

Mitigation, Adaptation and Building Resilience of the Risks to Females in Bangladesh due to Environmental Hazards: An Analysis

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ABSTRACT

This paper focuses on developing strategies to alleviate women's problems in the disaster-prone areas of Bangladesh. Societal response in Bangladesh towards women's difficulties, often fail to be practically implementable in this conservative milieu. This situation is aggravated because shelters are few and overcrowded during times of environmental disasters. Occupying these is often prohibitive for women as there is no privacy from strange men, who also harass them. By laying emphasis upon segregated shelters, coping mechanisms of households and responses of women, attention is focused on policies towards revitalizing females in the economy. Females, who are at the helm of households' adjustments, repeatedly fail to avail migration. Women's untenable structural and environmental milieu in their community, affects their resilience. Women tend to the households, children, elderly and also guard the property and livestock, which limit their abilities and hence precludes migration. Using unique methodology involving snowball sampling techniques, quantitative, qualitative, retrospective compilation of data that elicits in-depth, informed interviews of migrants and non-migrants, this paper has drawn a vivid picture of the affected population. This would enable more sensitive policies directed at women and contribute to formulation of more gender disposed and nuanced strategies to assist environmental hazard victims.

Keywords: females, shelters, environmental hazard, policies, Bangladesh

JEL Classification: Q50, Q54, Q56, J16

1. INTRODUCTION

Migration that is prompted by environmental hazards or massive flood surges could result in unintentional actions that are inadvertent and unfavorable to livelihoods leaving the affected, highly reliant on aid. This is true for numerous people living in the deltaic belt of Bangladesh. The need to save lives and

property during times of disasters stipulates that relocation be commenced, to avoid scarcity until incomes are reestablished. It deteriorates into becoming a lasting or essential part of their fight for survival, in times of distress, when water is blocked and decayed for ages, as observed after Cyclone Aila. The Government of Bangladesh has underscored migration under the Five-Year Plans, including the Vision 2021, and the Perspective Plan of Bangladesh. In general, government plans endeavor to aid all forms of migration with focus on improved use of human resources and an all-encompassing agenda. Enhanced Migration Policy would be aimed towards supportive labour migration from disaster affected areas for enhanced income. Planned movements for labour absorption in growth foci in semi-rural or urban destinations that can off-set distress migration by creating a conducive environment.

The devastations from environmental hazards and impacts of sudden floods and storm surges, associated vulnerabilities, loss of livelihoods, process of migration, coping capacities and strategies, require in-depth studies. The inducing aspects require further studies, for aquatic, disaster-led deluge that could trigger migration, whereby the options are different for the same set of families (where discernment is a pivotal aspect). Understanding the choices available for men and women, is very important. These factors have to be analyzed - in a context where migration is by now a familiar domestic adaptation answer to manage damages caused by environmental and monetary change. Nevertheless, there is indication of other factors that cocoon and shield the impacts of floods and which could also delay the choice to migrate. Analysis, for and against the discourse on such migration, exists in the literature. Inadequacy to understand the underlying reasons (for the purpose of policy formulation) may perpetuate vulnerability in another area with varying impacts on menfolk and womenfolk.

Often the barriers to deluge-led environment hazard require constant supervision and repair of embankments. Communities that are at risk are likely to be more accountable for this job. Monitoring and supervision teams comprising of affected groups should be mobilized. If guidelines are in consonance with the needs and reflective of peoples' commitments then it could be efficacious. However, where women are excluded in the decision-making, if approaches do not echo the particular restrictions of certain segments of the population especially women, strategies remain untapped. For sustaining rules, women must be mobilized as they are a basic share of families' care and community's conscience.

In the Bengal Delta, populations strive to adapt and cope, evolve fitness strategies to survive and overcome problems: the disaster shelters, land-use management, household coping tactics are recurrently gender insensitive. Environment and climate incongruity often produces systemic, inescapable or unexpected change, making household's managing capability, especially of the women, inadequate - thus weakening the resilience of migrant households, Seto (2011); Fusella et.al. (2015).

The Ganges-Brahmaputra Delta, shaped by the enormous waterways, which is funnel-like and conical, invites torrential Monsoons, tempests and tidal surges. This delta established by sediment-loaded rivers, is extremely complex and prone to alteration in the catchment area, the marine environment and sea-level rise, Auerbach et.al., (2015); Islam (2010). It is also prone to fluvial flooding and storm surges in Bangladesh.

As a dynamic country, Bangladesh is not free from ambiguity or trials in new frontiers. Queries abound on whether Bangladesh will see more droughts, more floods, and more cyclones, with populations increasing to 200 million or 250 million by 2050; how will their food and shelter be achieved etc.? Bangladesh Delta Plan 2100 outlines projections and reiterates the documentation of experiences, sharing knowledge, and jointly building scopes for the implementation of the Bangladesh Delta Plan 2100. Papers such as the present one, with evidence-based information could prove to be very useful.

Emphasis must be given on planned methods, which are to be entrenched in observed information. Information, culled from empirical evidence of population and livelihoods in this mighty water-laden delta, measures for coping, projected plans and policies that have been laid out, have become paramount and solicit an in-depth study of this nature.

There is a need to study these areas, ie., the hill-tracts Chittagong where migrated victims have taken refuge, and the left-behind family members, in coastal Bangladesh. Empirical evidence of coastal areas' coping capacities (South Bedkashi in Koyra) could be related to the income augmentation of cyclone affected migrants in remote hill-tracts of Chittagong as revealed by in-depth case studies (Aziznagar in Bandarban, Chittagong) of refugee relatives (recipients of aid and relief as well as development of social networks). Evidence has been documented in an all-encompassing manner, revealing a glimpse of viewpoints. This paper offers validation to respondents' needs and it supports

government plans, implementation of policies, updating information, institutions and public organizations to highlight requirements of cyclone affected Aila populations who continue to fight untenable milieu and encounter income trials at local levels.

2. OBJECTIVES AND RESEARCH QUESTIONS

The objective of this research study is to review the influences of environmental hazards on incomes and comprehend the management instruments of impacted populations, also to adopt or avoid migration. Investigate related factors of relocation choice (over an extended time), and the way it varies for menfolk and womenfolk.

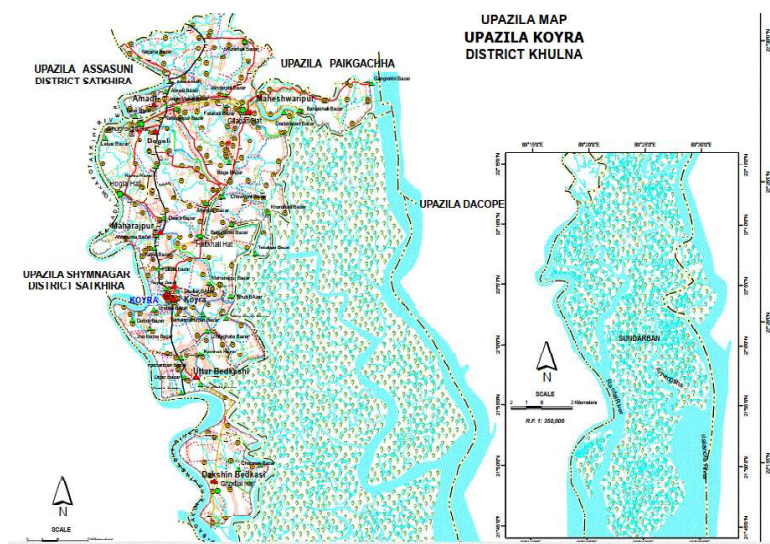
This paper tries to apprise an improved way of executing existing policy, where there is a necessity to address the needs of Aila affected people, especially females, who face new risks in their communities. The importance of such a paper stem from countering the top-down approaches of assistance that do not percolate to the most deserving, and strategies that could be formulated and accepted (by them) so as to minimize future risks.

3. METHODOLOGY

Research methodology comprised of triangulation of information to elicit in-depth knowledge. The Qualitative Exercise for this study comprised of Focus Group Discussions, Key Informant Interviews and Case Studies. On the spot information from the respondents where a sizeable number of Aila affected people gathered, at Aziznagar (Chittagong hill tracts) revealed the state of affairs. The study is informed from both Quantitative and Qualitative Data Sources, based upon data, over a period of three months from both Destination Area as well as Origin. Here the Snowball Sampling, a non-probabilistic sampling scheme, is used. It is mainly utilized for the qualitative study where population size (N) is unknown and no sampling frame is available or infeasible to be built. This method is also called Network sampling or Referral sampling. This method is actually based on link-tracing mechanism, effective for accessing rare populations. In Snowball sampling, one interviewee gives the researcher the name of at least one more potential interviewee, culminating in the “saturation” state, using the Saturation Concept of Qualitative Study.

The Survey Location

Upazila Map of Koyra, Bangladesh



https://en.wikipedia.org/wiki/Koyra_Upazila

Present Situation

Succinctly, findings from the Qualitative Survey, reveal some interesting results:

1. KII respondents gave valuable information. The issues that came to the forefront were livelihoods, education of children, food security and health. The affected population found that they often had to forgo treatment due to distance to the nearest health center. They would need to visit Koyra Thana Health Complex if medical assistance was absolutely imperative. The cyclone had caused havoc, but people's innate ability to re-coup from devastations allowed them some hope. They believe that "Aila" had caused them misery for some length of time, although it could not bring into effect any change of occupation, permanently. Ways of generating additional income became limited. For example, income from cultivating fruits and vegetables, rearing livestock has been declining lately, while the scope for employment is more or less similar.
2. As the dams were damaged by Aila, water flowed in continuously and created a stream or "khal", with great depth over the once useable land around the "beel" or swamps. Hence, income generation from those lands came to a standstill (Refer Text Box1).

TEXT BOX 1: We have lost everything. Washed away. We need to tackle salinity now. Even our drinking water has become saline. We cannot grow crops or withstand floods: no knowledge of saline tolerant varieties of crops. We do not know how to cope with salinity because our food, homes, building structures are getting eroded.

3. The respondents said that they did not get any warning before Aila, and could not foresee this storm would be so devastating. They realized that the village was getting flooded, from their neighbor, as the dam broke at 8.30 am (WAPDA dam broke in three different places on the day Aila wreaked havoc). As there is no proper electric connection in this area and most houses run on solar energy, not many people have TV. Some men heard it on radio. Some opined that not getting a proper warning has caused the most damage. If they were informed even 2 hours before the storm, the loss of life could have been minimized greatly. There would not have been as many injuries and they could have at least carried their basic necessities and valuables with them.
4. There were no shelters/centers in their area and the dam was about 2 miles away: the main barriers were: distance to the cyclone center, distance to the dam, the current, storm, not getting the warning on time and not getting any instructions on where to take shelter (Refer Text Box 2).

TEXT BOX 2: Construction of flood shelter segregated for women, and those that are distinctly separate from that of men is highly relevant in a closed and conservative society like rural Bangladesh.

5. Most of the respondents said that Aila washed away homes and their livelihood, loans piled up and husbands went away from the village to find work. This mainly included working at a brick mill. But during Aila they also pulled rickshaws, carried sand and did miscellaneous works.
6. Aid works: financial, health and education programs were being carried out by many organizations. However, there was no option but to migrate due to past loans and hopes of starting their lives afresh. Absence of husbands meant loss of work, road repairing, relief that could be received but could not be availed due to lack of information.
7. Women would take another person with them and go to remote places to defecate. They used to drink less water so that they don't feel the need to use the washroom during daytime.

8. Everyone's solar panels got ruined so volunteer organizations came forward with soaps, old clothes and kerosene lamps. Failing which, the neighbors used to help out.
9. Women used to consume less food, while males were apportioned more. If at times there was no food at home, then the neighbors would help out. They used to cook once in the whole day with twigs and leaves, in the morning.
10. Diseases increased manifolds during Aila. Fever, cold, coughs was constant. The kids frequently suffered from diarrhoea and loose motion. If the fever got too high, water was poured. The elderly suffered the most. Many were washed away with the tide. Many pregnant mothers gave premature births due to the stress and fear, and some kids died in the wombs because of the physical injuries faced by the mothers during the storm. Salinity caused hypertension, eclampsia and females were distraught during menstruation, lacking all support.
11. If any elderly person was ill, women took care by looking after them, washing their clothes, providing them with food, tending to them, 24 hours.
12. Incidents of people falling into the water while on their way to the shelter and plummeting to their deaths also happened. The ones who held onto thorny trees during the storm injured their arms and legs. Many dead bodies of the people who were taken away by the current were found, floating on the water.
13. The respondents said that irrespective of gender what they really want is that the dam be repaired properly with bricks and cement. Also, creating sluice gates in definite points so that fishing can be done in those areas. Saline water needs to be maintained and taken care of by the government (Refer Text Box 3).

TEXT BOX 3: We were shocked when Aila struck and lost agricultural produce and livestock. We are victims of flash floods and huge cyclones. However, authorities do not give us any emergency preparedness training. We also have no options for insurance to give us cover.

14. Women opined that cyclone shelters should be built on needs'-based manner: by conducting a survey on how many males and females are resident and then build toilets accordingly; two motorized tanks to be established for drinking water; increasing the height of the roads that connect to the cyclone shelter; establish hospitals according to different

areas and providing better pharmaceutical services; training women and creating more work opportunity for them.

15. For the children, they would like to have the following: a vocational school in the area, where educational programmes would also include entertainment; food for education and providing free educational materials; ensuring that everything required for child treatment is available in the hospital.
16. Elderly want proper and free treatment at hospitals, special stairs in cyclone shelters to enable the disabled too and more allocation of old age allowance (Tk.1000) for all old people.
17. Each and every family did not get the materials needed to rebuild their houses; some missed out, and they needed money to begin anew; even the organizations who provided loans were not eager to provide loans to them. Again, the ones who had previous debts were excused of the repayment installments for the next 3 months. But after the 3 months they had to repay the loan with installments again. Hence, they were pushed further into financial risk. Some migrated in distress, to earn a living.
18. Several respondents added to this by saying that most of the pressure fell on the women. They had to take care of everything at once including going to the bazaar, which was stigmatized and some women felt embarrassed at the thought of going to bazaars. Hence, the children or neighbors had to go to the bazaar which used to cost more for the family. Hence, they had to settle for cheap low-quality food, the cooking was also of low quality, hence the health of women and children deteriorated. They had to go to sleep as soon as darkness fell, because of the lack of security. As their husbands weren't there they couldn't protest if their neighbors showed lust, even.
19. If a sluice gate was built and saline water could be controlled and the agriculture of the area would immensely improve. Which in turn would create lots of employment. It would also ease livestock and poultry farming as they could be provided with more food. They would be self-sufficient in producing their own food and thus they could worry about family development and family planning, they could also send their kids for higher studies. If the dam was strengthened and made more permanent, the local people would be more at peace. They are still scared that they will lose their hard-earned wealth and fall into the depths of economic insolvency again if another disaster like Aila strikes.

20. The respondents asked for road and infrastructure by the government. They also demanded that the WAPDA dam be repaired properly with cement and extended up to Koyra, and there should be a proper path through this dam to Koyra. They think that only then can the hopes and dreams of the people of the area be achieved.

Land and other Assets before and after Aila

Respondents gave the following information about Aila and its effects:

Aila washed away all the food, furniture, blankets, and sheets from every household. Trees, farms, homes, everything was washed away by the cyclone. Land was destroyed, as many people lost their homes due to river erosion. Transferrable and immovable property was destructed, while poultry and livestock have been washed away totally, as well as gold and cash, plus infrastructure. As the schools were being used as shelter homes, the regular schoolwork was not carried out properly, and this situation has still continued to be inimical. Since the roads are flooded, the students could not attend school on a regular basis.

Health problems have escalated since Aila. Skin diseases in the palms, feet, and faces are now commonly prevalent among the general people. Children and their mothers are suffering from malnutrition. Eyesight problems have increased a lot.

Each Aila stricken family had been provided with Taka. 3000 worth of rice for six months by the government. World Vision repaired the roads and tried providing proper education through the food for education program, while water purifying tablets were provided. A work for money program was set up for the women to rebuild roads and houses. Extremely poor families were provided with home rebuilding fund and a 20,000 BDT provision. Tube-wells were made higher and stronger, and bottled water was provided. A tabular form of the effects of Aila has been provided in the Appendices.

A Glimpse at Management Strategies

During the floods, they took shelter on the embankment, where they had to cook on make-shift cooking stoves made of tin or mud. Stoves had to be raised on wooden stilts so that it was possible to cook despite the rising waters. The floating leaves, twigs, wood, scraps etc. were the main sources of fuel. Kerosene was often prohibitively expensive at that time. With relief and other

aid, the availability of lighting material and source of energy continued to prove difficult for most. During the inundation, many took refuge on trees; a pregnant woman was tied to a tree by her husband. She had to be kept there for days, after which a boat was found to take her to a shelter.

Numerous, would live on boats for a long time, cooking, bathing and using river water for household purposes as well as toilets. Women would have to spend days wearing the same clothes, soaked and saline. This would cause several types of mental and health problems. Some families moved to relatives' homes in different regions.

During the night, in the midst of darkness and surging waters, women used the embankment precipice for toilet. Many had lost their lives, so women and children would tie a rope to stumps to save themselves. Their toilets on the embankment were also of a temporary and unsanitary nature. Some hanging toilets were made on the road side after the waters subsided.

During floods, raised tube-wells are life-saving. Drinking water, if scarce, could be procured from neighbours, as also food and other essentials. For meals, there was relief food which would be rationed to last for a longer time.

Rain water would be collected systematically, to provide drinking water, while they were on the embankment. Later, when they find it difficult to access water from ponds, rivers or broken tube-wells, they collect rain water in containers for drinking purposes.

Households made high benches within their homes, raised their beds on bricks, or stayed on the roof for conducting their household chores until the water would recede. Then they would go to toilets that were on raised platforms, using the bamboo bridges, leading to the toilets.

AMENITIES

Embankments were built to be stronger by the Islamic Relief. There was dearth of pure drinking water. During the tide, the waters beyond the embankment allowed some basic needs to be performed. Toilets were hanging and unsanitary. High bamboo platforms were built by affected people to live on for many months. Many families took refuge on the roof of School buildings.

Nowadays, these embankments are muddy and very narrow. In some places these embankments have broken, allowing the saline water to encroach into the homesteads and rice lands. It does not allow any plants to grow except the "Koroi" plant. It is useful but inadequate for holding the top soil together.

NGOs and other organizations including government, distributed food and other forms of aid. They had to depend on aid for many months.

People have requested that tube-wells be built. They have to procure drinking water from a long distance. They also want trees with spreading roots. Then, the roots would arrest the soil from being washed away. The present soil with salinity and water-logged state is not conducive for plants.

4. RESTRICTIONS AND ENCOUNTERS OF WOMEN IN DEALING WITH ADVERSITIES

Gender Inequality and Vulnerability to Natural Disasters

Gender dimension of climate change vulnerability can be understood through the role of women and men in family and society. Changes in crop, fishery, poultry and livestock production due to climate change could severely impact the livelihoods and well-being of women and their children because women's participation in paid work outside home is low in South Asia, especially in Bangladesh. Social assessments and institutional analyses that include gender-based experiences in collective actions and support from local institutions or networks, are important to understand gender differential in vulnerability at the time of developing inclusive strategies for increased climate resilience. In addition, a gender sensitive analysis is also important to plan for full and equitable recovery in the case of frequent climatic events such as floods and cyclones. Women's participation in long term climate change adaptation strategies, which might have been constrained due to the traditional social norms in Bangladesh, is important where gender sensitive analysis is a prior requirement.

As discussed earlier, women are more vulnerable than men generally to all kinds of disasters and climate-related impacts due to gender inequalities in various social, economic and political institutions. Generally, women have very limited access to natural resources and information. "When cyclones and floods hit Bangladesh in 1991, the death rate for women was almost five times higher than men" Huq and Aires (2008). It happened because many women were not allowed to leave their homes without a male relative, and simply waited for their relatives to return home and take them to a shelter or safe place. On the other hand, in saline and drought prone areas where fresh water is in short supply, women have to take the responsibility of collecting water and supply it to their families. So they are often forced to walk long distances for this purpose.

Even in the hilly areas of Bangladesh, women are responsible for collecting water and firewood for family consumption throughout the year.

Analyzing the Management Experiences

Helplessness varies across areas constructed on topographical positions, forms of calamities and victims' gender. In 2002, Nelson et. al. reviewed the impacts of long-term climate change on agriculture, ecological systems, and gender intra-household decisions. The results from their secondary data context analysis scrutinized intuitively, revealed the information from documents and academic evidence-based papers, to cull out the essence of the research inquiry. The patriarchal milieu of women and their preclusions in society, in developing countries are the main reasons for inimical coping strategies adopted by females in areas affected by environmental degradations and natural hazards. Recovering from natural hazards is often a prolonged struggle for them.

In May 2009, Cyclone Aila hit the same southwest coastal zone areas that were affected by the smaller cyclone Bijli in April 2009 and devastated by cyclone Sidr in November 2007. Aila killed 193 people, but it displaced more than 297,000, and severely damaged infrastructure, institutions, crops and cultivable land, causing a huge influx of saline water into agricultural land and fresh water areas. Sudden and slow onset environmental hazards impact vulnerability of people in different ways. Thus, voluntary and involuntary relocation is one of the outcomes Cernea (1997); Warner *et al.* (2010). This is an outcome of limited anticipatory planning: women, children, elderly and disabled may become trapped and exposed to impoverishment and increased vulnerability at far higher levels. Neither do women have the opportunity to move out. Nor do they have an acceptable livelihood in their established homelands. This solicits a clarion call for rights-based national plan to assist people directly impacted by climate change and other environmental hazards;

During the tropical cyclone of Bangladesh in 1991, overwhelming majority; 90 percent were females, who lost their lives. Poorer populations especially women, are more susceptible to rapid onset of environmental change and hazards, plus children and those ill. At the time of climate hazards some gender specific attributes (such as societal attitude, cultural values, mental stress, inimical state of reproductive health, responsibility for children, guarding home and hearth, stagnant saline water increases risk of abortion, miscarriages, deformation of babies, fits and pressure etc.) intensifies females' vulnerability, Begum (2019).

Options for Migration and Policies that Endorse Movements

The Government of Bangladesh has emphasized streamlining movements into the national development plans under the Five-Year Plans as well as in the Vision 2021, and the Perspective Plan of Bangladesh. Rationally enough, migrants try to minimize risks to their livelihoods, in times of stress or structural inequities, by movements that would optimize their chances of survival. Given situations that augur threats to their lives, often, whole families are forced, coerced or involuntarily motivated to shift to safer places. Climate change often creates systemic, pervasive or surprise change, making household's coping ability, especially of the women, inadequate. Therefore, there was a need to study impacts of sudden on-set natural events, associated vulnerabilities, loss of livelihoods, process of migration, coping capacities and strategies, the influencing factors for water and cyclone-led deluge that could foster migration and whether the options are different for the same set of families (where perception plays a vital role) focusing on gender dimensions.

Based on international evidences; Karim and Noy (2016) argued that it is perhaps even more important to look at the middle to longer-term segregated impacts of natural catastrophes as these natural hazards could have regional penalties that can persist for decades. The aspect of gender dimension has been one of the top priorities for the Bangladesh government in all of its national development plans. However, to what extent these policies, particularly the gender aspects has been accepted by the beneficiaries themselves, whether female members of the households are facing specific constraints or whether specific communities require any further assistance; these constitute the major aspects of our policy aim from this study.

In the light of addressing the policy goals; this research design encompasses inclusion of not only the migrated households but also the non-migrated households to understand whether migration has been an adaptation response after a natural shock. Study focuses on impacts of the Aila hazard and longer-term recovery of the affected households through espousal of before and after information, analysis of several managing tactics at various time periods before and after the disaster, aimed to elicit insights that would then represent their needs, in the light of government's existing policy responses.

The findings from this study show that the longer-term recovery of agricultural income and expenditure (i.e., higher agricultural income and expenditure in the current time period) of the non-migrated households has

been significantly better compared to the migrated households who are found to adopt other coping measures as well in addition to involuntary migration to adapt with super cyclone Aila. Policy wise, this finding plays a very important role to justify people's voice over government's existing policy responses over migration. To justify this specific insight drawn from this study, Table 3.1 exhibits the households' perception about the government activities which they thought could have made losses from Cyclone Aila minimal. The top three government initiatives that have been highlighted by both the migrated and non-migrated households are Boundary Wall or "Bandh" renovation and construction (29.36% vs. 29.02%), Cyclone surviving High roads construction and renovation (17.86% vs. 15.57%) and More Cyclone shelter (14.23% vs. 13.46%) respectively. In light of the gender-differentiated impacts of the Aila shock, this study further justifies gender-friendly livelihood diversification options.

Table 1: Household's perception about the government activities that minimized cyclone affected losses

<i>Government activities that could make cyclone affected losses minimal (%)</i>	<i>Migrated Households</i>	<i>Non-migrated Households</i>	<i>All Households</i>
Boundary Wall "Bandh" renovation and construction	29.36	29.02	29.27
Need more Hospitals	7.16	4.75	6.5
Remove Saline water and reduce soil salinity for agricultural development	7.16	4.75	6.5
Cyclone surviving High roads construction and renovation	17.86	15.57	17.23
More Cyclone shelter	14.23	13.46	14.01
Create Job opportunity	5.85	6.07	5.91
Financial support	3.73	5.8	4.31
Forecast	5.65	4.49	5.33
Recover lands from canal developed by Aila	0.3	0.53	0.36
Reduce Corruption in relief distribution	1.21	1.85	1.39
Tubewell- source for pure drinking water	2.22	3.96	2.7
Suppressed Pirates in forest	0.3	0	0.22
Relief	1.31	2.37	1.61
Electricity	0.5	0.79	0.58
Tree plantation	0.71	1.32	0.88
House building	1.21	3.43	1.82
More educational institutes	1.21	1.32	1.24
Stop 'gher'	0	0.26	0.07
Help in livestock farming	0	0.26	0.07

Source: Survey of Cyclone Aila Victims, BIDS, 2019.

In lieu of migration, according to Table 3.2, the top government policies that seem to play an effective role for both migrated and non-migrated households are Emergency relief (39.15% vs. 42.29%), Financial support (26.8% vs. 28.45%), High roads and boundary bandh renovation (14.89% vs. 10.67%) and Cyclone shelter (13.19% vs. 11.07%) respectively.

Table 2: Household perception about the government policies that helped most during and after-Aila

<i>Government policies that helped the households most during and post- Aila (%)</i>	<i>Migrated Households</i>	<i>Non-migrated Households</i>	<i>All Households</i>
Financial support	26.8	28.45	27.25
Emergency relief i.e. foods and others	39.15	42.29	39.98
Cyclone shelter	13.19	11.07	12.63
High roads and boundary bandh renovation	14.89	10.67	13.78
Forecast	2.13	0.4	1.67
No help	1.99	3.56	2.4
House	0.43	0.4	0.42
Old age allowance	0.71	0.79	0.73
Help from NGO	0.57	2.37	1.04
Job opportunity	0.14	0	0.1

Source: Survey of Cyclone Aila Victims, BIDS, 2019.

5. DISCUSSION

Environmental hazards upset individual lives. Climate change induced risks are disproportionately carried by those who are basically disadvantaged, socially, economically and sometimes, even physically challenged, also the aged. Knowledge, skills, power relations, gender roles, health, wealth, race, ethnicity, age, physical and (dis) ability shape differential risk and vulnerability levels etc. govern individual's ability to "bounce back." Women try to handle altered hydro geophysical condition and suffer the most. Poor women are the worst affected and are among the most vulnerable. A gendered analysis would promote an understanding of the ways that men and women are differently impacted by climate driven hazards. Primarily because their adaptation and mitigation requirements and modalities are different. These issues have been focused upon in this study.

Gender Sensitive Considerations

In deltas, vulnerability will grow and gender specific adaptation options vie for attention, Begum (2017). Of critical importance are the gender sensitive

considerations, which emerge cogently: women combine care-giving with reproductive roles and household chores with income earning. In a traditional milieu, women remain secluded and vulnerable to the impacts of climate change because of strict gender codes of behavior, Begum (2017). Studies reveal the manner in which women cope with their daily work before, during and after the disasters occur. Neither are disaster shelters well planned and designed, to make it amenable for women, nor does a patriarchal society allow women to seek refuge with strangers. These prohibitions make it a second choice for women, who are entrusted with children and livestock. Moreover, salinity causes severe health problems (premature abortion, post-partum haemorrhage, urinary tract infection, hypertension: where water logged conditions prevail) for women; that could be taken into the analysis of the gendered needs of women, as distinct from men, Begum (2017).

Migration tendency has increased, hence there is need for planning to enable both destination and origin areas and secure people's livelihoods in origin areas. Social Sector agencies should be able to coordinate to reach the benefits to their program areas in collaboration with government officials. It has emerged that roads are damaged intermittently by the surge of waters making travel, income generating activities, accessing extension service and aid, quite impossible. Embankments, once collectively maintained by community, within the surveyed villages, are now breached, allowing saline water to encroach and precluding any cultivation of food crops. This is advantages for the shrimp farmers. The embankments are the arteries for movement and thus the poor farmers are rendered inept by the lack of communication. Government officials are often unaware of the state of affairs and repair and maintenance is not executed on time;

Post Aila situation for women is untenable, as wages declined, due to extended period of water stagnation. Labour market *alterations* have rendered women more defenseless and hence their remuneration is now being bargained (by the land owners) on a piece-rate basis, thus lowering their wages further. Marginal farmers and women farmers' needs must be addressed;

Use of army lists to ascertain beneficiaries is recommended, primarily because it tends to maintain standards of who deserves and who do not.

Suggestions

Womenfolk are the primary care giver in the family and the main actor for ensuring hygiene, supply of safe drinking water, cooked food for the family,

maintain processing of all agricultural produce on time, raise poultry and livestock, the courtyard/kitchen garden. Moreover, following a disaster, these women will have to queue in line, pitch in during the physical reconstruction process to safeguard against future ingress of storm or saline water, etc. Thus, this calls for a building of women's strength through more support (increase their resilience and make them more cogent partners), through empowerment targeting their physical, mental, social, economic, political, cultural and intra-households' negotiations in important decision making. The attempt of policies would therefore need to concentrate on developing gender sensitive adaptation to reduce the adverse effects of geo-physical causes of vulnerability, facilitate food supplements, ensure the provision of medical services, drinking water, healthcare, disaster preparedness, local and national provision of support and community support for improvement of their livelihoods.

Social safety protection has to be increased. Simultaneously, there is a need to create awareness among families to avoid credit from money lenders and also to cope with cyclone aftermath. Cash for work should be extended wherever it is feasible; Old-Age Allowance could be universally distributed for deserving old people. Addressing risk and vulnerability in a pragmatic way is the only option for improving the psychological atmosphere so that the victims of cyclones are again able to recoup and engage in livelihood pursuits. All that is needed is a little support in terms of resilient infrastructure like solid, technologically sound embankments that can withstand the saline water because some research evidences show that poor lose 20 per cent of their assets to crises.

Livelihoods aimed to promote adaptation to coastal fisheries through pisciculture of salt tolerant fish, coastal afforestation with community focus and ownership, new ways of earning a living, agriculture that can withstand salinity, etc. need to be introduced. Adaptation to agricultural systems in areas prone to flash flooding. Promotion of research on floods and saline tolerant varieties of crops. Information and assistance to cope with enhanced salinity due to saline water encroachment or rise in floods.

Construction of flood shelter segregated for women, and those that are distinctly separate from that of men is highly relevant in a closed and conservative society like rural Bangladesh.

Explore options for insurance and other emergency preparedness measures to address increase of cyclonic disasters.

It is important to provide drinking water for the living and assist in burial of bodies in flood affected areas; reports abound about the harrowing experience of having known people's bodies floating out of their graves. It is highly traumatic and families have to spend money on wooden caskets, which then have to be held down with boulders, under water.

Future Research Work and Limitations of this Study

Importance of integrated shelters, implementation efficacy, quality and adequacy of cyclone centers have to be studied. NSSS has not outlined it and neither has this present paper. The manner of constructing shelters without political or undue pressure from the powerful has assumed importance. Also, disaster affected structures such as rebuilding dams, embankments, roads and their proper maintenance. These structures need to be repaired and made durable, while shelters, roads and bridges must be within reasonable distance. Media has aired the urgent need of "Phoni" affected people who wanted assistance in establishing durable embankment and road construction. A similar need was strongly articulated by the respondents of this study.

6. CONCLUSION

Bangladesh's government has become a model, an example for the world, in disaster management and mitigation. There has been concerted emphasis on restructuring travels of people in response to disasters, into the national development plans under the Five Year Plans, the Vision 2021, the Perspective Plan of Bangladesh, and this has been well articulated in all GFMD Global Meetings. Despite place attachments, cultural and lineage ties, severely affected migrants try to minimize risks to their livelihoods, in times of anxiety or physical imbalances, by movements that would improve their chances of existence. Certain circumstances that are environment related - impinging upon livelihoods, posing threats to their lives, induce entire families to move. This could be construed to be basically coerced or involuntarily motivated.

Climate change often creates systemic, pervasive or surprise change, making household's coping ability, especially of the women, inadequate. Therefore, there was a need to study impacts of sudden on-set natural events, associated vulnerabilities and loss of livelihoods and process of migration, coping capacities and strategies, the influencing factors for water and cyclone-led deluge that could foster migration. The impetus was on conducting this present study. It was more relevant in a context where a super cyclone like Aila, which generated

massive relief and assistance, had left a lasting impact: an environment, devastated, with stagnant water and its effect upon the livelihoods. This analysis was more relevant for studying whether the options are different for the same set of families (where perception plays a vital role), focusing on gender dimensions. Moreover, the long-term implications of a cyclone-hit area on migrated and non-migrated households, especially women were very important as a research and policy issue. This has not yet been explored.

The scope of this study exists in realizing the coping strategy of cyclone affected people over a considerable period of time. More often than not, they resorted to their own means of survival, especially on livelihood issues, health and governance difficulties. The onus was on them for taking the decision, to remain or move. Identifying villages from where migrants have moved to the hill district of Chittagong, this study probes the specific challenges of affected populations coping with the aftermath of cyclones. Unlike others similarly devastated, these people have tried to cope as relief was given for only a stipulated period. The population for this survey of 459 households were chosen from the Scoping Study conducted in August 2018. It created an opportunity to study coping methods over a long period, from where policies could be usefully retained.

The context of the Delta Plan 2100 posed a platform which would pursue similar micro-level, in-depth studies to inform time-bound scenarios. The NSSS too was lacking in detailed strategies for different groups, which would require a region-specific implementation plan that would give credence to the document. The NSSS was comprehensive, albeit well-articulated, problems remained; it was yet to be well executed. For implementation in specific areas micro-studies, such as this, were needed. Hence the policies adopted in the NSSS should be implemented as efficiently and as effectively as possible.

Following a disaster, women will have to queue in line, pitch in during the physical reconstruction process to safeguard against future ingress of storm or saline water, etc. Thus, this demands an erection of women's strength through more support (intensify their flexibility and make them more convincing and useful partners), through empowerment targeting their physical, mental, social, economic, political, cultural and intra-households' negotiations in important decision making. The attempt of policies would therefore need to concentrate on developing gender sensitive adaptation to reduce the adverse effects of geo-physical causes of vulnerability, create provision of food and physical security.

Disaster shelters are not well planned and intended to make it amenable for women. Moreover, a patriarchal society prohibits women to seek refuge with strangers. These prohibitions make it a second choice for women, who are entrusted with children and livestock. Moreover, salinity causes severe health problems such as premature abortion, post-partum haemorrhage, urinary tract infection, hypertension, where water logged conditions prevail for women.

Women try to cope with the altered hydro-geophysical condition and suffer the most especially poor women, who are quite vulnerable. Analysis, especially a gender analysis would help towards an appreciation of the ways that men and women are differently impacted by climate driven hazards. Primarily, because their adaptation and mitigation need and modalities are different. These issues have been focused upon in this study.

In this study, respondents who were Aila affected were posed questions on before, during and after Aila situation of agriculture expenditure and incomes. Results show that although migration of households did occur as a direct response to the magnitude of the disaster, the non-migrated households have recovered, over a longer period. They solicited government and non-government aid and as a result, even improved their position compared to migrated households. Affected people were found to adopt migration as a survival strategy in response to super cyclone Aila and less inclined to move when struck by other sudden events like floods and land-slides. More than half of the respondents reported they were severely affected by cyclone Aila.

Women's vulnerabilities have been recorded to be more by many studies. Here women's vulnerability has been assessed on migrated and non-migrated families and female headed households. Almost all disasters affected females more, while male members reported that they faced more problems with cyclone Aila, hence this partially explains migration (full households as well as movements of members in stages). Income earning became a priority for males and migration was a feasible strategy but that led to prolonged exposure of females as the detrimental effects of super cyclone shock was prolonged. Likewise, there was a lag and lethargy in aid and assistance and change in policies of maintenance of infrastructure.

This study identified females to be acutely defenseless during disasters and quite vulnerable, physically, mentally, socially, economically and highly constrained in decisions related to care and management of the home. The proscriptions imposed by socio-economic and cultural milieu are often binding

and lack of employment opportunities in their immediate vicinity enforces subjugation. Income generating activities, both public and private, need to target women. Women need assistance to help them improve their socio-economic state. Cyclone shelters have to be separate and more amenable for women, especially pregnant, disabled girls and old women. They need to get preference in times of and in the after-math of disasters, and during rehabilitation and relief.

A combination of factors like non-inclusion of community, delayed maintenance of protective embankments, loss of agriculture and income etc., led to more misery for those who remained in their original homes. All households wanted post-disaster assistance. Islam *et al.*, (2013), point to the varying levels of vulnerability and lack of livelihood options for some households. These are the households who should be identified for assistance over a longer period, if possible.

An important aspect is that migration does not emerge as a spontaneous reaction in the face of a calamitous shock. Amongst the Aila affected four hundred plus, surveyed households, slightly more than a third of the households adopted migration after being affected by Aila and the other 127 households did not migrate. The FGDs also revealed people's attachment to their own lands as it is closely linked to their identity. Keeping this in mind, sensitive policy could be undertaken to assist people in their original homestead areas. Proper guidance and monitoring on a regular basis should be done.

Despite people's articulation of Government of Bangladesh's (GoB) preventive measures and early cyclone preparedness, there emerged a consensus that cyclone Aila shock was all pervasive and had longer lasting repercussion. Women of non-migrating households turned to friends and relatives (family network), for help, during Aila disaster and to GoB support after longer lasting problems persisted. This study has identified the importance of realizing people's perceptions, attitudes and responses, to be of prime significance. The beneficial/ (and or) detrimental impacts of long-term shocks, persistence of vested interests that could have regional implications; in fact, the whole gamut of governance comes into play once a disaster has touched people's lives and livelihoods. Infrastructural policies (where it is stipulated that government will be exclusively in charge of repairs and maintenance, without attention to stakeholders and the local community), are often dis-incentives to communal cohesion and hence their authority. This results in discouraging people's initiative and sabotage gains for families in need.

The extent of benefits to women (including children, too), who are at risk, the burden of care and chores, was quite an important issue in this study. Thus, coping strategies were sought, following the BCCSAP (2009) which identified women as the primary actors. In this study, women's competences, aptitudes, intrinsic values, their ability to speak, were heard on the government's assistance and preferred aid. They requested gender friendly livelihoods with facilitation of particular restraints and enabling environment for women, in their homesteads and especially in the shelters and lodgings prepared for them to survive disasters. This emerged as an important finding in this study.

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APPENDIX

Table Showing Issue-Based Responses of Aila Victims

(The respondents broke into tears many times, while talking about these issues) One USD =110 BDT (Taka)

<i>Issue</i>	<i>Rao-boner Bari</i>	<i>Jobura Begum</i>	<i>Rokeya Begum</i>	<i>Rabiul Bari</i>
ISSUE 1 Source of Income before Aila	Day Labour Catching Crab, Fishing Collecting Honey Collecting Golpata 5,000-8,000/month	Poultry Business 16,000 BDT/month	Fishing Selling Turmeric, Vegetables Lease of Land Chicken and Eggs 12,000 BDT/month	Collecting “Golpata” Local variety of leaf for roof. Catching Crabs Collecting Honey 6000 BDT/month
Assets before Aila	Fishing instruments, bed, chair, solar panel, clothes	Showcase, bed, chair, cutleries, clothes, jewelry, poultry, poultry feed, cycle, fishing net	Beds, wardrobe, showcase, chair, table, computer, dressing table, clothes agricultural equipment, kitchen items, blankets, solar panel	Jewelry, furniture, stored rice, solar panel, poultry, chair, bed, clothes
Land before Aila	5-25 decimal for homestead	10 decimal homes 5 decimal ponds	66 decimals for homes 450 decimals for fisheries	Lower class: 0-5 decimals Lower-middle class: 5-25 decimals 58 decimals for fisheries
Moveable Immovable Property	Tin shed room, livestock, motor cycles	3 Tin shed room, Poultry rearing room. Fruit trees, fisheries	3 rooms, 1 tubewell, fruit trees, livestock, poultry, fisheries	Tin shed rooms, poultry, livestock, motor cycle
Health before Aila	1 FWC, not that functional. Health was okay	Health was more or less alright	Medicine was readily available, health was good.	1 FWC, medicine was available. health was good more or less.
Children’s Education before Aila	Access to education and schools was a bit tough	Daughter goes to school, son studied till 5 th grade	No one in the family who was in the age to go to school	Access to education was tough, family was not eager to get their kids a schooling
Electricity before Aila	Electric line rarely present, solar panels used, line charge of 200-500 charged	Solar energy for home, electric line for poultry farm, 1500 BDT monthly charge	Battery and solar energy costing 10,000 and 5,000BDT	Solar energy mainly, grid lines were very rarely active
Food before Aila	Rice, vegetables didn’t grow as much, had to buy most of the food	Bought food, was solvent, spent around 10,000 BDT for food	Very solvent, no problem with food	Had to buy rice and vegetables, grew own fruit, and caught fish
Physical and Mental state before Aila	No mental or physical stress	No mental or physical stress	No mental or physical stress	No mental or physical stress
ISSUE 2 Income after Aila	No change of occupation	Lost poultry business, monthly income dropped drastically	No source of income, vegetable and fisheries all gone. Lease holders returned land.	Income decreased, lifestyle got worse, poultry and livestock farmers lost everything
Assets after Aila	Washed away furniture and all other belongings including trees and farms	Washed away furniture, cutleries, cycle, fishing instruments, etc. loss of 20,000tk worth of assets	Could save the livestock, couldn’t find any other asset in their home, and recovered some furniture later on.	Every single thing they owned, got washed away

<i>Issue</i>	<i>Rao-boner Bari</i>	<i>Johura Begum</i>	<i>Rokeya Begum</i>	<i>Rabiul Bari</i>
Land after Aila	Heavily damaged land for house, everything got submerged in water.	Heavily damaged land for house, fisheries and pond. Had to spend 55,000 BDT for reconstruction	Almost everything got damaged heavily and submerged in water. Could not earn from fisheries for 4 years after Aila	Land for house got heavily damaged. Land for fisheries got damaged
Moveable Immovable Property	Jewelry and cash lost, livestock got washed away completely	Damage worth 28,000BDT. Could only recover tin sheds and a few trees	Endured heavy damage	Homes got washed away as a whole, solar panels got washed away, poultry farms got ruined completely
Health after Aila	Skin diseases, malnutrition	Weights dropped due to poor quality and quantity of food. Require 500-600BDT worth of medicine for every member/month	High blood pressure, cataract, malnutrition and anemia	Diarrhea affected children. Waterborne diseases increased due to the polluted water. Frequency of fever and colds increased.
Children's Education after Aila	Schools were used as shelter homes. Impossible to commute to school	The daughter's studies got hampered greatly	None, since nobody was studying in the family	Schools were used as shelters, roads and connectivity was completely damaged hence going to schools was not possible
Services after Aila	Relief food and other necessities, plastic tanks, food for education program, tubewell and soil elevation programs	N.A	N.A	Relief food, saline, food for education programs
Food after Aila	Food left at home could not be recovered, all crops and vegetables got washed away	Food worth 3000 BDT left at home got washed away completely.	Food worth 4000 BDT left at home got ruined. Relied on relief food	The food left at home could not be recovered, all the crops and vegetables got washed away.
Physical and Mental state after Aila	Lost all mental and physical strength	Anxiety, complete loss of mental strength, diminishing physical strength.	Anxiety, loss of mental and physical strength.	Everyone went into depression. Lost mental and physical strength.
Issue 3 Best Coping Strategy	Migration by the upper middle class. Tongs. Taking shelter over the dam. Using fuel wood that came floating with the current. Drinking water collection during high tide. Making tin and earthen stoves. Bathroom routine for women. NGO work.	Carrying some money and dry food when on the way to the cyclone center. Using broken branches to build shelters. Making tin and earthen stoves. Bathroom routine for women.	Changing eating habits. Collecting fuel wood during tides. Using kerosene lamps. Creating tongs. Collecting and storing clean drinking water. Make-do bathrooms. Selling off the cattle to meet other demands.	Taking shelter over the dam. Bathroom routines for women. Making tin and earthen stove. Using fuel wood that came floating with the current. Drinking water collection during high tide.
Issue 4 Major source of income of the local people	Catching crabs. Shipbuilding work. Seasonal physical labour.	Catching crabs. Agriculture. Working at brick mills.	Fishing and catching crabs. Working at brick mills.	Fishing and catching crabs. Working at brick mills. Collecting honey.

<i>Issue</i>	<i>Rao-boner Bari</i>	<i>Johura Begum</i>	<i>Rokeya Begum</i>	<i>Rabiul Bari</i>
Issue 5 Whether migration was the best coping strategy		Yes, for quick financial gains. No, in the long run.	Yes, looking for work elsewhere was very effective.	No, it wasn't the best, but it was effective.
Issue 6 Resources provided by state, NGO, community	House and land repairs. Road and infrastructure development. Tk.20,000 help to needy families. Food for education program. Old clothes. Rice. Sanitation facilities.	House and land repairs. Sanitary provisions. Water tanks. Medicines. Old clothes. Cutleries. Rice supply	NGO provided many relief items. Water tanks, water purifying tablets. Rice and puffed rice. Old clothes. House rebuilding	Rice and puffed rice. Old clothes, kerosene lamps. World Vision- Food for Education program. Road and Infrastructure repair/development. Water purifying tablets, water tanks. 20,000 BDT help to needy families
Issue 7 Impact of cyclone on women	Many died while trying to save their children during the cyclone. Couldn't eat or cook in time. Had to handle everything in the household in such a crowded environment.	Major sanitary problems. Had to handle everything in the household in such a crowded environment.	Trouble managing household and kids. Trouble with cooking and eating. Major sanitation problems.	Sanitation problems. Collecting water. Cooking and eating issues. Had to handle everything in the household in such a crowded environment.
Issue 8 Impact on Men	Unemployment. Fishing equipment got ruined. Had to migrate to earn and support family and lives.	Unemployment. Fishing equipment got ruined. Had to migrate to earn a living.	Unemployment. Had to migrate to earn a living.	Unemployment. Fishing equipment got ruined. Had to migrate to earn a living.
Issue 9 Impact on Children	A lot of children lost their lives during the storm. Fever, diarrhea and other diseases. Couldn't go to schools.	No place to play. Many diseases and constant fever. Studies were hampered greatly.	Over-crowded shelters made the children restless. Diseases plagued them constantly.	Many diseases with constant fever. Studies greatly hampered. No place to go out and play. Restless because of overcrowded living.
Issue 10 Impact on pregnant women	Restricted movements. Couldn't get proper rest. No experienced nurse, the delivery was made by inexperienced neighbors. Lack of privacy and sanitation.	Movement was very restricted. Lack of proper sanitation and privacy. No experienced nurse, the delivery was made by inexperienced neighbors.	Couldn't get adequate rest. Couldn't get the extra care, food as needed. Movement was very restricted. Lack of proper sanitation and privacy.	Could not rest. Couldn't get the extra care, food as needed. No experienced nurse, the delivery was made by inexperienced neighbors. Complete lack of privacy.
Issue 11 Impact on Disabled	Loss of life during the cyclone. Restricted movement.	Restricted movement. No special care.	Restricted movement. No special care. Inadequate food.	Difficult to get to cyclone center. Received very little special care.
Issue 12 Impact on elderly	Lack of medical care, problems with movement and sanitation.	Lack of medical care and scope for movement.	Sanitation and movement issues. Lack of proper medical care. Inadequate food.	Lack of medical care, problems with movement and sanitation. Restlessness.
Issue 13 Most effective government initiative	Providing instantaneous relief. Providing rice for 6 months without conditions. Letting NGOs carry on development work	Relief given for 6 months. Prompt relief supply.	Immediate relief supply. Letting NGOs work. Removed restrictions on roaming in the rivers and forest.	Relief given for 6 months. Rice and Puffed rice supply right away. Letting NGOs work. Providing clean water.

<i>Issue</i>	<i>Rao-boner Bari</i>	<i>Johura Begum</i>	<i>Rokeya Begum</i>	<i>Rabiul Bari</i>
Issue 14 Barriers and solution	Distribution of relief was very shady with instances of corruption. The solution is to not be entrapped by local officials and use the help of NGOs to supply relief materials	Dishonest UP officials. Electing better representatives.	None	Barriers: Many left out from receiving relief. The solvent families faced more damages in comparison but did not receive relief properly. Officials did not pay enough importance to repairing the dam. Solution: Ensuring everyone gets relief. Surveying losses. Forming a dam protection committee
Issue 15 Future government strategy	Tree plantation on both sides of the road. Saline water control. Creating factories or mills in the area. Tree plantation on both sides of the dam. Creating more cyclone centers.	Letting people know about the cyclone earlier through announcements. Creating more shelter homes and having the provision to keep livestock at high grounds for protection	Letting people know about the cyclone at least 4 hours before. Building a proper dam. Creating more shelters in nearby locations	Creating a well paved road on top of the dam after repairing it properly. Creating more shelter homes
Issue 16 Support Agencies	Islamic Relief, World Vision, Rupantor, UNDP, Shushilon, Gono Mukhi Shamity	Islamic Relief, World Vision, UNDP, Shushilon	Islamic Relief, World Vision, UNDP, Rupantor	Islamic Relief, World Vision, Rupantor, UNDP, Shushilon.
Issue 17 Positive impact of support agencies	House repairs. stronger foundations. Attraction to education increased due to food for education programs by world vision. Women could get involved in livestock and poultry rearing. Awareness for disaster management	House repairs, stronger foundations. Food for education programs by world vision. Dam repair saved their land from being flooded. They can use their land now	Relief, Old clothes. Food for education programs. Building tongs, proper latrines. Roads and dam repair. Two community clinics were built.	Temporary dam repair stopped flooding. Poultry and livestock farming are once again possible. Road repairs made commuting easier. Relief works helped. Awareness for disaster management.
Issue 18 Local facilities for cyclone management	Cyclone center or school present in every area. Raised Plinth for Proper latrines and high tube wells. Tree plantation around homes. Proper disaster preparation	Cyclone preparedness and awareness is higher now because of training. High tube well and proper latrines present at every community.	High tube well for every community. Paved foundations. Proper latrines. Cyclone warning given in mosques and mics. Cans and vases for collecting water.	Primary school modified as cyclone center. High tube well for every community. Proper latrine. Cyclone preparedness and awareness is higher now
Issue 19 Problems in receiving help	The ones who conducted surveys and distributed relief themselves, have had no problems. Union Parishad officials caused problems	Haven't faced any problems	Sometimes the relief amount is lower than expected. Favoritism shown by authority while granting relief items	Nothing major but had to give money to Union Parishad to receive NGO grants

<i>Issue</i>	<i>Rao-boner Bari</i>	<i>Johura Begum</i>	<i>Rokeya Begum</i>	<i>Rabiul Bari</i>
Issue 20 Awareness about government DM policy	Provided relief timely. Created cyclone shelters. Raised awareness. They know about these briefly	Provided timely relief. Raised awareness. Created cyclone shelters. Collaborated with NGOs to help out the distressed people.	Provided relief timely. Created cyclone shelters. Mike announcement, flag raised over dam for precaution, storm announcement made in mosques	Created cyclone shelters. Mike announcement, flag raised over dam for precaution, storm announcement made in mosques. Road repairing
Issue 21 Problems in getting assistance	Complications in receiving relief through UP	Complications in receiving relief	Complications in receiving relief	Complications in submitting names to the UP for receiving relief
Issue 22 A Relief from government	Everyone received government relief	Everyone received government relief	Everyone received government relief	Everyone received government relief
Issue 22 B Donation from organization	Latrine, water tank, saplings, house repair, relief items, clothes, hygiene products	Paid for house repairs. Provided relief, necessary healthcare and hygiene products	Water tank, relief, diarrhea tablets, saline, water purifying tablets, clothes, house and road repairing aid	Relief, Water tanks, educational instruments, saplings, old clothes, house repairing aid
Issue 23 Type of help that would be better	Building a permanent dam with a proper road across it. Sluice gate for controlling saline water. Tree plantation around the dam and roads. Creating employment	Building a permanent dam with a proper road across it. Sluice gate for prawn cultivation. Creating employment	Creating employment in the area. Developing the roads for easier communication. Making FWC more effective and developed	Monitoring health officer's work, building a proper dam with a proper road. Sluice gate for prawn cultivation. Creating employment
Issue 24 Other Issues	Controlling saline water. Creating employment, advancing livestock rearing and agriculture	Creating employment by establishing mills or factories in the area. Improving roads	Creating women employment. Controlling the salinity of the waterbodies	Creating employment by improving agriculture and pisciculture in the area