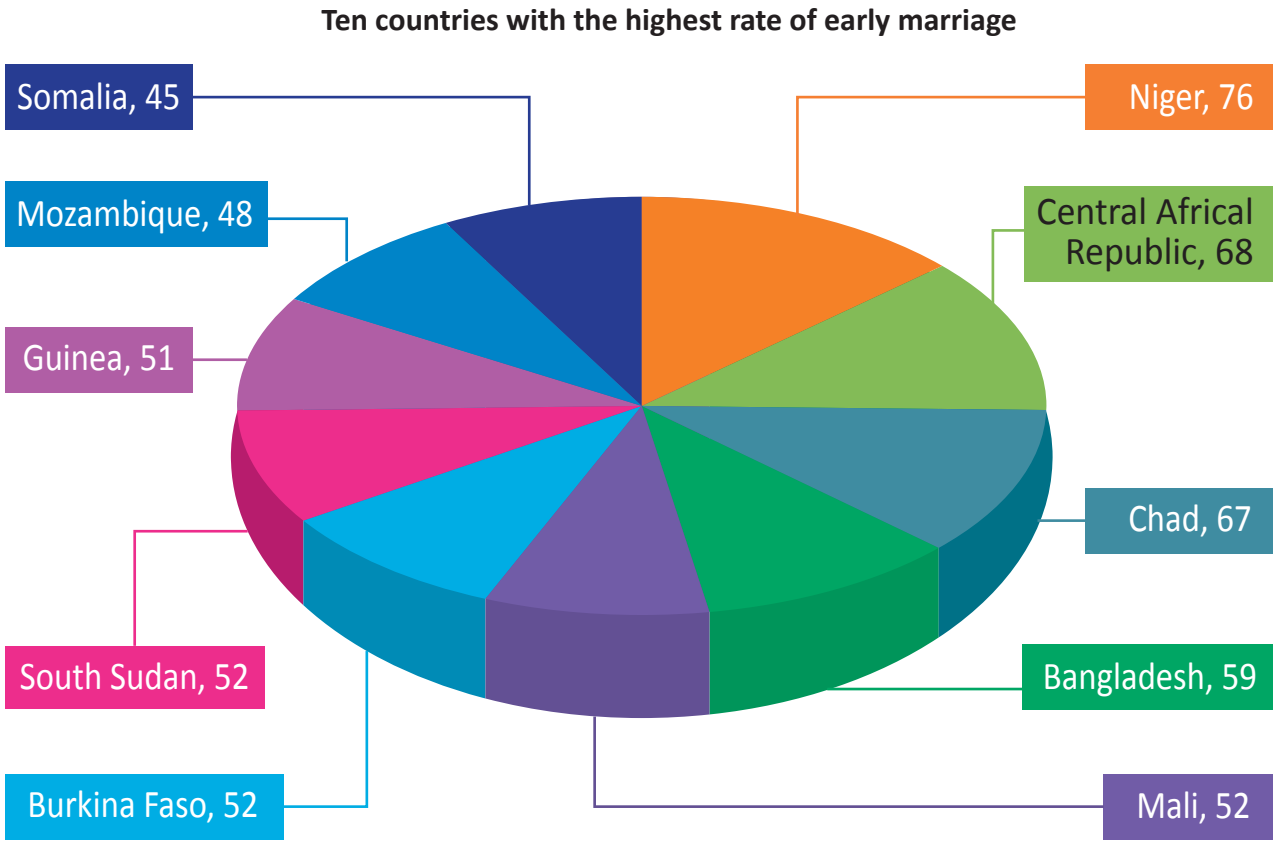
3. CHILD MARRIAGE AS A WAY OF COPING WITH CLIMATE STRESS

Rokeya, who married at the age of 13, with her 2 years old boy
Photo: Subrata Mistry

Currently, a significant number of girls from climate vulnerable countries are being married off by their families as a way of coping with the negative economic impacts of a changing climate. Child marriage is defined as a formal marriage or informal union before a girl or boy reaches 18 years of age. Early marriage or child marriage is common in many countries – both developing and developed, including Bangladesh. It has been practised across the world since ancient times, but began to be questioned in the early 20th century. Although both boys and girls may be married early, it is girls who are disproportionately the most affected – generally because families often marry off their daughters to older men who have property, jobs, money or other resources. Every year 12 million girls worldwide are married before the age of 18, that is one in five girls, nearly one in every two seconds.[14]

Despite signs of progress, Bangladesh continues to have one of the highest rates of child marriage in the world and the highest rate of marriage involving girls under 15; according to UNICEF (2017), 22% of girls are married off by the age 15 and 59% of girls in Bangladesh are married off before they are 18.[15] In the adopted second and third resolution of UN General Assembly on Child, early and forced marriage (A/RES/71/175), poverty, insecurity, lack of education, armed conflict, humanitarian emergencies, deep-rooted gender inequalities and stereotypes, harmful practices, perceptions and customs, discriminatory norms were identified as the root causes, while humanitarian emergencies, forced displacement, armed conflict and natural disasters increase the risk of child, early and forced marriage.[16] It also states that child, early and forced marriage remains common in rural areas and among the poorest communities.

Figure 2: Ten countries with the highest rate of early marriage.



Source: https://www.girlsnotbrides.org/where-does-it-happen/atlas/#/

RESEARCH FINDINGS

Bangladesh is the sixth most climate vulnerable country in the world, with total economic losses of US$ 2,311.07 million purchasing power parity (PPP).[17] It experiences frequent natural disasters that cause loss of life, damage to infrastructures and economic assets, and adverse impacts on lives and livelihoods, especially of poor and marginal households. Along with poor socioeconomic condition, the change in climate greatly influence child, early and forced marriage.

There is an emerging rise in child, early and forced marriages in coastal areas. People of this area are mostly poor and marginalised fisherfolk, there a few are well off – called 'Mohajon'. In recent times, particularly since the devastating Cyclone Sidr in 2007, coastal fisherfolk have led a very uncertain life due to the declining number of fish in the sea because of rising ocean temperature and the frequent cyclone warning signals that compel fisherfolk to return to shore with an incomplete catch/unfinished trip, incurring an average financial loss of Bangladesh taka (BDT) 3,047.[18]

> "For the last four months (April-July), there is a very little number of fish in the sea. Now we are dying in want of food."
>
> Rahim Mia (55), Padma, Patherghata

One of the fishermen at Padma village says danger signal number 3 is a regular thing to them and is considered as a 'potentially dangerous' rough sea condition. In addition, high tide inundates agricultural land, causing saline intrusion that leads to soil infertility. A huge percentage of farmers in this area depend on one crop per year, which is not sufficient to support a large family. A key driver of child marriage in disaster sites is the economic situations of families and the stark reality of living in extreme povert.[19] This uncertain livelihood puts enormous pressure on families, particularly on women. Young girls are married off to save the cost of feeding one more mouth during a crisis period. In addition, young girls cannot earn for the family like the boys as their mobility outside the house is very restricted by religious and societal norms. Many respondents reported that parents attempted to marry off their daughters to a man with significant income due to financial uncertainty.

> "Birth of a baby girl is a curse for us in our society. We can't become happy by the birth of a girl. We want to send our daughters as early as possible by marrying them off."
>
> Khadija Begum (60), Char Lathimara, Patherghata

Natural disasters exacerbate child marriage in many regions of Bangladesh. Frequent flooding and river erosion mean many families live with the constant threat of insecurity and increased poverty, which affects decisions about schooling and marriage for girls.[20] Ms. Fatema Parvin, vice-chair of Patherghata upazila, who worked for many years on the prevention of early marriage, confirmed that the rate of child, early and forced marriage is high in the villages of Padma, Ruhita, Gintola and Char Lathimara. There, the embankment is extremely damaged. Therefore soil erosion is a frequent phenomenon as well as major natural disasters quickly hit the areas. Families described feeling under pressure to arrange marriages quickly for their young daughters in the wake of a disaster, or in anticipation of one. This scenario is common in most households in this area.

"At Gintola, the last corner outside the embankment, there lives a family of three daughters where the elder one is 10.5 years old. During the month of May, 2017,when nature started to get crazy, the widow mother got upset about the upcoming disaster. She suddenly managed to marry off her elder daughter with a seasonal fisherman came from Khulna by one night. That time the girl was in class 4."

Counsellor of Patherghata Pourashava describe the unavoidable situation of early marriage at the climate vulnerable area

Lack of access to education is widely known as one of the causes of child, early and forced marriage. Poor parents are often not aware of the benefits of education. As a result children are not encouraged to go to school. Rather they, especially girls, are kept at home to help in household chores and thereby reduced the expenses for education. Despite huge progress of enrolment at school in recent times in Bangladesh, it is girl whose education stop first if there happens any disastrous events.[21] [22] Some non-governmental organisations (NGOs) have worked on children's education but short-term projects of NGO have failed to achieve long-term impact. At the same time, schools tend to be quite a long distance from most homes, and motorbike or walking are the only forms of transport in most of the cases. For secondary and higher secondary education, students must travel to Sadar upazila from Char Lathimara and Padma, a journey of around 10km; high school and colleges are located in Sadar upazila because the embankment area is prone to disaster. The cost of transport per student is BDT 100 per day on average, which is a financial burden for most marginal fisherfolk families, particularly if their livelihoods have been adversely affected by climate change. Also of concern, the long road to the school is not completely secure for schoolgirls. In addition to transport costs, there may be other incidental expenses; for instance, parents are often asked to buy notebooks by teachers who have been enticed by the notebook companies. FGD respondents also reported that some teachers are not attentive to their pupils, but instead encourage parents to pay for private tuition for their own income. Without an effective monitoring system, this inaccessible, expensive yet poor-quality education means that parents often do not realize the value of learning. With few alternatives, parents frequently decide to marry off their daughters, removing them from school and thus saving the household expense of education. Once they are married and have domestic responsibilities, young women have very few opportunities to return to education. Illiteracy is a common factor underlying parents' lack of understanding about the well-being of children, a situation that is perpetuated in these areas.

Rabeya Begum, a 12-year-girl, was forced by her mother into marriage to a partially paralysed man when she was 10 years old. The day after the marriage, she petitioned for divorce with the help of her neighbours. Now, Rabeya lives a traumatic life, being alone and silent most of the time. When Rabeya's mother was asked why she forced her daughter into marriage, she said she did not know.

This story illustrates the unconsciousness of parent about their child's wellbeing.

Early puberty in coastal regions is reported as a common reason for early marriage. In the report of Breast Cancer Fund published in 2007, ecologist Sandra Steingraber discussed a number of causes of early puberty, including low birth weight and premature birth, physical inactivity, psychological stressors, environmental exposure, obesity and weight gain, formula feeding, television viewing and media use.[23] Premature birth and low birth weight that result from intrauterine growth retardation are both well-established risk factors for precocious puberty in girls.[24 25 26 27] Poor nutritional status due to insufficient food intake and poor nutritional value of the food that is available, hypertension, anxiety[28], depression as well as being under 18 years of age[29] are some of the main factors linked to a higher risk of a pre-term birth and low birth weight. When we consider early puberty as an underlying cause of early marriage, it could be argued that early marriage itself is a strong factor behind early puberty. Multiple studies published in psychological and anthropological literature report that girls in stressful home environments, including father absence[30] not mother absence – and those who have suffered sexual abuse – reach menarche sooner.[31 32 33 34 35 36] In coastal regions, people live with the threat of insecure livelihoods and reliance on social security. In a word, they struggle against adverse climatic conditions every day and eventually that puts enormous pressure on the mental health of children. In addition, fisherfolk spend a huge amount of time at sea, which limits their time for the parental care that is undeniably essential for the sound development of the children and it lowers the occurrence of psychological distress.[37] Literature also shows that early father involvement with daughters has been associated with a reduced risk of early puberty, fewer early sexual experiences, and less incidence of teen pregnancy;[38] conversely, 65% of children, where the father is absent, lived in poverty.[39] Tropical temperatures are also related to early puberty, although this link needs to be studied further.

Unsafe environments for girls and some other social norms are influencing factors leading to early marriage. Sexual and physical harassment, and the kidnapping of girls, are very common in remote areas. Frequent climate disasters often lead to environments becoming more insecure – for example, if homes are damaged and unprotected after a disaster. Even young girls are not safe in cyclone shelters, making them reluctant to go to the shelters. Apart from girls' security concerns, some fundamentalist religious leaders place the blame for climate challenges on women themselves.

> *"Some people believe that girls are supposed to be married as early as she stepped into puberty to minimise her burden of sin. In failure to do so, Almighty sends disasters as curse that they are facing now."*
>
> Salma Akhter (35), Patherghata

Additionally, in this disaster-prone area, houses are quite close to each other and may be very small, rarely providing adequate accommodation for all the family members. Congested households can be unsafe for young girls if both of their parents work outside the home. Alone with women, especially young girls, face problems in bathing and washing due to lack of nearby fresh water. These apparently trivial factors can also lead parents to think about marrying off their daughters.

Another factor in the rising number of early marriages is migration, a growing trend among these communities as their livelihoods in the villages become more precarious. Sometimes both husband and wife move to the city to work in garment factories or as day labourers. But as parents face an uncertain life in the city, they might quickly arrange a marriage for their daughter, however unsuitable it might be; this was seen in Patherghata.

The impacts of child, early or forced marriage are far reaching. Most importantly, the physical and mental health of girls often declines, which will have a serious impact on the upbringing of children they give birth to. Parents marry off their daughters early in hope of a better financial and social future but very often things become worse. In early or child marriage, the girl is not mature enough to carry out family responsibilities, she may physically be forced to have sexual relations with her husband, and her husband might go off with other women. The ultimate result of this situation is often divorce. By age of 18, which is the legal age of marriage, a young woman might be labelled as a 'worthless woman who is not perfect to be married'. Early or child marriage can also lead to complicated illness or disease (see Chapter 5).

> *"If they can say that their daughter is married off, they feel more honoured and relaxed while not feeling any hesitation or anxiety to say my daughter is divorced."*
>
> Fatima Parveen, Vice-chairman, Patharghata Upazila Parishad

Early marriage is an obstacle to achieve the Sustainable Development Goals by 2030 as it prevents a large section of the population from participating in development processes. Further research into climate change-induced early marriage is needed to explore its causes and ways of tackling the problem.

4. HOW CLIMATE-INDUCED DISASTERS AFFECT GENDER RELATIONS:
INCREASED WORKLOADS AND HARDSHIPS FOR WOMEN

Women are carrying their daily water
Photo: Probal Rashid

It is increasingly evident that women are disproportionately affected by climate change impacts, such as droughts, floods and other extreme weather events, but they also have a critical role in combating climate change.[40] Women carry out the informal labour, care work and domestic duties that are unpaid and mostly unacknowledged while climatic stressors further complicate their lives. The availability and accessibility of essential resources such as food, water and fuel are affected by high tides, frequent natural disasters, loss of biodiversity, saltwater intrusion and various other environmental impacts. To cope with the impacts of changing climate, women will be involved in food production, income generation and rehabilitation works in addition to their everyday chores.

RESEARCH FINDINGS

The IPCC[41] (2008) states that "water and its availability and quality will be the main pressures on, and issues for, societies and the environment under climate change". In particular, the subtropics and mid-latitudes, where much of the world's population lives, are expected to become substantially drier.[42] Changes in precipitation patterns and intensity, and frequent severe weather events, diminish the ability of natural system to filter water, increase erosion rates, and wash soil-based pollutants and toxins into waterways; saltwater intrusion into rivers, deltas and aquifers as a result of sea level rise contaminate coastal surface and groundwater resources dry up (ibid). Henceforth, shortage of fresh water will become a crisis for communities that depend on water collection labour.

Globally, women and children collectively spend 140 million hours per day collecting water for their families and communities, resulting in lost productive potential.[43] Water collection needs to be considered from gender perspectives for many reasons.[44] First of all, women are intrinsically tied to water collection, sorting, preservation, distribution and management in developing countries like Bangladesh. If water supply becomes scarce or contaminated, women and girls are the ones who must look for alternative sources of water.[45] In saline and drought-prone areas, where fresh water is in short supply, further stress is put on women, who have responsibility to supply water to their families. They are often forced to walk long distances sometimes ignoring their own sickness, risking their health and their safety in the process. Secondly, women spend a huge amount of time collecting water – time that could be spent in productive work or in rest. In Patharghata upazila, women living on the embankment travel 1.5 to 2 kilometres daily to collect water. It takes around 2 hours a day including standing in a queue to collect water. The water that can be collected from distant sources is rarely enough to meet the needs of the household. The third perspective is that water collection negatively affects women's health (Graham et al, 2016). They fetch water in pots, buckets or narrow-necked containers, carried on their head or neck. A family of five needs around 25 litres of water every day (weighing 25kg) to meet their minimum needs; carrying those sorts of heavy loads cause pain in different body parts (discussed further in Section 5). The situation becomes more severe in the dry season when water sources are affected by high salinity in coastal zones.

> *"Every day I go for collecting drinking water which is very far away from my home. As it takes about three hours to collect water by standing in a queue, I prefer to go there at dark after finishing daily works which is quite insecure for me. Besides, there are often snakes or pigs on the way. Internal conflict with the people of water source management committee also causes problem to collect water."*
>
> Laili Begum (44), Padma, Patharghata

Collecting water from Pond Sand Filter (PSF)
Photo: Probal Rashid

According to the Millennium Ecosystem Assessment, climate change is likely to become the dominant driver for the loss of biodiversity by the end of this century, most biodiversity decline has a disproportionate impact on poor people in developing countries.[46] In rural areas of developing countries, women are dependent on biomass fuels such as wood, agriculture crops, wastes and forest resources for household energy needs and livelihoods; in the face of climate change, the ability of women to obtain these indispensable resources is reduced.[47] In many parts of the world, deforestation has meant that wood – the most widely used solid fuel – is located further away from the home. In poor communities of most developing countries, women and girls are responsible for collecting traditional fuels, a heavy physical task that can take from two to 20 or more hours per week (UN Women Watch, 2009). Furthermore, when environmental degradation forces them to search further afield for resources, women and girls become more vulnerable to injury from carrying heavy loads long distances, and also face increased risk of sexual harassment and assault.

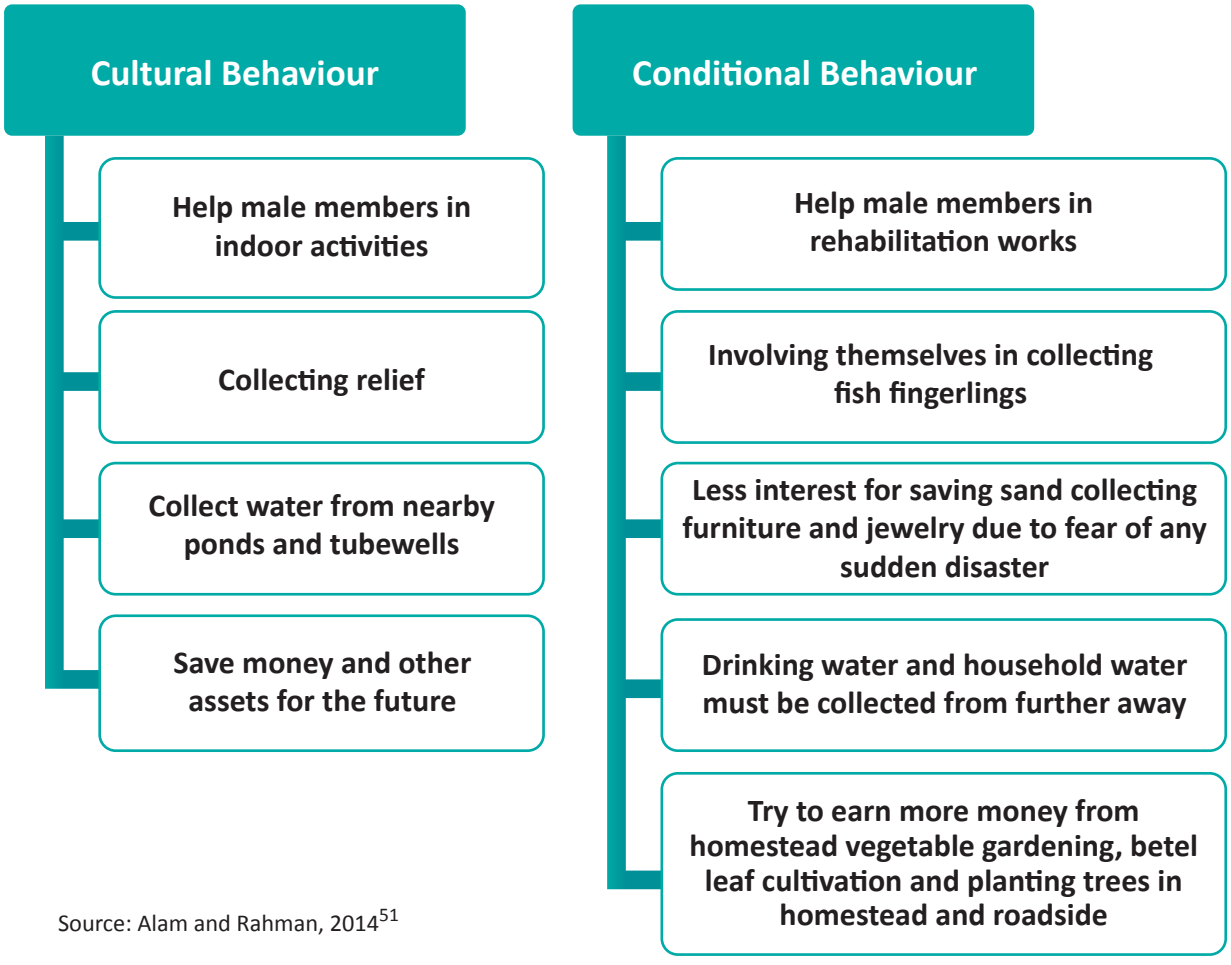
> *"It is very risky for us to go alone in the forest. But when my husband goes for fishing for few days, I have no option. Once I got severe injured on my feet by the roots of Keora tree."*
>
> Shilpi Akter (34), Char Padma, Patharghata

Women are mainly employed in the informal sector, which is the most negatively affected by climate change-related disasters.[48] For more than a generation, New Zealand economist and feminist Marilyn Waring has argued that the definition of work, in most countries, excludes the responsibilities traditionally assigned to women – child rearing, cooking, cleaning and so on.[49] Apart from these regular domestic duties, women continue to be collectors and providers of food, fuel, water, medical herbs, fodder, building materials and keepers of household belongings during catastrophic events.[50] These situations ultimately push women into being overloaded with work in comparison to men. Literature

shows that climate change impacts lead to reduced agricultural production due to extreme heat or cold, floods, saltwater intrusion, river erosion or sudden-onset events. Furthermore, medicinal plants and fodder, water and biomass fuel, often become scarcer or further from home, but women must still gather them. More importantly, as the agriculture sector is primary dominated by men, and is greatly affected by climatic stressors, women must engage in income-generation activities such as livestock farming, homestead gardening, handicraft production, labouring in construction and so on. Considering all these workloads that are influenced by climate change impacts, we can agree with Diana Elson (a British economist), that women are the most over-utilised resource in the world (Hegarty, 2018). The following chart differentiates women's responsibilities in normal condition compared to their post-disaster extra workload.

Selina Begum, a 75-year-old woman, told her story of being lost several times in the face of disastrous cyclones. In her lifetime, she had witnessed five cyclones while she had to move house three times as homes were lost during the rapid-onset events. Now she lives in a small hut at the very edge of the embankment, which is now at risk.

Figure 3: Women's responsibilities in normal conditions compared to their post-disaster extra workload



Source: Alam and Rahman, 2014[51]

In addition, a kind of functional disorder is created in a disaster where women face challenges different from men. Women face the loss of livelihood opportunities and essential family resources, they face increased sexual harassment, and for the most part have little scope to participate in any mitigation, adaptation or management activities. In a post-cyclone period, food security and sanitation become the major concerns for the women, and collecting relief items standing in day-long queues, sometimes in wet clothing, is the sole responsibility of women. Disasters also lead to increased domestic violence towards women as men lose their jobs, use abusive language and physically assault female members of the family.[52] These are common phenomena within most climate-affected households in rural Bangladesh.

To sum up, Nasreen[53] points out that climate change-induced disasters affect both women and men but the burden of coping with disasters falls heavily on women. After a natural disaster, women's workload increases, ranging from clean-up work to caring for the sick.[54] As a result, women spend all their time in household chores rather than engaging in politics or other public activities, learning to read or acquiring other skills – or simply to rest. Girls are sometimes kept home away from school to help with household chores, perpetuating the cycle of disempowerment.

5. THE EFFECTS OF CLIMATE CHANGE ON WOMEN'S HEALTH

A woman is catching fish from the embankment area
Photo: Probal Rashid

Health, as defined by the World Health Organization (WHO), is "a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity". Climate change affects health in many ways, including through high temperatures, poor air quality and extreme weather events, as well as through meteorological changes that alter vector-borne diseases, reduce water quality, and decrease food security.[55] Studies show that climate change affects the most fundamental determinants of health: food, air and water.[56]

The IPCC states that "climate change is projected to increase threats to human health".[57] The stated aim of the UNFCCC is to avoid the "adverse effects" of climate change, which affects not only "natural and managed ecosystems or on the operation of socio-economic systems" but also "human health and welfare".[58] Women's' health is particularly affected, as they tend to occupy unequal socioeconomic positions in a given society.

RESEARCH FINDINGS

Climate change threatens global food security through a number of natural disasters. Disasters quickly turn into the crisis of food and nutrition by affecting economic and physical access to food, availability and stability of supply and nutrition; more than 80% of the world's food-insecure people live in countries that are prone to natural hazards.[59]

In coastal areas, people's livelihoods and diets are largely dependent on fish, with a very little access to vegetables as arable lands are affected by saline intrusion. High tides and storm surges damage the limited number of crops produced on coastal land. Protein occupies the maximum portion of their diet with very little intake of carbohydrates, vitamins or minerals. In the aftermath of disasters women reportedly adjust to the situation by reducing their own food consumption. Nutritional status partly determines the ability to cope with the effect of natural disasters.[60] Food consumption is reduced during and after disasters, but women reduce more than men . In addition, many cultural norms dictate that men are entitled to more food than women, ignoring the unique nutritional needs of women, especially during pregnancy and breastfeeding. For girls and women, poor nutritional status is associated with an increased prevalence of anaemia, pregnancy and delivery problems, and higher rates of intrauterine growth retardation, low birth weight and perinatal mortality.[62]

As described in section Four, climate change increases the hardship of women, the effect of which is completely fall on women. Almost 80% of FGD participants reported back pain, joint pain and body aches, all caused by extra and heavy workloads. Women have to carry eight to ten litres of water for their families' daily use on their head or waist for as far as 2-4 kilometres. Carrying heavy loads over long periods of time causes cumulative damage to the spine, the neck muscles and the lower back, thus leading to early ageing of the vertebral column.[63 64 65 66 67 68]

Waterborne diseases such as diarrhoea, dysentery and typhoid fever are very common, particularly in the dry season when there is high water salinity and severe scarcity of drinking water. Climate change affects water sources in such a way as to increase the incidence of diseases. High tide makes the surrounding environment of a house unhygienic, leading to diseases such as diarrhoea, itching, influenza, fever, and cough. And in most cases it is women who are the main victims due to their lower resistance because of nutritional deficiencies, as described above. They must also care for the sick family and community members, further exposing them to disease.

Women reportedly suffer from piles, urinary tract infections and jaundice due to their lower intake of drinking water and the prevalence of poor or non-existent toilet facilities. Insufficient fibre in their regular diet also causes piles. At high tide, most houses in outside embankment areas are flooded for six hours a day and during this time women have to wait until the floodwater level goes down before they can go to the toilet.

Regular high tide in coastal area
Photo: Probal Rashid

Women's access to healthcare is often limited by family finances, poor communication systems, cultural norms and religious doctrine, particularly in coastal areas. They also might not be aware of healthcare facilities in their area, even if there are any. For example, there is no emergency medical service in char areas apart from two days a week at the Upazila Health Complex, which is approximately 10-12 kilometres away on a poor road – and there are no suitable vehicles available to carry emergency patients.

Along with physical health, women's mental health is affected by climate stresses; they may be tensed, distressed and distracted in face of frequent natural calamities. Tension never leaves them; they get worried when their husbands go to sea, they are concerned about money or loans, they feel anxiety for their children's safety and so on. This situation creates a heavy stressful mental condition and the resulting fatigue affects their ability to carry out their domestic duties or to enjoy their lives. For widows of natural disasters the situation becomes intolerable; they may be exploited in every section of society. Families are traumatised by the death of a family member, which happens more frequently due to more extreme climate events; pain can be somewhat lessened by finding the missing body, but that is very rare in natural disasters in these areas.

> *"Women are not likely eager to come in free growth monitoring session of their child as they think it useless."*
>
> *Avejit Mazumder, Monitoring and Evaluation Officer, Terre des homes (TDH)*

Laili Begum (45 years of age) described her horrible experience of Cyclone Sidr (2007) when she lost her 6-year-old son. During the outbreak of Sidr, her husband was at sea while she was at home with her children. She could not decide whether to go to the cyclone shelter when other people rushed to the shelter. At the eleventh hour, she ran out of the house with 6-year-old son in her arms and 10-year-old daughter in her hand. But fortune didn't favour her. High tide snatched her son from her arms while she and her daughter got stuck by a broken tree. The day after Sidr, her son was found dead in front of the mosque.

Laili Begum cannot recover from the shock of the last 12 years. She is like many of those who are still in a state of trauma by losing his/her daughter or son, wife or husband, mother or father during the devastating Sidr.

As these women live in a very restricted surrounding within their homestead, they find it difficult to find any solution. They may feel frustrated and disappointed every single day, but the truth is they never lose hope – they are survivors not victims. Labelling them as victims denies their struggles, their capacity for resilience and their fight against adverse environments.

We would argue that women's general health condition makes them more vulnerable to the adverse impacts of climate change. However, in-depth research is needed into climate change and women's health.

Skin disease of coastal people
Photo: Muzammel Haque

6 CONCLUSION AND POLICY RECOMMENDATIONS

In this paper, we argue that the common practice of early marriage is on the increase due to adverse climate change in the vulnerable coastal areas of Bangladesh. With the increasing intensity and frequency of climatic events, people are losing their homesteads, land and livelihoods and parents feel the pressure to marry off their daughters at a very young age.

Climatic stressors have a negative effect on the health of women, as they may pose threats to water sources and food security, and also increase the burden of women's work. We would argue the necessity for global and national-level gender-focused policies to specifically address these difficulties by providing more sustainable adaptation support.

We conclude our report with five policy recommendations aimed at addressing and minimising the adverse impacts of climate change on human rights, on the well-being, physical and mental health, and on the prosperity of women and girls in remote, marginalised and vulnerable coastal areas. We consider it the responsibility and obligation of society as a whole, but particularly of political decision makers, to take up our recommendations.

1. Introduce gender-specific climate change policies

In both the 7th Five-year plan of Bangladesh (2015-2020) and the Bangladesh Climate Change Strategy and Action Plan (BCCSAP: 2009-2019), there is some considerations of gender issues in policy making, although specific gender aspects of climate change impacts are not given any attention. However, the role of climate change in the rising number of early, child and forced marriages and the impacts of climate change on women's health are beginning to gain more attention. These issues need to be considered in climate change policy making, particularly when the BCCSAP will be revised.

2. Explain and specify the 'special circumstances' of the Child Marriage Restraint Act, 2017

In the Bangladeshi Child Marriage Restraint Act 2017, there is provision for child marriage under 'special circumstances' (clause 19) that technically make child marriage legal and takes Bangladesh backwards in its move towards achieving SDG 5.3 'eliminate all harmful practices, such as child, early and forced marriage'. The special circumstances are not fully explained. This unexplained clause creates opportunities to misinterpret the law, particularly in remote areas of the country. Hereafter, early marriage under the 'special circumstances' provision requires to be specific and well explained to stop the misuse of this special Act.

3. Introduce income-generating options for young women

Many girls and young women are taken out of school to help families cope with the threatening situation of climatic events. Young women are not properly trained, and considering women's work burdens, some type of skill training could be introduced, particularly in climate-vulnerable areas. For example, homestead gardening based on rainwater harvesting might be an effective way to provide for family's nutritional needs and small-scale income-generation activities could provide the means by which girls could continue their education during crisis periods.

4. Education for marginal girls and boys needs to be subsidised

In 1982, the Bangladesh government initiated a pilot secondary school stipend programme for girls. On the basis of its huge success, the stipend programme was then launched nationwide in 1994. Furthermore, our field survey found that young boys in coastal areas are more likely to engage in income-generating activities rather than attend school. As a consequence, they may not be aware of the impacts of negative social practices, such as early marriage. A lack of education could also limit their future livelihood opportunities. Therefore, incentives should be given for the education of marginal boys (such as the sons of fisherfolk).

5. Introduce rainwater harvesting systems

The availability of safe water is a crucial issue in the face of climate change and the related water-collection labour. Rainwater harvesting systems in coastal areas could be a sustainable and effective option for areas prone to water scarcity. Considering the gender perspective of water collection, training and financial support for rainwater harvesting should be introduced at household and community level.

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