

Social safety nets for survivors of climate change: A study of the impact of cyclones and storm surges on poor people of coastal Bangladesh

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1. Introduction

Bangladesh is a territory created by the age-old process of melting the Himalayan snow; and the icy water sweeps along particles of soil, forming into rivers that rush to the Bay of Bengal. The two big rivers, the Ganges and the Brahmaputra along with some other rivers carried and deposited soil particles, building up a delta, namely Bangladesh (Van Schendel, 2009). As Bangladesh is situated between the Himalayas and the Bay of Bengal, climate change has a great impact on the country: first, due to global warming the melted Himalayan snow causes fresh floods almost every year and second, the cyclones created in the Bay of Bengal hit coastal Bangladesh on a regular basis. Bangladesh may be particularly vulnerable to four effects of global warming: a rise in sea level, deeper flooding, greater cyclone frequency and crop loss resulting from higher temperatures. Moreover, parts of the delta's land mass are thought to be subsiding. Some suggest that Bangladesh should be prepared to deal with climate exiles from its coastal belts by the middle of the century (Van Schendel, 2009).

The inhabitants of the Bengal delta have already experienced four huge devastating cyclones in last five decades. The first, in 1970 resulted in a death toll of 0.5 million (Ali, 1999) to 1.2 million people; the second, in 1991 caused 138,000 human casualties (Ali, 1999); the third, in 2007 named 'Sidr' accounted for lives of 3,347 people (Siddiqui, 2014); and the fourth, in 2009 named 'Aila' killed 320 people (Masud-All-Kamal, 2013). The most affected people of these cyclones were the coastal populations specifically from the districts of Satkhira, Khulna, Bagerhat, Pirojpur, Jhalakathi, Barishal, Barguna, Patuakhali, Bhola, Chandpur, Lakhsmipur, Noakhali, Feni, Chattogram and Cox's Bazar.

1.1 Statement of the Problem

Most of the devastating cyclones of the last century caused a huge death toll for human being and livestock. Due to the development of precautionary systems, infrastructures and communication death tolls have been reduced dramatically over time; however, the other impacts of cyclones remained enormous. Siddiqui (2014) assessed and described the damages caused by the super cyclone 'Sidr' which hit on 15 November 2007. One thousand nine hundred and Fifty Unions of 200 Upazilas (sub districts) under 30 districts were affected. The number of affected people was 8.9 million of 2.0 million families. One thousand seven hundred and fourteen kilometre of roads and 4,231 educational institutions were completely destroyed. Six thousand nine hundred and sixty-one kilometre of roads and 12,772

educational institutions were partially damaged. A total of 363,346 dwellings were completely destroyed while 815,628 were partially damaged. Crop lands of 461,399 acres were completely destroyed and 1.2 million acres of standing crops were partially damaged. Livestock casualties were 461,750. Moreover, GoB (2008) assessment found a widespread outbreak of waterborne disease, respiratory tract infection, and other related infections as an aftermath of the cyclone 'Sidr'.

Super cyclone 'Aila' hit 12 districts of southern coastline of Bangladesh hard on 25 May 2009. Referring to the Ministry of Disaster Management and Relief, Ashraf and Shah (2016) cited the following damages caused by 'Aila': 77,486 acres of crops were fully and 245,968 acres were partially damaged respectively; 157 bridges and culverts were fully destroyed; 237 kilometre of embankments were fully and 1,557 kilometres were partially damaged respectively; 243,191 households were fully and 370,587 were partially damaged; 445 institutions were fully and 4,588 were partially demolished; and 2,233 kilometre of roads were fully and 6,621 kilometre were partially damaged (Source: GoB (2009b)).

The other significant cyclones and/or storm bore hit on the coastal Bangladesh in recent years were 'Nargis' on 27 April 2008; 'Mehasen' on 16 May 2013; 'Foni' on 3 May 2019; 'Bulbul' on 8 November 2019; 'Amphan' on 20 May 2020; 'Yass' on 26 May 2021; and 'Sitrang' on 24 October 2022.

Regardless of economic conditions, all the inhabitants of the coastal area were affected by the cyclones and storm surges somehow or other; however, most of the victims were the poor for two reasons. First, the overwhelming majority of coastal residents were impoverished (Paul & Dutt, 2010). Second, due to their poverty, they lived in poorly constructed houses, and the cyclone shelters were inadequate to protect them all (Paul & Dutt, 2010). Mathbor (2007) argued that the loss of lives was largely attributed to a lack of adequate housing capable of providing shelter during the cyclone. Casualties were directly related to the types of housing and shelter seeking activities; no deaths occurred among individuals living in houses made of brick and concrete and ones who took shelter in these buildings (Bern, Snizek, Mathbor, Siddiqi, Ronmans, Chowdhury, Choudhury, Islam, Bennish, & Noji, 1993; Kabir, 2016). Kabir (2016) found that the elderly, infants and women were the most affected during and after the cyclones 'Sidr' and 'Aila'.

Despite a long history of cyclones in the country, there was no policy until recently to manage the situation. The Government of Bangladesh adopted "Bangladesh Climate Change Strategy and Action Plan" in 2009 that includes floods, tropical cyclones and droughts. Consequently, the government formulated several policies, action plans and orders. They include Bangladesh Delta Plan 2100, Mujib Climate Prosperity Plan, Climate inclusive updated National Environmental Policy (2018); Updated Standing Order on Disaster (2019). Although there was no policy until 2009 on climate change, there is a long history of government interventions in combating cyclones. Governments undertake two types of measures in addressing the disasters of cyclones: preventive and remedial. Preventive measures include building of cyclone shelters, development of warning systems, and spreading of awareness programs. The remedial measures offer short term emergency programs such as food, water and medical assistance as well as long term rehabilitation programs. GoB (2009a) outlines six categories of programs to address climate change issues: a) food security, social protection and health; b) comprehensive disaster management; c) infrastructure; d) research and knowledge development; e) mitigation and low carbon development; and f) capacity building and institutional strengthening.

The programs under food security, social protection and health are treated as social safety net programs (SSNPs) that is the main focus of the current research. Consecutive governments implemented a range of SSNPs to reduce disaster risks which help people to cope with disasters and anticipated climate impacts in order to protect millions of its vulnerable women, children, and men (GoB, 2010). Referring to the Ministry of Disaster Management and Relief, Ashraf and Shaha (2016) cited four programs implemented by the ministry after the super cyclones 'Sidr' and 'Aila': Vulnerable Group Feeding (VGF), Gratuitous Relief (GR), Test Relief (TR), and Employment Generation Program for extreme Poor (EGPP). The Department of Social Services (DSS) provides their normal services for the inhabitants of the coastal area, however, they do not have any special program, either short term or long term, for the survivors of climate change.

1.2 Rationale of the Study

According to the *Constitution of Bangladesh*, all citizens of the country have the right to enjoy their dignity, fundamental human rights and have social equality. The Constitution has said

that Bangladesh should make sure persons have equal rights like everyone else. These include the right to:

- ✓ Recognition of equal citizenship;
- ✓ Right to proper health service;
- ✓ Right to discrimination-free employment opportunities.

However, in Bangladesh not all the people are enjoying these rights. The disadvantaged people, poor people in coastal area of Bangladesh in particular, are still far behind from the upper class. They are not included in policy making or program implementation process.

A literature review undertaken by the researcher found that few researchers have studied the impacts of the social safety net programs on the victims of cyclones and storm surges. Moreover, there were few studies undertaken where the voices of the poor persons who have been hit hard by cyclones and storm surges were central to the research. This is one of the gaps this research intends to address. More importantly, those who studied the two major cyclones ('Sidr' and 'Aila') did not focus on the effects of the SSNPs mentioned above, as to how far these programs were capable of reducing short term vulnerabilities and improving sustainable livelihoods of the survivors.

Masud-All-Kamal and Saha (2014), Ashraf and Shaha (2016), Shamsuddoha, Khan, Raihan, and Hossain (2012), and Islam and Hasan (2016) studied the impacts of cyclone 'Aila', however none of them studied the impacts of SSNPs on the lives of the victims of the cyclone. Masud-All-Kamal (2013) and Ashraf and Shaha (2016) emphasised coping and recovery strategies of the cyclone 'Aila' affected people. On the other hand, Shamsuddoha, Khan, Raihan and Hossain (2012); and Islam and Hasan (2016) focused on displacement and migration due to the cyclone 'Aila'.

Kabir (2016) and Siddiqui (2014) studied both the cyclones 'Sidr' and 'Aila', however, they did not focus on impacts of SSNPs on the lives of the survivors. Siddiqui (2014) only concentrated on the impacts of climate change on the ecosystem in coastal Bangladesh. Kabir (2016) studied the impacts of climate change on socio-economic condition, health and vulnerabilities of the survivors.

From the above discussion it is seen that current literature has a gap in addressing the impacts of SSNPs on reducing vulnerabilities and ensuring sustainable livelihoods for the survivors of cyclones and storm surges. Further study is required to analyse critical issues and to contribute to the further development of national programs to address the vulnerabilities of the survivors of climate change in an effective and comprehensive way. Although Bangladesh has been continuing with the social safety net programs for over two decades, in this regard, so far only a few micro level academic studies appears to have been done to unfold the impact of the programs on reducing vulnerabilities and ensuring better livelihoods and analyse the perceptions of the beneficiaries about the interventions. Thus, a study aiming to analysing the qualitative impacts of the interventions on the lives of the survivors by sharing experiences of the beneficiaries as well as quantitatively measuring the predicament and assistance given to them merits special attention.

This project investigates the social and economic impact on vulnerable societies as a consequence of natural disasters brought on by climate change. Previous researchers' studies revealed the impoverished conditions of the poor survivors of coastal Bangladesh, however, further investigation is needed to explore the impacts of SSNPs on poor people's lives that were vulnerable in two ways: as a poor and as a victim of climate change that might deteriorate their vulnerabilities.

1.3 Research Aims and Questions

1.3.1 The Aims of the Research

In perspective of the above discussion, while the present research primarily intends to capture the impacts of the Social Safety Net Programs on reducing vulnerabilities and ensuring sustainable livelihoods of the poor survivors of the cyclones and storm surges, the specific objectives are to:

- (a) Assess the impacts of the SSNPs on reducing vulnerabilities and ensuring sustainable livelihoods of the beneficiaries;
- (b) Explore the strengths and weaknesses of SSNPs as a means to reducing vulnerabilities and ensuring sustainable livelihoods of the beneficiaries; and
- (c) Provide policy implications based on the research insights to reducing vulnerabilities and ensuring sustainable livelihoods of the poor survivors of cyclones and storm surges.

1.3.2 Research Questions

To address the above aims of the current research the following research questions were asked:

1. How and to what extent poor people of coastal Bangladesh affected by cyclones and storm surges?
2. What benefits received by the poor survivors of cyclones and storm surges from the government and non-government sources?
3. What are the perceptions of participants about the impacts of the Social Safety Net Programs on reducing vulnerabilities and ensuring sustainable livelihoods of the poor survivors of cyclones and storm surges?
4. What are the implications for policy and practice in relation to existing system of SSNPs in order to reducing vulnerabilities and ensuring sustainable livelihoods of the poor survivors of cyclones and storm surges?

2. Literature Review

Bangladesh is commonly recognized as one of the world's most climate vulnerable nations. A number of both sudden and gradual climate change events, such as extreme temperatures, altered rainfall patterns, rising sea levels, saline intrusion, and stronger cyclones, storm surges and floods have an impact on the country's key industries, including water resources, food security and agriculture, the ecosystem, and health. Currently, the Ministry of Environment, Forest, and Climate Change (MoEFCC) has developed Bangladesh's National Adaptation Plan (2023-2050). It stated that by 2050, the number of internal climate migrants might reach 19.9 million, accounting for half of the total South Asian population. Under severe scenarios, the present annual GDP loss of around 1.3 percent due to climate-induced disasters might increase to 2 percent by 2050 and more than 9 percent by 2100 (GoB, 2022a).

This chapter will discuss about the SSNP activities in Bangladesh, current policy, and strategy developed in Bangladesh and their laps and gaps.

2.1 Current SSNP activities in Bangladesh:

The Bangladeshi government now spends around 6-7 percent of its yearly budget on climate resilience through adaptation measures, with domestic resources accounting for 75 percent of the total expenditure (GoB, 2022a).

The creation of crop types resistant to stress, the widespread use of floating agriculture, and efficient irrigation techniques have all been made feasible by advancements in agricultural science. These developments have helped to enable year-round vegetable farming and the cultivation of diverse crops to assure food and nutrition security. Climate-smart fisheries, aquaculture, and livestock development, enhanced post-harvest facilities, food storage silos, and other innovations all contribute to a more resilient food production system, hence strengthening food security. Integrated and participatory water management, along with expanded early warning systems, irrigation, flood and erosion protection programs, has allowed for a complex mixing of structural and nature-based interventions to improve disaster preparedness and climate resilience. Coastal afforestation initiatives have been implemented to stabilize the shoreline and create a green belt by including community members. The transformation of constructing climate resilient infrastructures, improving public health, and increasing urban resilience is ongoing. The BCCT has performed over 800

initiatives aimed only at effective climate adaptation and mitigation. Bangladesh is also making progress in global climate change forums and has left a significant legacy of climate change adaptation (GoB, 2022a).

The NAP aims to reduce risks and vulnerabilities to climate change impacts by implementing effective adaptation methods that support a strong society and ecosystems and stimulate long-term economic growth. Six national adaptation goals have been established to realize this vision: Goal 1: Provide protection from climate change variability and caused natural catastrophes. Goal 2: Create climate-resilient agriculture to provide food, nutrition, and livelihood security. Goal 3: Create climate-smart cities to enhance the urban environment and well-being. Goal 4: Promote nature-based solutions for forest protection, biodiversity, and community well-being; Goal 5: Implement excellent governance by including adaptability into the planning process; and Goal 6: Foster transformational capacity building and innovation in CCA.

The NAP implementation attempts to fulfil these six objectives by implementing 23 comprehensive strategies and 28 outcomes that include many elements of climate-induced catastrophe mitigation. It will encourage climate-resilient practices in agriculture, infrastructure, and the economy through inclusive and ecosystem-centered adaptation, better governance, enhanced climate finance, transformative capacity building, and innovation. The NAP, which includes 113 actions across 11 climate stress regions, is consistent with the Sustainable Development Goals (SDGs) and 52 climate adaptation programs outlined in the Bangladesh Delta Plan 2100. These initiatives stress the participation of marginalized populations, including women, people of different gender identities, the elderly, people with disabilities, youth, and ethnic communities. Instead of sporadic and short-term attempts, suggested treatments will be executed cohesively and systematically to improve adaptation efficacy, avoid duplication or misallocation of resources, and reduce maladaptation risk. This strategy enables stakeholders to choose and implement locally relevant adaptation activities based on community objectives (GoB, 2022a).

Social safety net programme:

Bangladesh Economic Review 2023 stated that the social safety nets are being distributed through several programs like Rural Infrastructure Reform Programme (FFW-Food

grains/cash), Maintenance of Rural Infrastructure (TR-Food grains/Cash) Programme, The Employment Generation Programme for the Poorest People (EGPP) etc. (GoB, 2022b).

Rural Infrastructure Reform Programme (FFW-Food grains/cash): Ministry of Disaster Management and Relief is implementing the Rural Infrastructure Reform Programme (FFW-Food grain/cash) with the purpose of creating employment and ensuring food security for the poor in rural areas and to keep positive impact on poverty alleviation and disaster risk reduction. In FY 2022-23, a total of BDT 1,500 crore has been allocated in Kabita (cash for work) budget and 1 lakh tons of rice and 1 lakh tons of wheat for Kabikha (food for work) budget.

Maintenance of Rural Infrastructure (TR: Food grains/Cash) Programme: This programme is implemented with the aim of ensuring social security and food security in disaster risk reduction and adaptation to climate change and creating employment for the poor in rural areas and creating a positive impact on poverty alleviation and disaster risk reduction. Under this programme, a total of BDT 733.33 crore has been allocated in FY 2022-2023.

The Employment Generation Programme for the poorest people (EGPP): The Programme is one of the largest social safety net programmes of the Government of the People's Republic of Bangladesh, implemented by the Department of Disaster Management under the Ministry of Disaster Management and Relief. The program plays a significant role in construction/repair/ renovation of rural infrastructure including capacity building for poverty alleviation and disaster risk reduction by generating of short-term employment during the non-working season of the year. Under this programme, out of the total budget allocation of BDT 2,146.54 crore, in FY 2022-23, BDT 1,073.27 crore have been allocated in the 1st phase.

Vulnerable Group Feeding (VGF): The Department of Disaster Management under the Ministry of Disaster Management and Relief is implementing the programme. This assistance is usually given to the affected families until the livelihood of poor people is restored in the post-disaster period. Each family is given 20-40 kg of rice/wheat per month for 2 to 5 months.

Emergency Humanitarian Assistance Program (GR): Under this programme, in FY 2022-23 4971.00 Metric Ton of food grains and BDT 795.50 lakh have been allocated in the budget.

Water Development Board to Combat Climate Change Risk and Disaster Management: To tackle the climate change effects and natural disasters, BWDB has taken different projects under Bangladesh Climate Change Trust Fund (BCCTF). To address the effects of climate change, Bangladesh Water Development Board, with funding from the Climate Change Trust Fund, has completed 130 projects from 2009-10 to February, 2023 at a cost of BDT 1,061.08 crore. Implementation of 6 projects at a cost of BDT 40.43 crore is in progress. These projects are related to construction/repair of polders/dams in coastal chars, construction of cross dams for land reclamation, river bank protection, re-excavation of rivers/canals, and afforestation. Due to flood control, protection of saline water intrusion, removal of water logging, availability of water, and effective water management the livelihood of beneficiaries of the project areas has been improved and adaptation capability has been increased to combat adverse effects of climate change.

Significant on-going development projects:

Construction of bridge/culvert up to 15m in rural roads: In 490 upazilas of 64 districts of the country, with the aim of providing quick and easy travel to shelters during disasters, development of water drainage system and elimination of waterlogging in rural roads, establishment of communication with educational institution, haat-bazar and support in transportation and marketing of agriculture products and construction of 1, 56,000 meters bridge/culvert is in progress.

Disaster Risk Management Enhancement Project (Funded by JICA): The main activities of the projects are to purchase various equipment such as HF Base Set, 40Ft Tower for HF Base Station, first aid kit box, stretcher, siren, radio set, life jacket, megaphone and 12 water rescue boats. This equipment will be supplied to 35 upazilas to support emergency rescue operations during disasters.

Construction of District Relief godown cum Disaster Management Information Center: Construction of 65 district relief godown cum disaster management information centers in 64 districts is underway to increase capacity in emergency response and provide district-wise relief materials during disasters.

Construction, renovation and development of Mujib Killa project: Under this project, 505 Mujib Killas are being constructed in 232 upazilas in 38 districts of the country to provide shelter to people and livestock and to protect the valuable resources of people.

Construction of HHB road in rural area to sustain earthen road: Construction of 5200 km of HBB roads in 490 upazilas of 64 districts of the country for the purpose to reducing of disaster risk and easy travel to shelters during disasters and establishing communication with educational institutions, haat-bazaar and providing support in transportation and marketing of agricultural products.

Construction of Flood shelters in river erosion and flood prone area (3rd Phase): 423 flood shelters will be constructed in 247 upazilas of 42 districts to reduce disaster risk and to protected lives, animals and vital resources of poor communities in flood prone and river erosion areas (GoB, 2022b).

2.2 Current Policy, strategy developed in Bangladesh and their laps and gaps:

The Ministry of Environment, Forest, and Climate Change (MoEFCC) has recently crafted the 'National Adaptation Plan of Bangladesh (2023-2050)'. Bangladesh has showcased its effectiveness in disaster readiness through initiatives such as the Cyclone Preparedness Programme (CPP), boasting the world's largest gender-balanced volunteer group of over 76,000 members. The construction of cyclone and flood shelters, inclusive of gender and disability considerations, alongside initiatives like boat ambulances, relief warehouses, digital information centers, and Mujib Killa, has substantially minimized casualties and damages from disasters. Notably, the successful evacuation of 2.4 million individuals within five days following the super cyclone 'Amphan' underscores Bangladesh's robust emergency response capacity and commitment to disaster risk reduction (GoB, 2022a).

The development of the NAP extensively relied on stakeholder consultations to gather feedback and insights on climate change impacts. Priority was given to the voices of local communities, women, individuals with diverse gender identities, persons with disabilities, youth, ethnic groups, children, the elderly, vulnerable populations, the private sector, and disadvantaged communities, ensuring a participatory and inclusive formulation process. Over 35 stakeholder consultations, as well as more than 100 key informant interviews and focus

group discussions involving approximately 5,000 participants across the country, were conducted from January 2021 to June 2022, spanning local, district, and national levels. The formulation process integrated insights from the Sixth Assessment Report of the Intergovernmental Panel on Climate Change (IPCC), scientific and indigenous knowledge, locally driven adaptation practices, and internationally recognized guidelines from expert groups focusing on least developed countries. Additionally, inputs were gathered from organizations such as the UNFCCC, the Global Programme of Research on Climate Change Vulnerability, Impacts, and Adaptation, the Sendai Framework for Disaster Risk Reduction 2015-2030, and other entities including the United Nations Environment Programme (UNEP), the Food and Agriculture Organization (FAO), the International Union for Conservation of Nature (IUCN), and the World Health Organization (WHO). The formulation process also took into account new Shared Socioeconomic Pathway (SSP) scenarios, particularly SSP1-2.6 (2030) and SSP5-8.5 (2030, 2050), based on Coupled Model Inter-comparison Project (Phase 6) models for scientific assessments (GoB, 2022a).

The NAP primarily focuses on eight key sectors: water resources; disaster management, social safety, and security; agriculture; fisheries, aquaculture, and livestock; urban areas; ecosystems, wetlands, and biodiversity; policies and institutions; and capacity development, research, and innovation. Additionally, cross-cutting issues such as infrastructure, water and sanitation (WASH), health, gender, youth, the elderly, persons with disabilities, ethnic communities, socially disadvantaged groups, and the private sector are integral components in identifying suitable strategies aligned with national objectives (GoB, 2022a).

The NAP proposes an inclusive institutional framework, nested within the current institutional setup, to facilitate locally driven adaptation efforts at both national and local levels. The National Council on Environment and Climate Change will oversee strategy and policy-level progress, while the Inter-ministerial Steering Committee on Climate Change will provide guidance and ensure inter-ministerial coordination. Additionally, a National Technical Advisory Committee will coordinate NAP implementation, supported by a Technical Working Group. District development coordination committees will play a pivotal role in supervising climate change adaptation initiatives, working in tandem with local committees, disaster management bodies, and representatives from marginalized groups, NGOs, and civil society organizations. This institutional setup aims to integrate the NAP into Bangladesh's

development planning cycle, aligning with various strategic documents and agendas. Mandatory climate impact assessments will complement feasibility studies to promote climate-resilient development, with emphasis placed on policy and institutional reforms to support these arrangements (GoB, 2022a).

The NAP implementation process will adopt a monitoring and evaluation (M&E) framework that incorporates both simple and comprehensive approaches across strategy and policy, planning, and program/project levels. Utilizing a theory of change, this system will leverage existing and SMART indicators to facilitate results-based monitoring, evaluation, and learning, synchronizing with initiatives such as the Integrated Budget and Accounting System (iBAS++), the SDG tracker, and the M&E framework of the BDP2100. The NAP's M&E framework will feature user-friendly web-based tools and offline apps, along with standardized protocols for data collection, processing, and sharing. Capacity development initiatives will support stakeholders in generating regular M&E reports, emphasizing strategic data and knowledge management in collaboration with existing agencies to enhance communication and reporting to wider audiences and the UNFCCC (GoB, 2022a).

In an endeavour to address the challenges posed by climate change, BRAC, one of the world's largest NGOs, placed a significant emphasis on 'Building Resilience to Climate Change' as one of its primary strategic priorities over the past five years (2016-2020). Consequently, all BRAC programs were mandated to integrate climate change considerations into their development activities and strategic planning processes. To facilitate this integration, BRAC has developed a Climate Resilience Framework, which aims to systematically incorporate climate considerations into development decision-making and enhance resilience against emerging, indirect, and slow-onset climatic impacts and hazards.

The BRAC Climate Resilience Framework served as a cornerstone for promoting social transformation and reducing inequality through a series of core activities. These activities include contextual understanding, identification of resilience-building actions, assessment of outcomes, and dissemination of lessons learned to guide the entire process. Effective implementation of this framework hinges on the development of relevant projects, conducting needs assessments, mapping partnerships, integrating social change processes,

bolstering institutional capacity, and ensuring alignment with global, national, and donor strategies.

This framework has undergone rigorous consultation and validation processes through workshops involving relevant BRAC programs. An article titled "Messages from Ground Zero: Bangladesh in the climate crisis," published as a Special Supplement by The Business Standard on November 6, 2022, highlighted BRAC's commitment to setting policy-level goals for eight climate-resilient pillars. Among these, climate financing, integrating resilience into programming, climate-resilient architecture, agricultural innovation, water security, climate forecasting, building resilience into programming, and climate financing play influential roles in shaping policy implications (BRAC, 2022). They are:

- i. Climate Financing
- ii. Building Resilience into Programming
- iii. Climate Resilient Cities
- iv. Climate-Resilient Architecture:
- v. Agricultural Innovation:
- vi. Climate-Responsive Financial Services
- vii. Water Security
- viii. Climate Forecasting

The eight pillars developed by Brac shaped an outline for the adaptation activities to deal with the climate change issues (BRAC, 2022).

Moreover, the Center for Disability in Development (CDD), in collaboration with Christian Blind Mission (CBM), initiated a three-year project titled "Community Driven Disability-Inclusive Disaster Risk Management and Climate Change Adaptation" (CDDiDRM & CCA) in 2020. This project aims to enhance community resilience, particularly focusing on persons with disabilities, through inclusive disaster risk management and climate change adaptation initiatives in rural and urban areas of Bangladesh.

One component of this initiative, Disability Inclusive Climate Change Adaptation (DiCCA), was implemented by CDD in the Southkhali Union of the Sarankhola sub-district in the coastal zone of Bangladesh. The aim was to enable rural communities, including persons with

disabilities, to benefit from inclusive disaster risk management and climate change adaptation practices (BRAC, 2020).

Through this study, efforts were made to understand the impacts of climate change-induced hazards and disasters on the Southkhali Union, with a particular focus on persons with disabilities. The study also seekd to identify gaps in the inclusion of persons with disabilities in adaptation measures and explore opportunities to enhance their participation in climate change adaptation efforts (BRAC, 2020).

However, these plans and strategy reports provided no particular support system or solution for alleviating poverty and ensuring the sustainability of health, economic growth, construction, institutional capacity, and accountability of the present SSNP distribution system.

3. Theoretical Framework

In this chapter the theoretical approach to the current study will be discussed briefly in order to explain the approach which is used as a framework to analyse the data in Chapters 5 and 6. As discussed earlier, the main focus of the current research is to explore the empirical experiences of the poor of coastal area of Bangladesh, particularly the districts of Khulna and Satkhira, on the impacts of SSNPs. In this regard, the participation of the poor in policy formulation and program management is crucial. So, the participatory approach has been used as the theoretical framework to analyse the issue.

The participatory approach is a product of long-lasting interaction between researchers, development workers, government agents and local populations. According to Chatty, Baas, and Fleig (2003) the history of the participatory approach in development cooperation began in the late 1970s with the introduction of a new research approach called “rapid rural appraisal (RRA)”, which immediately became popular with decision-makers in development agencies. During the 1980s the RRA came up with further fine-tuned approaches called Participatory Rural Appraisal (PRA). While RRAs aim at gaining information, often in a single event, PRAs were designed to follow more the people’s own concerns and interests. Nabatchi (2012, p. 6) defines citizen participation as:

The processes by which public concerns, needs, and values are incorporated into decision-making. Citizen participation happens in many places (e.g. civil society, electoral, legislative, and administrative arenas) and can take many forms (e.g. methods may range from information exchanges to democratic decision-making).

Pretty, Guijt, Thompson, and Scoones (1995, p. 60) argued that long-term economic and environmental success comes about when people’s ideas and knowledge are valued and power is given to them to make decisions independently. The United Nations Development Programme UNDP (2012, p. 7) argued that participation is a pre-requisite for democracy and it supports the value of self-determination. They also argued that the meaning of “participation” often reflects the values of whoever is defining it. It has been broadly conceived to embrace the idea that all “stakeholders” should take part in decision making and it has been more narrowly described as the extraction of local knowledge to design programs off site.

Michener (1998, pp. 2105-2106) also noted that the participatory approach has gained popularity since the 1970s, when it grew out of the concern for meeting basic needs and

reaching the poorest of the poor. She argued that participation is crucial to the success of projects; it can transform development and empowers poor people. She also argued that participation facilitates local people's acceptance of new policies and technologies promoted by outsiders. Through beneficiary participation, indigenous knowledge can be exploited and local labour, financial, and in-kind contributions can lower the implementation costs, she added. However, despite the strengths of the participatory approach, Michener (1998) pointed out a few weaknesses of the approach, such as ambiguity of the concept, misuses of participation, paradoxes of genuine participation, conflicting use of participation and implementation difficulties.

Silva and Athukorala (1996, pp. 72-73) noted that during the 1980s, the participatory approach became a dominant model for analysis and intervention in South Asia; both governments and NGOs have increasingly turned to this approach in their anti-poverty programs. They argued that the lack of influence over decision-making has been identified as an important feature of poverty in South Asia. They further argued that the participatory approach promotes a gradual and bottom-up process of social change, where the poor and the underprivileged gradually become full participants in development and decision-making process.

The participatory approach claims that "the only way the poor can overcome their difficulties is by directly participating in the formulation of social policy, the development of programs, their implementation at the ground level, and sharing the benefits of such programs. The participatory approach has the dual goal of promoting growth and equity while also ensuring the development of democratic processes at the grass roots (Silva & Athukorala, 1996, p. 72). The present research uses the participatory approach to analyse the data. The participatory approach argues for people's participation in the formulation of policy, development of programs and implementation at local level.

The current research uses the participatory approach to analyse the data. This study will examine whether the SSNPs were implemented through a participatory approach. In particular, whether there was any participation of the beneficiaries in the policy making process or during selection of beneficiaries and/or administration of the programs. This research will also examine whether, through participation in the programs, beneficiaries were able to achieve sustainable livelihoods.

4. Methodology

The purpose of the study is to appraise the Social Safety Net Programs (SSNPs) by determining how they affect beneficiaries' quality of life and reduction of vulnerabilities. In order to achieve this, the researcher investigates the advantages and disadvantages of SSNPs as means of improving the wellbeing of individuals of households affected by the cyclones and storm surges. Among the goals of the study, one is to determine how well SSNPs work to reduce vulnerabilities and enhance livelihoods. It also looks for and examines the inherent advantages and disadvantages of these programs. The ultimate objective is to offer policy recommendations that are informed by research findings, address vulnerabilities, and improve the lives of those who are negatively impacted by cyclones and storm surges. By means of an extensive examination, the study seeks to provide significant perspectives for the development of strategies targeted at guaranteeing the adaptability and enhanced welfare of the susceptible groups affected by natural calamities.

The study has examined the assistance they received for their rehabilitation and the degree to which they were able to resume their regular lives following the cyclones from the government and other sources. Additionally, the information gathered would be utilized to clarify how the SSNPs will mitigate the short-term vulnerabilities of the targeted beneficiaries as well as the long-term objectives of restoring their social and economic standing. In order to accomplish this, qualitative data is the most helpful instrument for realizing the goals of the study and answering the research questions.

4.1 Study design

The researcher utilised a mixed method approach to the research. To capture the dynamics of the effects of the cyclones on the lives of poor people of coastal area of Bangladesh, the researcher explored the lived experiences of the respondents in relation to how they cope with the disastrous situation. The study analysed what supports they had from the government and other sources immediately after the cyclones and for their rehabilitation and the extent to which they were supported to return to their normal livelihoods. Further, collected data has been used to explain the impacts of the SSNPs on mitigating vulnerabilities on short term basis of the targeted beneficiaries as well as long term goals to reinstate their economic and social position. To do so, qualitative data is the most useful tool to realise the objectives of the research and to address the research questions. Qualitative approach is one

in which the investigator makes knowledge claims based mainly on constructive perspectives i.e. the multiple meaning of individual experiences and meanings socially and historically constructed. It also uses strategies of inquiry such as narrative, phenomenology, etc. (Creswell, 2003).

However, qualitative data covers only relatively small number of respondents that cannot be representative and that cannot capture the complexity of the research problem. Against this backdrop, quantitative research method is pertinent. A quantitative survey approach best fits the need to understand the views of participants in an entire population (Creswell & Clark, 2017). The number of participants in a quantitative survey method is generally bigger, therefore, the findings of the study can be representative and generalized. Taking the strengths and weaknesses of both qualitative and quantitative method into consideration, the researcher employed a method which is combination of both of them, i. e. a mixed method.

Mixed method research is defined “as research in which the investigator collects and analyses data, integrates the findings, and draws inferences using both qualitative and quantitative approaches or method in a single study or a program of inquiry.” (Tashakkori & Creswell, 2007). Creswell & Clark (2017) argued that in general, research problems suited for mixed methods are those in which one data source may be insufficient. Moreover, results often need to be explained, exploratory findings need to be generalized, a primary experimental design needs to be expanded or enhanced, multiple cases need to be compared or contrasted, the participants need to be involved in the research, and/or a program needs to be evaluated (Creswell & Clark, 2017).

The current research intends to capture the impacts of the social safety net programs on reducing vulnerabilities and ensuring sustainable livelihoods of the poor survivors of the cyclones and storm surges in coastal Bangladesh. To do so, this study assessed the impacts of the SSNPs; explored the strengths and weaknesses of the programs; and provided some policy guidelines to reducing vulnerabilities and ensuring sustainable livelihoods of the poor survivors of cyclones and storm surges. For this purpose, this researcher had chosen the mixed method approach to generate the best outcome.

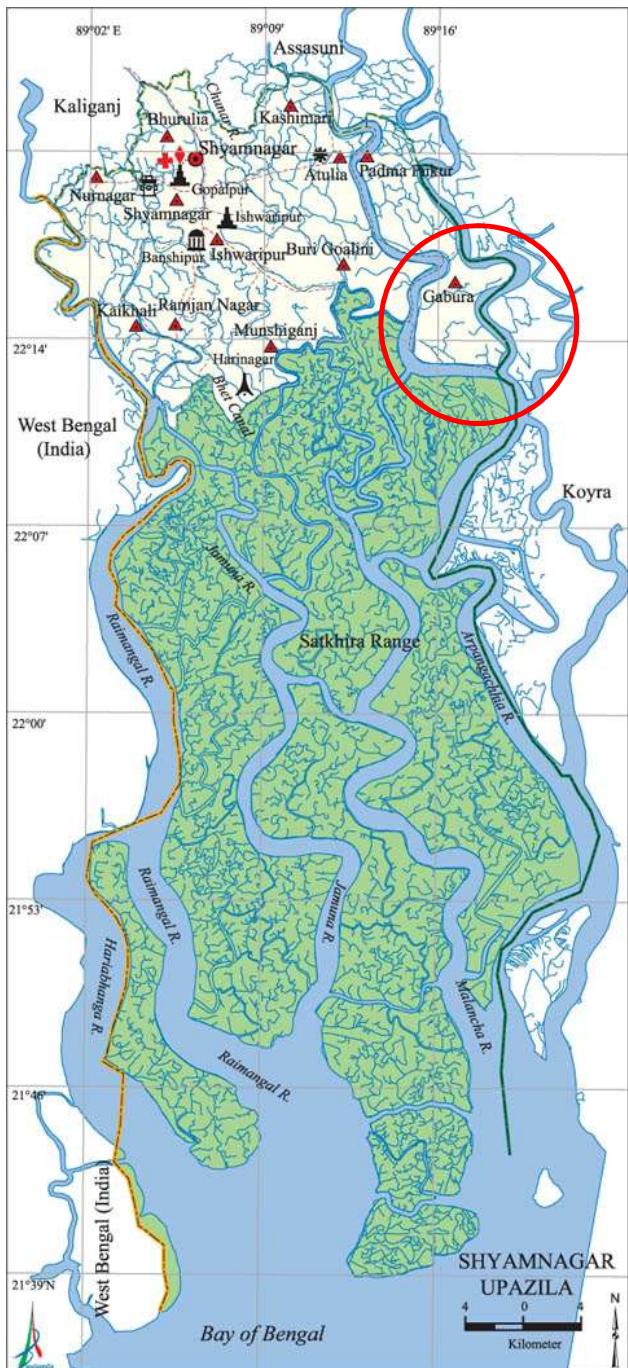
To collect qualitative data, in this study in-depth interview, FGD and Key Informant Interview (KII) methods have been used. Separate set of guidelines have been prepared for qualitative

data such as FGD, in-depth interview, and Key Informants Interview (KII). For these instruments, the number of questions and contents of the questions were varying based on study objectives. Respondents have been selected by applying purposive sampling technique. Qualitative data have been analysed in thematic approach. For collecting quantitative data, random sampling method had been employed. Quantitative data have been analysed using SPSS software. The project director and the team leader of this study recruited and deployed research associates, research assistants, data collectors, supervisors, data entry operators and data analysts. In some cases, the team leader himself also collected qualitative data through in-depth interview, KII and focus group discussions. The research team prepared data collection instruments and pre-tested the data collection instruments and amended them when it was required.

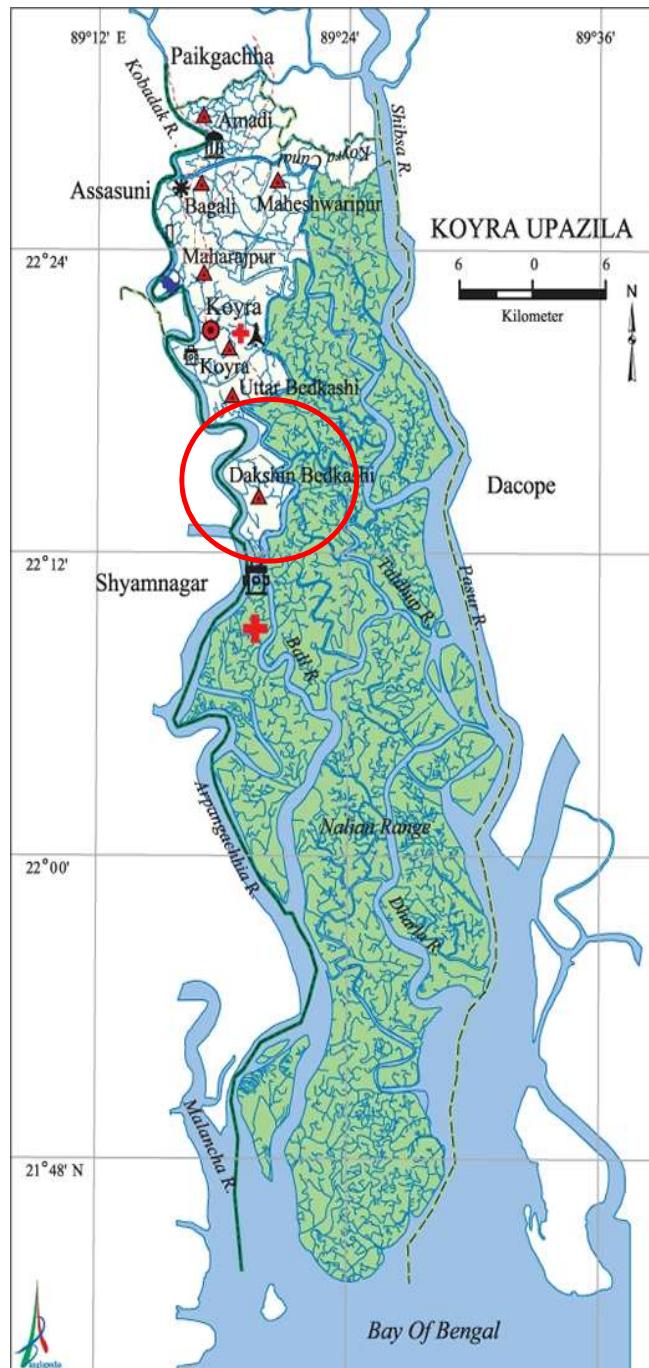
It is to be mentioned here that the respondents in in-depth interview and quantitative survey had been selected based on several characteristics. They were: (a) the interviewees or survey respondents and their families should be living in the coastal areas and affected by cyclone and storm surge; (b) they were the beneficiaries of any social safety net programme provided by Government; and (c) they were engaged in any source of microcredit support for their socio-economic development.

4.2 Study area

The study has been conducted in two of the hardest-hit Upazilas of the south-western districts of Khulna and Satkhira of Bangladesh. The area is characterized as cyclone prone districts in terms of incidence and magnitude of tropical cyclones. The two Upazilas- Koyra of Khulna District and Shyamnagar of Satkhira District were the most severely affected by the super cyclones 'Sidr', 'Aila' and 'Amphan' respectively. Therefore, this study has been carried out in those two Upazilas. The following map -1 shows the specific location of the study area of two Upazilas. The in-depth interview and quantitative survey were conducted in Dakkhin Bedkashi Union of Koyra Upazila and Gabura Union of Shyamnagar Upazila.



(a)



(b)

Map 1 : Geographical location of the study area (a) Gabura Union in Shyamnagar Upazila of Satkhira District (b) Dakshin Bedkashi Union in Koyra Upazila of Khulna District

4.3 Sampling

The participants in this research can be grouped into three major categories: (1) the key respondents – the coastal poor – comprised two sub-groups: beneficiaries and non-beneficiaries (for quantitative survey); (2) mid-level government officials, representatives from local government agencies, and NGOs; (3) senior officials from the implementing departments and ministries and senior level experts on climate change.

According to the aims of the research, the respondents for in-depth interview had been selected using multi stage purposive sampling. From the two upazilas, the two most affected Unions had been selected purposively. Then one ward from each Union had been chosen purposively and finally the respondents had been selected from these two Wards. First, the lists of beneficiaries of different SSNPs of the selected two Wards had been collected from the relevant upazila, and then the interviewers approached the beneficiaries randomly. The beneficiaries who were willing to participate in the research were interviewed.

The respondents/ participants for quantitative survey had been selected by random sampling method. The researcher selected the most affected two Wards from two upazilas and sent the enumerators to those Wards. The enumerators went to the households one by one until the targeted number of households had been covered. One hundred and twenty-five poor persons from Shaymnagar Upazila and one hundred and forty-one poor persons from Koyra Upazila had been randomly selected.

The researcher was interested in interactive insights of the people who have had vast experience on managing the SSNPs from which the governance and management issues can be better understood. Therefore, this research also used a focus group method to understand the experiences of the middle managers of the SSNPs. It also examined the reflective views of the policy level officials and some senior experts regarding the perceptions of coastal poor people on the impacts and management of the programs. During the focus group discussions, the participants argued with each other on some particular issues such as beneficiary selection process, impacts of the programs on the lives and livelihoods of the poor, adequacy of the benefits, leakages, corrupt practices by the selectors and program managers, and work opportunities for rural poor, and finally came to an agreement from which the researcher gathered a new view on the topics. The respondents for FGD and KII had also been selected

purposively. The officials, experts and NGO workers who are responsible for policy making, program designing, implementation and evaluation were purposively selected for FGDs and KIIs.

From their past and present experiences, the beneficiaries, mid-level and senior officials of some of the implementing agencies, expressed their views and perceptions on impacts and management of SSNPs, and how the lives of the coastal poor could be made sustainable. In this research, first the opinions of the beneficiaries were canvassed. At the second stage, two focus group discussions were organised to collect the views of the field-level government, local government and NGO officials responsible for selection of beneficiaries, disbursement of benefits, and monitoring and overseeing the whole process. Subsequently views of two of the senior officials from two different implementing agencies were explored to understand the opinions of the policy level officials.

4.4 Profile of the respondents

The participants of this study are split down into four parts: in-depth interview, quantitative survey, Focus Group Discussion (FGD) and Key Informant Interview KII). Under the qualitative method, the researcher interviewed sixteen beneficiaries of different SSNPs of Koyra upazila who were affected by cyclone and storm surge. In the FGD, discussion sessions were arranged with Upazila Nirbahi Officer, Upazila Social Services Officer and other relevant officers and Local NGOs (working in the related fields). In the final part, the researcher interviewed 3 senior officials from the Finance Division; Bangladesh Climate Change Trust (BCCT); and Department of Social Services; and three senior experts on Climate Change (one from the Polli Karma Sahayak Foundation (PKSF), one from the Centre for Climate Change & Environmental Research (C3ER) – BRAC University, and another from the NGO sector). Under the quantitative survey, head of 266 households who were affected by the cyclone and storm surge, who might have been a beneficiary or not, were questioned with a structured questionnaire.

To thoroughly examine the effects of the Social Safety Net Programs (SSNPs) in relation to cyclones and storm surges, the study's participant pool is split into four different categories. Interviews with beneficiaries who receive different SSNP benefits and are impacted by storm surges and cyclones are conducted as part of the qualitative component. This enables the

researcher to compile comprehensive information about the viewpoints and experiences of individuals who directly gain from the programs during inclement weather occurrences.

The study's quantitative component focuses on those harmed by storm surges and cyclones. Being a recipient is not a requirement for taking part in the quantitative survey, in contrast with the qualitative portion.

Participating in Focus Group Discussions (FGD) entails talking with a range of stakeholders, including as local administrative officers, government representatives, Upazila Nirbahi Officer, Upazila Social Services Officer and other relevant officers and local NGOs (working in the related fields). The goal of this strategy was to gather various perceptions and insights from key players in the administration and execution of SSNPs in the impacted areas.

Key Informant Interviews (KII), the last component, entails conversations with six policymakers from Senior Officials from the Finance Division; Bangladesh Climate Change Trust (BCCT); Department of Social Services; and three senior experts on Climate Change. In this phase, policymakers offer insights into the study's overall goals and objectives, with the aim of gaining a deeper grasp of the policy viewpoint. The research attempts to provide a thorough and nuanced assessment of the efficacy and impact of SSNPs in reducing the effects of cyclones and storm surges on vulnerable populations by combining these various methodologies and interacting with various participant groups.

4.4.1 Respondents of In-depth Interview

The 16 respondents for in-depth interview were selected from Hazotkhali village of Uttar Bedkashi Union of Koyra Upazila. The percentage of male and female respondents were 44% and 56% respectively (Figure 4.1). Age distribution of interviewed beneficiaries shown in Figure 4.2 illustrates that the highest number of respondents (6) was in between the range of 41-50 years of age. The majority was from the Hindu community. Figure 4.3 shows that 25% was from Muslim community and 75% from Hindu community. According to the local statements, if there were 100 houses of Hindu family the number of Muslim family would be 25-30 in number.

Figure 4.1: Male Female distribution of the respondents for in-depth interview (Male= 7 and female= 9)

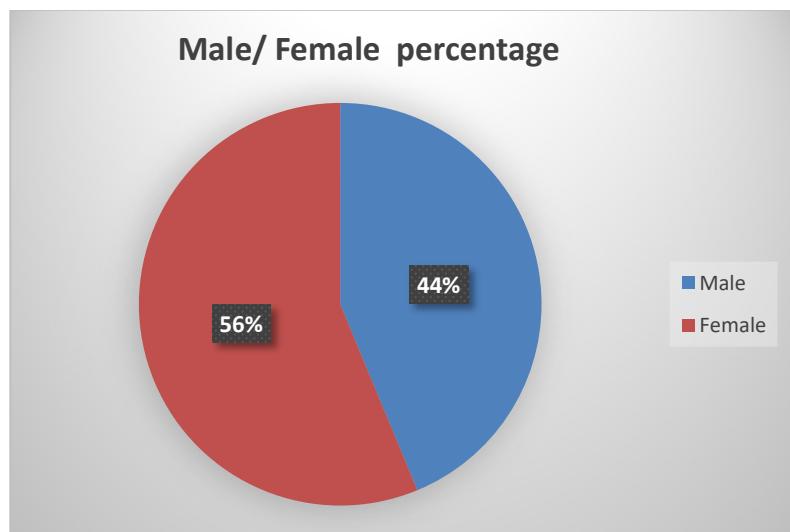


Figure 4.2: Age distribution of the respondents for in-depth interview

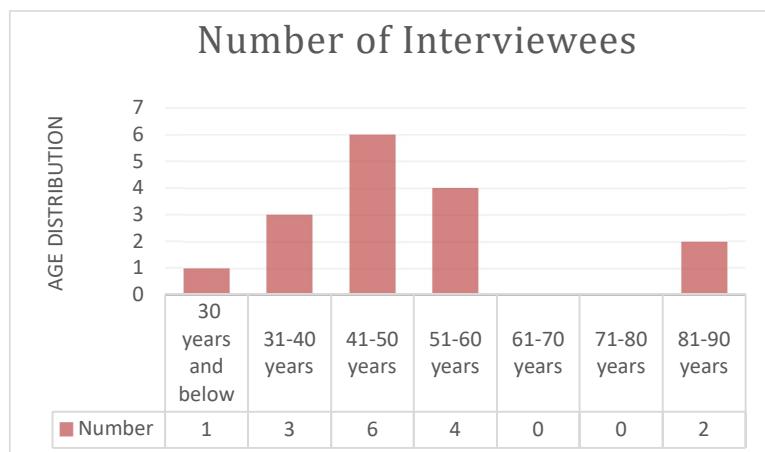


Figure 4.3: Religion wise distribution of the respondents for in-depth interview (Muslim=4, Hindu=12 & others =0)

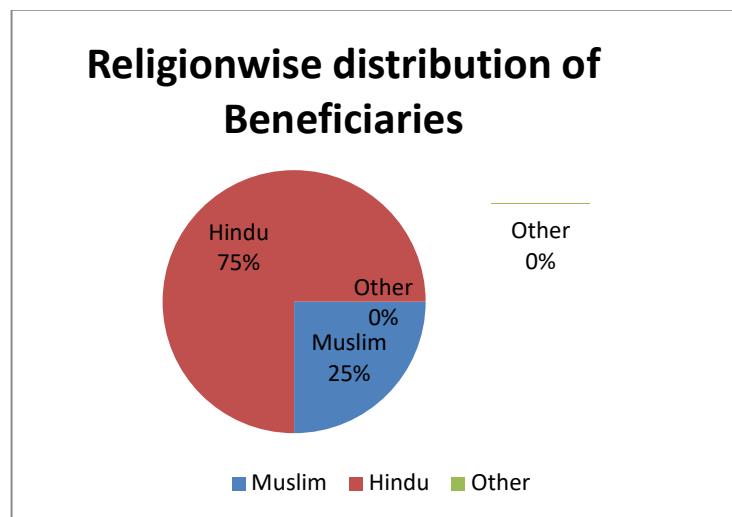


Table 4.1 describes the socio-economic profiles of the participants of in-depth interviews.

Table 4.1: Socio-Economic Profiles of in-depth interviewees

Respondent	Name#	Gender	Age (Year)	Most devastating Cyclone	Land damaged	Income Loss (TK)
Respondent -1:	Ms Rebeka Sarkar	Female	84	Amphan	5 Bigha	9000
Respondent -2:	Ms Nirmala Sarkar	Female		Amphan	8 Bigha	2000
Respondent -3:	Mr Bikash Sarkar	Male	44	Amphan	2 Bigha	0
Respondent -4:	Mr Mohammad Munsur Ali Sheikh	Male	46	Amphan	NA	5000
Respondent -5:	Ms Lamisa*	Female	8	Amphan	NA	2000
Respondent -6:	Ms Parisa*	Female	40	Amphan	NA	5000
Respondent -7:	Mr Abdul Muyeed	Male	50	Amphan	8 katha	3000
Respondent -8:	Ms Fulu Rani Sarkar	Female	50	Amphan	10 katha	10000
Respondent -9:	Ms Chapala Mandal	Female	40	Amphan	10 Katha	4000
Respondent -10:	Mr Kedar Sardar	Male	85	Amphan	6 Bigha	3000
Respondent -11:	Ms Ranu Sarkar	Female	53	Amphan	6 Bigha	-
Respondent -12:	Ms Bijoya Sarkar	Female	46	Amphan	-	2000
Respondent -13:	Mr Gauranga Sarkar	Male	54	Amphan	20 Katha	8000

Respondent -14:	Ms Shima Rani Sardar	Female	60	Amphan	4 Katha	3000
Respondent -15:	Mr Piyush Kumar Sarkar	Male	36	Amphan	6 Bigha	10000
Respondent -16:	Mr Chinmoy Chandra Sarkar	Male	54	Amphan	1 Bigha	4000

Not the actual name

*disabled, interview questions answered by their parents.

Table 4.1 shows the socioeconomic profile comprising of the gender information, age, most severe cyclone information, and land damage and income loss of the 16 in-depth interviewees.

According to the respondents, total 732 katha land of them were damaged due cyclone and storm surge. The respondent answered that the income loss because of cyclone and storm surge is 70000 Taka. Although Aila, Sidr, Amphan, Bulbul, Foni, Nargis, Sitrang were the devastating cyclones of the last two decades, all the 16 respondents replied that cyclone Amphan affected them the most.

4.4.2 Respondents of Quantitative Survey

To realize the aim of this research it has four research questions. This section summarizes the main conclusions of the study about the extent to which these questions have been addressed and to find and understand the perception of the households. Table 4.2 shows the distribution of respondents participated in survey according to sex.

Table 4.2: Upazilawise male female distribution

	Koyra	Shyamnagar	Grand Total
Female	97	81	178
Male	44	44	88
Grand Total	141	125	266

Table 4.2 depicts that total 266 persons were surveyed of whom 178 were female and 88 were male. One hundred and forty-one respondents were from Koyra upazila of whom 97 were female and 44 were male. Total 125 households were surveyed in Shyamnagar upazila of whom 81 respondents were female and 44 were male. Table 4.3 describes the marital status of the respondents.

Table 4.3: Upazilawise marital status

Marital Status	Koyra	Shyamnagar	Grand Total
Divorced		1	1
Married	136	121	257
Divorced	1	1	2
Unmarried		1	1
Widow	4	1	5
Grand Total	141	125	266

In the demographic statistics of marital status of 266 respondents, Table 4.3 shows that 257 respondents were married. In Koyra, out of 141 respondents 136 respondents were married. In Shyamnagar, out of 125 respondent 121 respondents were married. Among the respondents, 4 respondents of Koyra and one respondent of Shyamnagar were widow. one respondent was divorced from each of Koyra and Shyamanagar upazila. One respondent was unmarried from Shyamnagar.

Table 4.4: Upazilawise Household member's distribution

	Hous ehold	Total Female	Total Male Member	Total Children	Total Adolescent	Total Disabled members	Total Members
	Member						
Koyra	141	251	248	51	55	2	607
Shyamnagar	125	235	233	86	51	4	609
Grand Total	266	486	481	137	106	6	1216

Table 4.4 shows the distribution of household members. In the 266 households, the total number of household members were 1216, where in Koyra it was 607 and in Shyamnagar it was 609. Out of all the respondents' households, total female members were 486, total male members were 481, total children were 137, total adolescents were 106 and total physically disabled members were 6.

Table 4.5 states the income loss of the households' pre and post cyclone period.

Table 4.5: Income loss of pre and post cyclone period

Occupation	Sum of Income (pre-cyclone)	Avg income (pre-cyclone)	Sum of Income (post-cyclone)	Avg Income (post-cyclone)	Income Loss (%)
Day Laborer	1,628,000	8,848	1,409,600	7,661	13%
Fisherman	171,500	7,795	173,500	7,886	-1%
Farmer	171,500	8,575	134,800	6,740	21%
Unemployed	81,000	6,231	72,000	5,538	11%
Small shop/Small business	135,000	11,250	103,000	8,583	24%
Driver/Helper	29,000	7,250	25,000	6,250	14%
Boutique/Sewing/Tailor	23,000	11,500	24,000	12,000	-4%
Maji	14,000	7,000	12,000	6,000	14%
Rick/Van/bicycle maker	4,000	4,000	4,000	4,000	0%
Disabled Allowedance	6,000	6,000	6,000	6,000	0%
Tuition	9,000	9,000	9,000	9,000	0%
Mujjan	4,500	4,500	4,500	4,500	0%
NA (Not Answered)	6,000	6,000	4,000	4,000	33%
Hawker	8,000	8,000	12,000	12,000	-50%
Maid Servant	3,000	3,000	5,000	5,000	-67%
Overall	2,293,500	8,622	1,998,400	7,513	13%

The above table 4.5 denotes that, average household income before cyclone and storm surge (pre-cyclone) was BDT 8,622. Average household income after cyclone and storm surge (post-cyclone) was BDT 7,513. It clearly shows that the average household income was decreased by BDT 1,109. Overall, almost 13% household income was decreased after cyclone and storm surge. According to the respondents, total household income in pre-cyclone was BDT 2,293,500 and post-cyclone was BDT 1,998,400. Average income loss percentage of small shop/small business, farmer, driver/helper and day-laborer after cyclone and storm surge was 24%, 21%, 14% and 13% respectively.

The income variation of the respondents' pre and post cyclone period of two upazilas is shown in Table 4.6.

Table 4.6: Upazila wise income variation of pre and post cyclone period

Upazila	Sum of Income (pre-cyclone)	Avg Income (pre-cyclone)	Sum of Income (post-cyclone)	Avg Income (post-cyclone)
Koyra	1,201,000	8,518	1,001,800	7,105
Shyamnagar	1,092,500	8,740	996,600	7,973
Grand Total	2,293,500	8,622	1,998,400	7,513

Table 4.6 shows that before cyclone the average income of respondents from Koyra and Shyamnagar was BDT 8,518 and 8,740 respectively. The average income after cyclone of Koyra

and Shyamnagar was BDT 7,105 and 7,970 respectively. Average income of the respondents of Shyamnagar decreased more than that of Koyer.

Table 4.7: Upazilawise agricultural land and fisheries damages

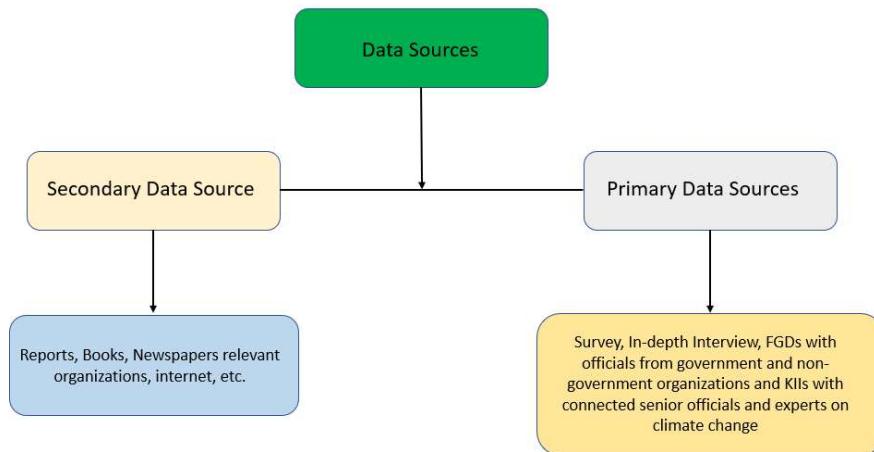
Upazila	Area of agricultural land/ fisheries (decimal)	Area of agricultural Land/ fisheries damaged (decimal)
Koyer	2044	1549
Shyamnagar	518	423
Grand Total	2562	1972

Table 4.7 describes the agricultural and fisheries damages. The cyclone and storm surge damaged 1972 decimal agricultural land and fisheries. According to the respondents, those households had total area of agriculture/ fisheries land was 2562 decimal. Due to cyclone and storm surge, 77% of the total land were damaged.

4.5 Data sources

The data sources are shown in the Figure 4.4 below:

Figure 4.4: Data Source



4.6 Data collection

This research has analysed both primary and secondary data. Primary data have been collected through qualitative and quantitative method. For qualitative data, the beneficiaries of different Social Safety Net Programs had been interviewed using open-ended semi-structured interview guide. The interview session was recorded in recorder. Moreover, Focus Group Discussion (FGD) and Key Informant's Interview (KII) method have been used to collect data from the implementers of the SSNPs such as government officials, local government

officials/civil society representatives. Check lists have been used during the Focus Group Discussion which was recorded. For quantitative data, a random survey method had been used. Data collection instruments, type of respondents and total number of respondents for qualitative data is shown in Table 4.8 and for quantitative data is shown in Table 4.9.

Existing secondary data have been used in the research. Books, journals, articles, newspaper, magazine and published interviews preferably those associated with climate change, tropical cyclones, social safety net programs related to survivors of cyclones have been collected for analysis. Secondary data have been collected from the relevant line Ministries and Departments and other government offices regarding policies and programs dealing with cyclones.

Table 4.8: Qualitative data: Data collection instruments and respondents

Data collection instruments	Respondents	Total respondents
In-depth Interview	Beneficiaries of different SSNPs of Koyra Upazila (Khulna District) and Shyamnagar Upazila (Satkhira District)	8 + 8 = 16
FGDs	Upazila Nirbahi Officer, Upazila Social Services Officer and other relevant offices Local NGOs (working in the related fields)	13
KIIs	Senior Officials from Finance Division; Bangladesh Climate Change Trust (BCCT); Department of Social Services; and three senior experts on Climate Change	6
Total		35

Table 4.9: Quantitative data: Data collection instruments and respondents

Data collection instruments	Respondents	Total respondents
Random Survey	Inhabitants of Koyra Upazila (Khulna District)	141
Random Survey	Inhabitants of Shyamnagar Upazila (Satkhira District)	125
Total		266

4.7 Investigator

The team leader himself, the associate researchers and the research assistants were the field investigators for qualitative data collection. In addition, some enumerators were recruited from the relevant areas for quantitative data collection. Fulltime supervisor was appointed for the enumerators. Moreover, the team leader, the associate researchers and the research

assistants also supervised and monitored data collection by the enumerators. Before going to collect quantitative data, training sessions were organized for the enumerators.

4.8 Data analysis

Thematic analysis (Braun & Clarke, 2012) approach were used in analysing qualitative data. Data collected through interview, focus group and KII were translated and transcribed. After transcription it was coded. The next steps were a) construction of typology, b) development of concepts and theoretical propositions, c) testing of applicability of concepts and theme, d) rejecting concepts that do not fit the data and e) finalizing the analysis. Quantitative data were analysed using SPSS software. The secondary data collected from the concerned offices were analysed to explore the context and to compare the findings of the current research.

4.9 Ethical Consideration

Ethical principles are vital to social research. Diener and Crandall (1978) argue that maintaining ethical standards help social researchers achieve their values in research; avoid strategies that might endanger these values, and aid balancing values that are in conflict. Ethical guidelines help ensure that research is directed toward its goals and that the welfare of research participants is protected. Ethics are also important because they help prevent abuses and serve to delineate responsibilities. Diener and Crandall (1978) and Bryman (2012) outline basic principles of ethical considerations, including harm to participants, informed consent, privacy and deception. Israel and Hersh (2006) discuss four major ethical principles including informed consent, confidentiality, harm and benefit, and relationships. From these scholars it can be seen that ethical social researchers should obtain informed consent prior to the start of an interview from research participants and consent should be voluntary. This principle stresses the ethical requirement for no coercion, manipulation or deception. The privacy and confidentiality of the participants must be maintained during data collection, analysis and publication. Researchers should protect the participants from any kind of personal, physical, economic and professional harm; and rather ethical research promotes the well-being of participants.

Neither the Social Science Research Council in Bangladesh nor any of the authority had institutional review boards or committees who could approve the ethical application of the study. Moreover, since there is no formal ethics committee for research under the

Department of Social Services, before going to fieldwork, a permission from the DSS was obtained by the researcher. During fieldwork, data collection, analysis and interpretation required ethical obligations were maintained. Before entering the field, permission was obtained from the UNO, the administrative head of the Upazila. While doing fieldwork the researcher was always careful and aware of maintaining ethical norms, especially the dignity and confidentiality of the respondents and participants of this research. Both the beneficiaries and non-beneficiaries were considered by the researcher to be the least powerful group in the study, therefore, it was very important to be careful of possible ethical concerns. Out of 16 interviewees, 9 were women, who belong to a traditional society where women generally are reserved talking to an outsider. So, the researcher was especially careful about the comfort and values of the respondents. According to the situation, before starting the interview, the researcher talked to the men in the family to create a congenial environment to bridge the gap between the researcher and the female interviewees. The supervisor was also helpful in making a rapport between the researcher and the respondents as he lives in the same Upazila and they use the same dialect of language.

To follow the standard ethical practices discussed above the researcher ensured the following ethical norms:

Informed consent: the researcher was obliged to inform the respondents and participants of all aspects of the research that might reasonably influence their willingness to participate in the research. Since most of the interviewees had little or no education, at the beginning of each interview, the researcher explained to them various aspects of the research particularly the aims of the research, the probable time for the interview, and the need to record the interview session. Then each interviewee was asked to confirm his/her consent to participate voluntarily in the research and to consent for recording.

Freedom from coercion to participate: before starting an interview session it was also conveyed to each participant that they had the freedom to participate or decline to participate and they had the right to discontinue or withdraw at any stage of the study without any fear. It was conveyed to them that any participant could withdraw his/her name from the research at any time.

Privacy and confidentiality: ensuring the privacy and confidentiality of the participants of the research is an important responsibility of the researcher. The researcher confirmed to the participants before the interviews and FGDs that their anonymity would be maintained throughout the study. Their views would be used only for academic purpose and their identity would never be revealed during the course of the research or afterwards. In the FGDs all participants were told that their views were expressed in their individual capacity and that confidentiality of their names would be preserved.

Protection from harm: the interview respondents and the participants of the FGDs were assured that participation in the research would not harm them in any way. The researcher was always aware to protect the respondents and participants from any kind of physical, mental, psychological, financial, professional or social harm that might arise from participating in this research. The date and time of the interviews were arranged according to the convenience of the participants. For participating in this research, the participants were recompensed a token gift of BDT 200 per person which can be treated as a courtesy present from a guest in one hand and the compensation for spending an hour for the cause of the researcher on the other. The gifts were presented on completion of the interview, so that this would not influence the answers by the respondents.

5. Findings/Results

The findings of this study are the crucial part to set up a base for the decision making. In this study, the in-depth interview of 16 respondents, quantitative survey of 266 respondents, 2 Focus Group Discussions (FGDs) and 6 Key Informants Interviews (KII) would show a greater integrated picture of the people's predicaments who are affected by climate induced disaster and the lack of proper support to ensure their livelihood security. The findings of the study also revealed some policy implications aligned with Sustainable Development Goals (SDGs), Bangladesh Delta Plan 2100, National Adaptation Plan 2023-2050, and National Social Security Strategy (NSSS).

People in the coastal area affected directly by the climate induced disaster like cyclones and storm surges, are not entitled to any special SSNP other than the regular programs, because there is no shock responsive fund which could support the affected people to reduce their loss and damage. The affected people were the beneficiaries of the old aged, mentally disabled and physically challenged person's programs. According to the Finance Division, the rate of SSNP has been increased but in the field survey observation, in-depth interview, FGD and KII, the support distributed to the beneficiaries by different ministries. Though 22 ministries are working on supporting the affected people but they are currently thinking of social security coverage extension but not about the effectiveness of the SSNPs. The affected people would not get any extra benefit if they are engaged in any social safety net program. The beneficiaries engaged in different SSNP stated that most of them have the VGF card from the fisheries department. Not only that they were engaged with different local NGOs for the microfinance support to meet up their direct demand of food security and other needs, mainly for the health issues. The beneficiaries and the discussion generated from the in-depth interviews, FGD and KII stated that there is a lack of proper database of the beneficiaries and the need of affected people has not been asked till now before the National Adaptation Plan 2023. A central database system would enable the relevant ministries to distribute the shock responsive support to the beneficiaries in a coordinated manner and the inclusive consultation with the beneficiaries for their demand during the disaster, proper regulation and governance of the SSNPs.

This chapter states the findings through four sections. The first section (5.1) shows the information gathered about the damage to the poor people of coastal Bangladesh due to

cyclones and storm surges. The second section (5.2) describes the benefits received by the poor survivors of cyclones and storm surges. The third section (5.3) states the impact of Social Safety Net Programs on reducing vulnerabilities and ensuring sustainable livelihoods for the poor survivors affected by cyclones and storm surges. The last section (5.4) provides the implications for the policy and practice in relation to existing system of SSNPs in order to reducing vulnerabilities and ensuring sustainable livelihoods of the poor survivors.

5.1 How and to what extent poor people of coastal Bangladesh affected by cyclones and storm surge

This study collected data through four methods. They are: i) in-depth interviews, ii) quantitative surveys, iii) Focus Group Discussions (FGDs) and iv) Key Informant Interviews (KII). The findings derived from these four methods are described below:

In-depth interview:

The in-depth interview of the 16 respondents unfolded that, 'Sidr', 'Aila', 'Bulbul' and 'Amphan' were the most devastating cyclones in the recent years. 'Amphan' was the most devastating one among those occurred in this area which has resemblance with the 'Aila'. Fortunately, most of the families sustained physically from the adverse effect of cyclone 'Amphan' but faced severe financial loss. Majority of them faced partial household and agricultural damage. The beneficiaries had different amount of agricultural land but after calculation it is understood that almost 45-60% arable land eroded due to the cyclonic effect of 'Amphan'. Most of the beneficiaries lost more than 50% of their monthly income and income sources like agriculture, fishing, carrying and lifting goods, trade etc. The loss of income in maximum cases varied from BDT 3000-15000.

The respondents' statements are as follows:

Respondent -1 (84-year-old) said:

Me and my family had been affected by cyclone mostly since 1940. Among those, 'Sidr', 'Aila', 'Bulbul' and 'Amphan' were noteworthy according to the recent perspective. 'Amphan' was the most devastating one among those occurred in this area which has resemblance with 'Aila'. Like 1991 cyclone and 1970 cyclone, 'Amphan' and 'Aila' were almost similar respectively. Fortunately, my family members sustained from the adverse effect of cyclone 'Amphan' but we faced severe financial loss. We

faced partial household and agricultural damage. Almost 4-5 bighas agricultural land eroded at that time. 'Amphan' destroyed the 8 km embankment in this area. Due to the devastating cyclone, income of my family went down from BDT 15000 to BDT 6000. It means income loss due to cyclone was BDT 9000 after the super cyclone 'Amphan'.

Respondent -2 (45 years) said:

Me and my family had been affected by cyclone mostly since 1980. We saw the devastation of 'Sidr', 'Aila', 'Bulbul', 'Amphan', 'Foni', 'Nargis', and 'Sitrang'. Among those, 'Sidr', 'Aila', 'Bulbul' and 'Amphan' were noteworthy. 'Amphan' was the most devastating one among those occurred in this area which has resemblance with the 'Aila'. We faced partial household but full agricultural damage. Almost 8 bighas agricultural land eroded at that time. Due to the devastating cyclone, income of my family went down from BDT 10000 to BDT 8000. It means income loss due to cyclone was BDT 2000 after the super cyclone 'Amphan'.

Respondent -3 (44 years) said:

Me and my family had been affected by cyclone mostly since 1980. We saw the devastation of 'Sidr', 'Aila', 'Bulbul', 'Amphan', 'Foni', 'Nargis', and 'Sitrang'. Among those, 'Sidr', 'Aila', 'Bulbul' and 'Amphan' were more dangerous. 'Amphan' was the most devastating one among those occurred in this area which has resemblance with the 'Aila'. We faced partial household but full agricultural damage. Almost 2 bighas agricultural field eroded at that time. Though the devastating cyclone occurred but my family income did not change fortunately. Before cyclone and storm surge, my family income was BDT 30,000 and remained same after the cyclone. But in this area the erosion of embankment was very crucial. The damage of 7-8 km embankment devastated the area.

Respondent no-4 (46 years) said:

Me and my family had been affected by cyclone and storm surge mostly since 1980. But among the flood, the 1988 flood and cyclone cost me a lot. We saw the devastation of 'Sidr', 'Aila', 'Bulbul', 'Amphan', 'Foni', 'Nargis', and 'Sitrang'. Among

those, 'Sidr', 'Aila', 'Bulbul' and 'Amphan' were noteworthy. 'Amphan' was the most devastating one among those occurred in this area which has resemblance with the 'Aila'. I had no land, therefore, I did not loss any land. However, due to the devastating cyclone, my income loss due to cyclone was BDT 3000-5000 after the super cyclone 'Amphan'.

Respondent no-5 (8 years) (Disabled. Questions answered by her father) said:

Me and my family had been affected by cyclone mostly since 1980. We saw the devastation of 'Sidr', 'Aila', 'Bulbul', 'Amphan', 'Foni', 'Nargis', and 'Sitrang'. Among those, 'Sidr', 'Aila', 'Bulbul' and 'Amphan' were more destructive. 'Amphan' was the most devastating one among those occurred in this area which has resemblance with the 'Aila'. We had no land and we are currently living in the khas land. Due to the devastating cyclone, income of my family went down from BDT 8000 to BDT 6000. It means income loss due to cyclone was BDT 2000 after the super cyclone 'Amphan'.

Respondent no-6 (40 years) (Disabled. Questions answered by her mother) said:

Me and my family had been affected by cyclone mostly since 1970. We saw the devastation of 'Sidr', 'Aila', 'Bulbul', 'Amphan', 'Foni', 'Nargis', and 'Sitrang'. Among those, 'Sidr', 'Aila', 'Bulbul' and 'Amphan' were noteworthy. 'Amphan' was the most devastating one among those occurred in this area which has resemblance with the 'Aila'. We had no agricultural land and home land. Due to the devastating cyclone, income of my family went down from BDT 15000 to BDT 10000. It means income loss due to cyclone was BDT 5000 after the super cyclone 'Amphan'.

The other 10 respondents also described the sufferings in a similar way. 'Amphan' was the most devastating cyclone, they faced ever after 'Aila' and 'Sidr'. The beneficiaries had different amount of agricultural land but after calculation it is understood that almost 45-60% land eroded due to the cyclonic effect of 'Amphan'. Most of the beneficiaries lost more than 50% of their monthly income and income source like agriculture, fishing, carrying and lifting goods, trade etc. The loss of income in maximum cases varied from BDT 3000-15000.

In conclusion, it is found that storm surge and cyclone damaged 732 katha land in total. The respondents stated that the storm surge and cyclone caused an income loss on average BDT

50,000 to BDT 80,000. All sixteen respondents stated that cyclone 'Amphan' had the deadliest impact on them, despite the fact that cyclones 'Aila', 'Sidr', and 'Amphan' were the most destructive cyclones of the last twenty years. The quantitative findings showed almost the same result, but some results show the impacts in large scale. In the next section the findings of quantitative data will be discussed.

Quantitative Survey:

The researcher had a rare opportunity to experience what type of natural disaster the households are affected by, affected severely by which cyclone, total monthly income and expenditure of household before and after cyclones and storm surges, type of houses and sanitations before and after cyclones and storm surges, houses, agricultural land and fisheries, roads, embankments, institutions and other constructions fully or partially damaged due to cyclones and storm surges. Also, to find out in what extent income losses and economic resources damaged due to cyclones and storm surges, how much recovery time needed economically and how much time needed to regain the natural life with income/ farming/ working.

The research discovers that, most of the households are affected by cyclone 'Amphan' and 'Aila' respectively. Some households are affected by cyclone 'Sidr', 'Bulbul' and 'Foni' also. These cyclones and storm surges cause flood and river erosion in the area.

Out of 266, 222 household (83%) were affected by Cyclone, and 40 household (15%) by storm surge, 2 by flood and 1 by river erosion. Overall, 42% households were affected by 'Aila', 51% households by 'Amphan', 4% by 'Sidr', 3% by 'Bulbul' and 1% by 'Foni'. In Koyra Upazila, 'Amphan' affected the most households (138). In Shaymnagar Upazila, 101 households were affected by 'Aila'. Table 5.1 presents the statistics of households affected by different cyclones.

Table 5.1: Upazilawise cyclone and storm surge severity information

<u>Cyclone and Storm</u>	Khulna	Satkhira	Total	Total (%)
Surge				
Aila	78	101	179	42%
Amphan	138	79	217	51%
Bulbul	11	2	13	3%

Foni	3	3	1%
Nargis	1	1	0%
Sidr	8	8	4%
Grand Total	239	190	429

From Table 5.1, it is found out that among the 266 households, 184 head of household were day-labourers, 22 were fishermen, 20 were farmers, 12 were small businessmen/shopkeepers, 4 were drivers, and 2 were tailor and boatman. Some households have one hawker, Muajjin, Tutor, cycle mechanic. Surprisingly, 13 head of households were unemployed. These households have agricultural or fisheries land which they gave lease to other people.

According to the respondents, some of the households had more expenditure than income in both before and after disaster. These explains that, the households were covering the extra amount by taking loan from relatives, NGOs or other financial organizations.

Table 5.2: Paired Sample Test of household income pre and post cyclone and storm surge

Paired Samples Test											
	Paired Differences					T	df	Sig. (2-tailed)			
	Mean	Std. Deviation	Std. Error	95% Confidence Interval of the Difference							
				Mean	Lower						
RQ1_3. Before cyclone total h hold income -	1941.729	7965.517	488.397	980.097	2903.362	3.976	265	.000			
RQ1_4. After cyclone total h hold income											

Table 5.2 states the Paired Sample Test results of pre and post cyclone household income. Assuming the null hypothesis, the mean of total household income before and after cyclone is equal. The p-value of the paired sample test is 0.000 which is less than 0.05. It means, there is a significant difference between the total household income before and after cyclone and we may reject the null hypothesis at 5% level of significance.

The test clearly shows that due to cyclone and storm surge, the households' income before and after cyclone and storm surge was not the same. Before cyclone, the sum of income by

all occupation was BDT 2,293,500 with average of BDT 8,622; and the sum of income after cyclone was BDT 1,993,000 with average of BDT 7,492. Overall 13% income was lost after cyclone.

Table 5.3: Paired Sample Test of household expenditure pre and post cyclone & storm surge

Paired Samples Test											
	Paired Differences					T	df	Sig. (2-tailed)			
	Mean	Std. Deviation	Std. Error	95% Confidence Interval of the Difference							
				Mean	Lower						
RQ1_5. Before cyclone total household expenditure - RQ1_6. A cyclone total household expenditure	514.586	3507.881	215.082	-938.073	-91.099	-2.393	265	.017			

Table- 5.3 shows the Paired Sample Test results of pre and post cyclone expenditure. Similarly, assuming the null hypothesis, the mean of total household expenditure before and after cyclone is equal. The p-value of the paired sample test is 0.017 which is less than 0.05. It means, there is a significant difference between the total household expenditure before and after cyclone and we may reject the null hypothesis at 5% level of significance.

The test indicates that due to cyclone and storm surge, the households' expenditure before and after cyclone and storm surge was not the same. Sum of expenditure before cyclone by all occupation was BDT 2,017,520 with average of BDT 7,585; and sum of expenditure after cyclone was BDT2,154,400 with average of BDT 8,099. Overall 7% expenditure increased after cyclone and storm surge.

In these contexts, it shows that due to cyclone and storm surge, though the income of households were decreased but their expenditures were increased. Overall, 13% income was lost and 7% expenditure was increased which explain that their consumption bucket was smaller than previous years considering the inflation and price hike.

Table 5.4: Chi-Square test of houses of households pre and post cyclone and storm surge

Chi-Square Tests			
	Value	Df	Asymp. Sig. (2-sided)
Pearson Chi-Square	602.736 ^a	54	.000
Likelihood Ratio	167.195	54	.000
N of Valid Cases	266		

a. 62 cells (88.6%) have expected count less than 5. The minimum expected count is .00.

Table 5.4 presents the Chi-Square Test results of types of houses before and after the cyclone. Assuming the null hypothesis, houses of households before and after cyclone were the same. The p-value of chi-square test for both Pearson chi-square test and likelihood ratio was .000 at 5% level of significance which was less than 0.05. That means there is significant difference between these two variables and we can reject the null hypothesis.

The test clearly indicates that the type of houses of the households were not the same before and after cyclone and storm surge. Similarly, the types of sanitation of the households were also not the same before and after the disaster. The cyclone and storm surge had damaged the houses and sanitations of the households.

Through the survey, the data showed some households didn't have agricultural land or fisheries but they had faced damaging of their agricultural land and fisheries. It can be explained as most of the respondents live in these households who are either day labourer or works on others land or fisheries or taken lease to grow crop or farm fishes.

According to the respondents, those households' total area of agricultural land or fisheries was 2562 decimal. Due to cyclone and storm surge, 1972 decimal agricultural land or fisheries of these households were damaged which was 77% of the total land. Household of Koyra Upazila had lost 1549 decimal from 2044 decimal land; and rest of the land was from Shaymnagar Upazila.

Figure 5.1 Occupation wise land damage due to cyclone & storm surge

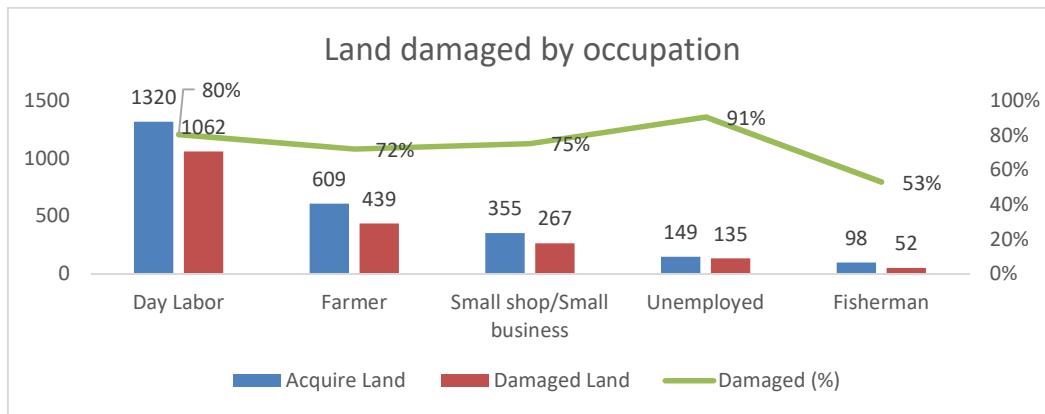


Figure 5.1 shows the percentage of land damaged by occupation. From the above graph, it is seen that day labourers have the most lands (1320 decimal) and damaged lands (1062 decimal). Almost 80% of day labourers' land was damaged due to cyclone and storm surge. Farmers had 609 decimal land and their damaged land was 439 decimal which was 72% of their total land. Small shop/ small business owners' land was 355 decimal and they lost 267 decimal which was 75% of their total land. Unemployed households had 149 decimal land and their damaged land was 135 decimals; 91% of their total acquired land was damaged which is the highest among all occupations. Fishermen had 91 decimal land and their damaged land was 52 decimals, which was 53% of their total acquired land.

Almost all the households faced road, culvert and institutions destruction due to cyclone and storm surge. Respondents of Koyra added that, especially super cyclone 'Amphan' damaged the embankment and was not repaired for over a year. This led to damage the only main road of their area which work was almost finished before the cyclone.

The super cyclone Amphan and storm surge had taken 6 people's lives. All the six people were from Shaymnagar Upazila of Satkhira district.

Figure 5.2 Occupation wise income loss data

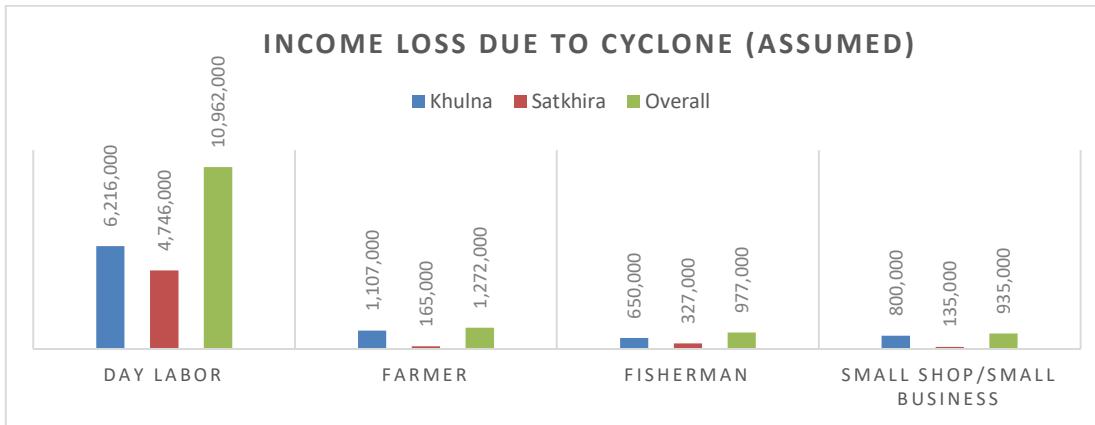


Figure 5.2 presents the occupation wise income loss due to cyclone & storm surge. According to the respondents' assumptions income loss due to the cyclone and storm surge was BDT 1,54,46,000 which was more than half of monthly total income. Households of Koyra Upazila lost BDT 94,83,000 and Shyamnagar loss BDT 59,63,000. Overall, day- labourer had faced income loss of BDT 10,926,200; farmers had faced income loss of BDT 12,72,000; Fishermen had faced income loss of BDT 977,000 and small shop/ small businessmen had faced income loss of BDT 935,000. Table- 5.5 shows the ANOVA Table of income loss of different occupations.

Table 5.5: ANOVA Table of income loss of different occupations due to cyclone

ANOVA					
Income loss due to cyclone (assumed)					
	Sum of Squares	Df	Mean Square	F	Sig.
Between Groups	7882499674.17	13	606346128.783	.949	.503
	5				
Within Groups	157164034941.	246	638878190.818	210	
Total	165046534615.	259			
	385				

Table- 5.5 shows that p-value is 0.503 which is greater than 0.05, which means we accept the null hypothesis that there is no significance difference between occupation groups who had faced income loss due to cyclone and storm surge.

Table 5.6: Upazilawise economic loss

Economic Loss (BDT)	Koyra	Shyamnagar	Grand Total
10000-20000	4	11	15
20001-50000	63	67	130
50001-80000	39	37	76
80001-100000	18	8	26
more than 100000	17	2	19
Grand Total	141	125	266

Table- 5.6 states upazila wise economic loss. The cyclone and storm surge not only reduced the income of the households, it also damaged their property, income source and other assets. To recover the damage, they need more amount of money. One hundred and thirty households had lost their property between BDT 20,001 to 50,000; 76 households had income loss of between BDT 50,001 to 80,000; 26 households had income loss of between BDT 80,001 to 100,000; 19 households had income loss of more than BDT 100,000; and 15 households had income loss of between BDT 10,000 to 20,000. Households of Koyra Upazila of Khulna district had more economic loss than Shyamnagar Upazila of Satkhira district.

Figure 5.3: Occupation wise Economic loss

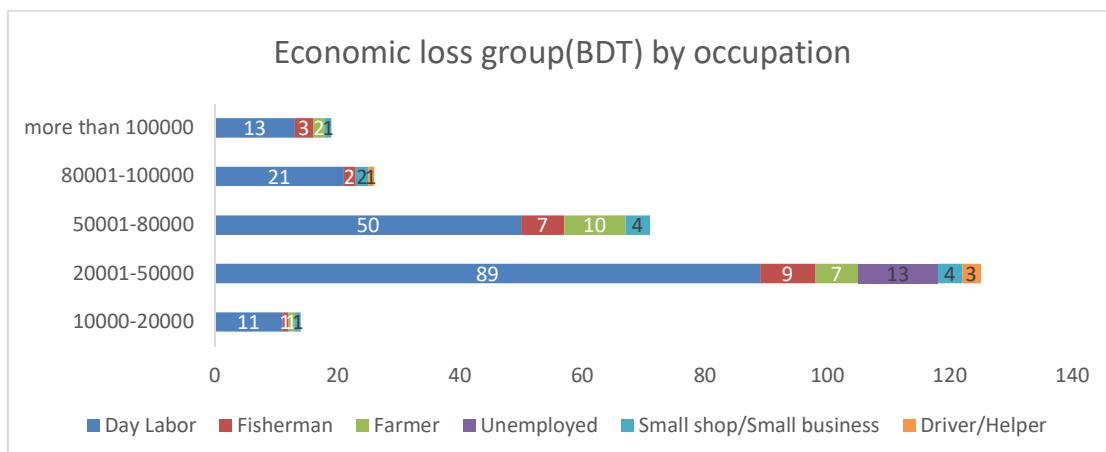


Figure- 5.3 shows the occupation wise economic loss. Above graph shows that, day-labourer had faced more economic loss than other occupations. Out of 184 day-labourers' household 13 had income loss of more than BDT 100,000; 21 had income loss of between BDT 80,001 to 100,000; 50 had income loss of between BDT 50,001 to 80,000; 89 had income loss of

between BDT 20,001 to 50,000; and 11 had income loss of between BDT 10,000 to 100,00. Out of 22 Fishermen's household 3 had income loss of more than BDT 100,000; 2 had income loss of between BDT 80,001 to 100,000; 7 had income loss of between BDT 50,001 to 80,000; 9 had income loss of between BDT 20,001 to 50,000; and 1 had income loss of between BDT 10,000 to 100,00. Out of 20 Farmers' household; 2 had income loss of more than BDT 100,000; 10 had income loss of between BDT 50,001 to 80,000; 7 had income loss of between BDT 20,001 to 50,000; and 1 had income loss of between BDT 10,000 to 100,00.

Figure 5.4: Recovery time needed

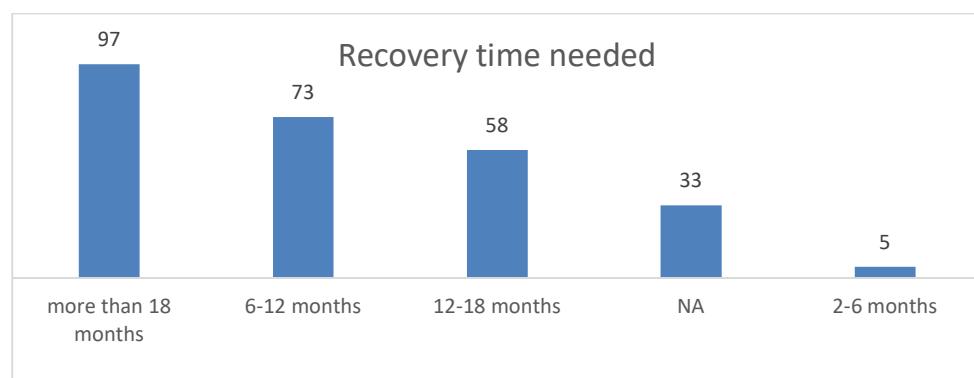


Figure- 5.4 presents the total recovery time for affected households. The researcher divided the recovery time in four slots; 2-6 months, 6-12 months, 12-18 months, more than 18 months. The recovery time needed more than 18 months for 97 households, 6-12 months for 73 households, 12-18 months needed for 58 households and 2-6 months needed for 5 households. Thirty-three households did not respond to this question.

Figure 5.5: Occupation wise Recovery time

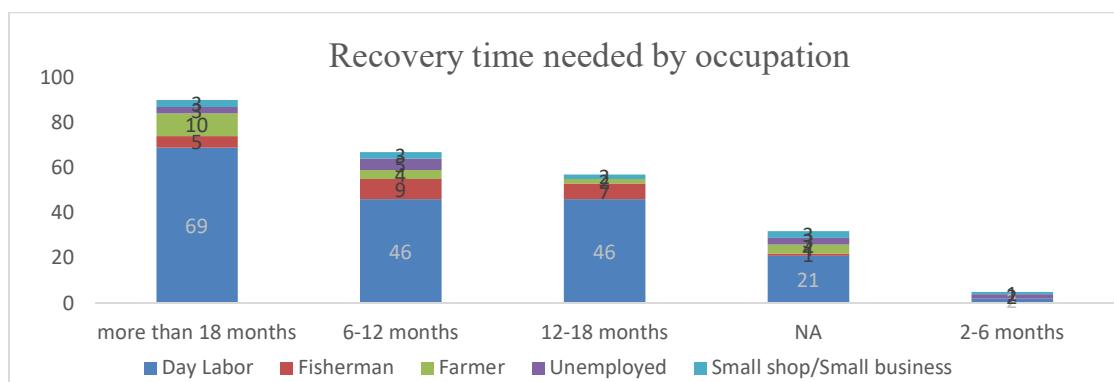


Figure- 5.5 shows the occupation wise recovery time. According to the above graph, out of 184 day-labourers' household 69 households needed more than 18 months for recovery, both 12-18 months and 6-12 months needed for 46 households respectively; 2 households needed 2-6 months to recover while 21 households did not respond. Out of 22 Fishermen's household 5 households needed more than 18 months; 9 households needed 12-18 months; 7 households needed 6-12 months; 2 households needed 2-6 months to recover while 1 household did not respond.

After the cyclone and the storm surge, the households needed time to regain their normal life mentally, physically and economically. The time to regain their normal life mentally, physically and economically varied depending on the overall conditions of the household. Total 163,966 days or almost 450 years needed for these households to regain the natural life. Although sum of days does not reflect the time for regaining normal life but the average time needed to regain (692 days or almost 2 years) gives better insight of the time for regaining normalcy. Figure- 5.6 states the occupation wise time needed for regain normalcy.

Figure 5.6: Occupation wise days needed to regain normal life



From the above graph it is demonstrated that day-labourer households needed total 118,520 days with an average of 710 days to regain the natural life with income, work and social life. Fishermen households needed total 15,537 days with an average of 740 days; farmer households needed total 11,748 days with an average of 691 days; small shop/ small business households needed total 7066 days with an average of 785 days; unemployed households needed total 5110 days with an average of 511 days; and drivers' households needed total 2190 days with an average of 730 days to regain their normal life.

In conclusion, the data, tests and analysis showed that the cyclone and storm surge impacted the poor on their monthly income and expenditure, house and sanitation, agriculture and fisheries, roads, embankments, institutions and other constructions fully or partially. The cyclone and storm surge also caused their income loss and damaged their economic resources that took a long recovery time.

Focus Group Discussions:

Two FGD sessions were organized in order to explore the reflections of the managers of SSNPs both from the government and non-government sector on the perceptions and views of the survivors of climate change. FGD-1 was arranged with the presence of government officials entrusted for distributing and monitoring the SSNPs in the study area. FGD-2 was conducted with the NGOs assisting the vulnerable people and the beneficiaries of the Koyra area.

FGD-1: The FGD-1 was conducted with the government officials working in the Koyra Upazila of Khulna District. In this FGD, Upazila Nirbahi Officer (UNO); Upazila Engineer from the Local Government of Engineering Department (LGED); Upazila Social Services Officer; Upazila Election Officer; Upazila Agriculture Extension Officer; Assistant Commissioner (Land); and Project Implementation Officer were present.

FGD -2: In the FGD-2, representatives from four NGOs were present. The participants were from Caritas Bangladesh, Uttaran, Nowabeki Gonomukhi Foundation (NGF), and Manobatar Torongo.

Regarding the impact of cyclone and disaster the participants of FGD -2 stated that the Uttarbedkashi union of Koyra is highly vulnerable to disaster like cyclone and storm surge. According to people's statement and based on the experience of NGOs, Aila and Sidr damaged Koyra heavily but in the recent time, the Amphan was devastating and people were highly affected despite of taking disaster preparedness. People faced the problem of potable drinking water. Sixty per cent people lost their home. People living nearby the Koyra/Kobodak river lost 50-60% cultivable land and livestock. The only road for communication with the district national highway was damaged by the cyclone Amphan.

Key Informants' Interviews:

Six highly qualified experts on the fields of climate change and SSNPs were interviewed in this study. They are from Palli Karma Shohayak Foundation PKSF); Bangladesh Climate Change

Trust (BCCT); Finance Division, Ministry of Finance; Department of Social Services; Renowned water, climate and environment expert from the Centre for Climate Change & Environmental Research (C3ER), BRAC University; and an NGO namely Foundation for Disaster Forum .

One of the experts shared that, the damage occurred due to the cyclone and storm surge has been enlisted union wise, upazila wise and district wise for the disaster management.

5.2 What benefits received by the poor survivors of cyclones and storm surge

Various consecutive governments have introduced social safety net programs (SSNPs) focusing on food security, social protection, and health to reduce disaster risks and aid people in dealing with disasters and anticipated climate impacts. These initiatives aim to safeguard millions of vulnerable individuals—women, children, and men. After cyclones "Sidr" and "Aila," the Ministry of Disaster Management and Relief implemented four programs: Vulnerable Group Feeding (VGF), Gratuitous Relief (GR), Test Relief (TR), and Employment Generation Program for extreme Poor (EGPP), as cited by Ashraf and Shaha (2016). Although the Department of Social Services offers regular services to coastal area residents, they lack specialized short or long-term programs specifically designed for victims of climate change.

People in the coastal area affected directly by the climate induced disaster like cyclone and storm surge, are not entitled to any SSNP because there is no shock responsive fund which could support the affected people to reduce their loss and damage. The affected people were the beneficiaries of the old age allowance, and mentally & physically challenged persons allowance program. According to the Finance Division, the rate of SSNP has been increased but in the field survey observation, in-depth interview, FGD and KII, the support distributed to the beneficiaries by different ministries. Though 22 ministries are working on supporting the affected people but they are currently thinking of social security coverage extension but not about the effectivity of the SSNPs. The affected people would not get any extra benefit if they are engaged in any of the ongoing social safety net programs. The beneficiaries engaged in different SSNPs stated that most of them have the VGF card from the fisheries department. Not only that they were engaged with different local NGOs for the microfinance support to meet up their direct demand of food security and other needs mainly for the health issues.

In-depth Interviews:

From the in-depth interviews, 16 out of 16 beneficiaries stated that they normally get the SSNP support from the government but most of the cases the beneficiaries and also their family member got 2 or 3 SSNP from different departments. The Department of Social Services and the Department of Fisheries provided the support in most cases. Figure- 5.7 depicts the number of beneficiaries of different SSN programs.

Figure 5.7: Types of Beneficiaries of in-depth interviews

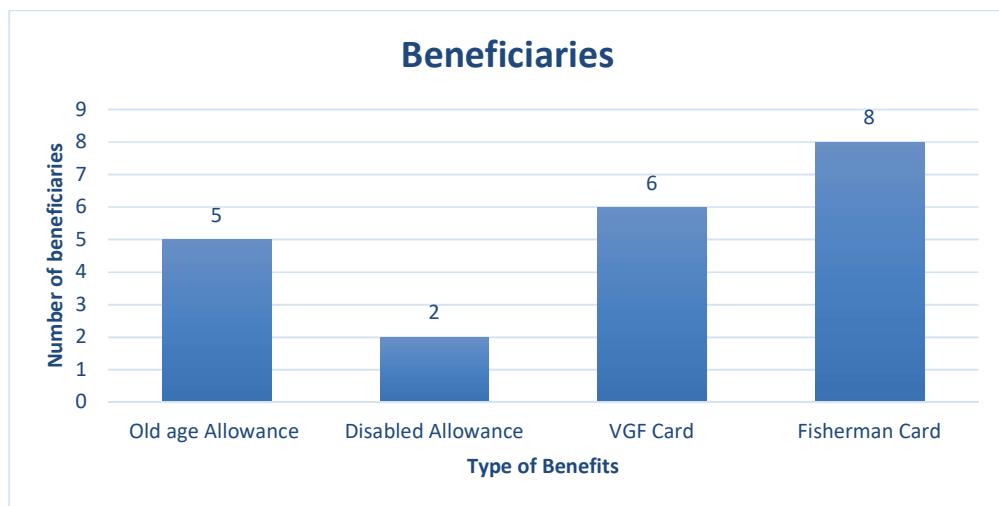


Figure- 5.7 includes the type of SSNP and the number of beneficiaries and their family members. Five beneficiaries stated that their family directly and indirectly got this benefit. Among them 3 beneficiaries said their parents and elder persons in the family were the SSNP beneficiaries. Two beneficiaries stated that they were totally dependent on the disabled child of their family. Eight beneficiaries stated that their family members had the fisherman card and 6 beneficiaries said that they have 30k and 15K Ration card.

Social protection

After super cyclone 'Amphan', SSN program like old age allowance, widow allowance, disabled people and young mother or pregnant support were distributed effectively. The amount of benefits offer by different SSNPs are shown in Table- 5.7. The beneficiaries thought that the amount of money is very meagre. The SSN programs would have been appreciated if

the amount of support could be increased as per demand i.e. minimum BDT 10000 per month.

The beneficiaries used the money to meet up food cost mainly.

Table 5.7: Amount of benefits for different programs

SSNP	Amount of benefit
Old age allowance and Widow allowance	BDT 1500 per 3 months
Disabled persons' allowance	BDT 3000 per 3 months
30kg Ration Card, 15kg Ration Card	Demand wise Ration card 30kg card provide 30 kg rice monthly 15kg card provides 15 kg rice monthly
Other: Fisherman card	80 kg rice annually

Overall SSNP experience

Five out of 16 beneficiaries thought that SSNP were effective regarding food security and education but 11 out of 16 beneficiaries said that the SSNP support were not enough to provide support to reduce vulnerabilities. Focus should be done on food, health, and income generation. Capacity building should be needed to develop their self-capacity for income generation in different field like agriculture, livestock, farming, sewing machine, pickup driving etc. Construction of education facilities and cyclone shelter should be included in the area.

Beneficiary's' perceptions:

Respondent no-1 (84 years) said:

I have been enjoying the old age allowance under the SSNP since 2022. Normally, I get 4 installments at the rate of BDT 1500 per three months. To get this facility, the union chairman and member helped me a lot. To get involved into the procedure was flexible for me and I did not face any trouble during the benefit withdrawal. The main reason behind this flexibility was the means of electric transaction system like bKash by the service provider. Though, I do not use this benefit for fundamental needs like food cost but in different need especially for health and medicine expenditure. But I think, benefit should be increased to a certain amount like the benefit distributed for the

disabled person (BDT 3000 per 3 months that means BDT 1000 per month). So, it will be better if the benefit for old age persons be BDT 1000 per month.

She also said "My elder son has the fisherman card. During the banned period for fishing ordered by Department of Fisheries (DoF), my son normally gets 65-70 kg of rice per year."

Respondent no-2 (45 years) said:

My family normally utilize the ration card. By using the card, we usually buy 5 kg rice, 2 kg Pulse and 2 kg oil in exchange of BDT 470. But like others if I get any other card especially fisherman card it would be more helpful to get the food support. My husband is old but I heard that he is not old enough to get the SSNP support. He is weak and unable work. So, it is very tough for me to maintain my family expense.

Respondent no-3 (44 years) said:

My mother is the main beneficiary of SSNP (Old age allowance) as elder person. She has been getting this support since 2021 but we are not dependent on her money. I have fisherman card and have been getting this support of almost 70-80 kg rice for two years.

Respondent no-4 (46 years) said, "I am using 30 Kg card for 9-10 months but according to the demand of my family, I need at least BDT 8000 per month to meet the expenses."

Respondent no-5 (8 years) (Disabled- Description by her father) said:

My daughter has been getting this disabled person's allowance for 2 years but it is not enough to bear the cost. We need extra BDT 30000 per month for the proper treatment other than the family expenses. For managing family expenses, we need at least BDT 10,000.

Respondent no-6 (40 years) (Disabled, description by her mother) said:

My daughter has been getting the disabled person SSNP this disabled person's allowance for last 7 years. We have to spend extra BDT 10000 for her treatment. If we have the fisherman card and Ration card, it would be better to fulfil our demand in better way.

Respondent no-7 (50 years) said, "I am getting 30Kg Card for food support. It is not enough but better than getting nothing."

Respondent no-8 (50 years) said, “I have been getting the 30 Kg support for two years but my husband is the beneficiary of fisherman card. He has been getting the support since 2009 with the annual 80 kg rice.”

Respondent no-9 (40 years) said, “My mother-in-law has been getting the old age allowance for 5-6 years but negative fact is that we had to pay almost BDT 3000 to the local chairman and member to avail the facility.”

Respondent no-10 (85 years) said:

I have been facilitated by the old age allowance for 8-10 years and my son has been getting fisherman VGF support for 7-8 years. Not only that my son has managed 15 Kg card and we are the beneficiary of this card for 5-6 years. My wife has been getting disabled person’s allowance for 7 years.

Respondent no-11 (53 years) said, “My father-in-law has been the beneficiary of old age allowance for 3-4 years.”

Respondent no-12 (46 years) said, “We are the beneficiary of 30 Kg card and my daughter has been the beneficiary of disabled person’s allowance for 2-3 years.”

Respondent no-13 (54 years) said, “I have the fisherman Card and am getting support for 7-8 years. I also use the facility of 30Kg Card but these are not enough. My family needs at least BDT 10000 per month to meet up the expenses.”

Respondent no-14 (60 years) said, “I have the fisherman Card and am getting support for 7 years. I also use the facility of 30kg Card but these are not enough. My family needs at least BDT 12000 per month to meet up the expenses.”

Respondent no-15 (36 years) said, “I have the fisherman Card and am getting support for 8 years. I also use the facility of 30kg Card but these are not enough. My family needs at least BDT 20000 per month to meet up the expenses.”

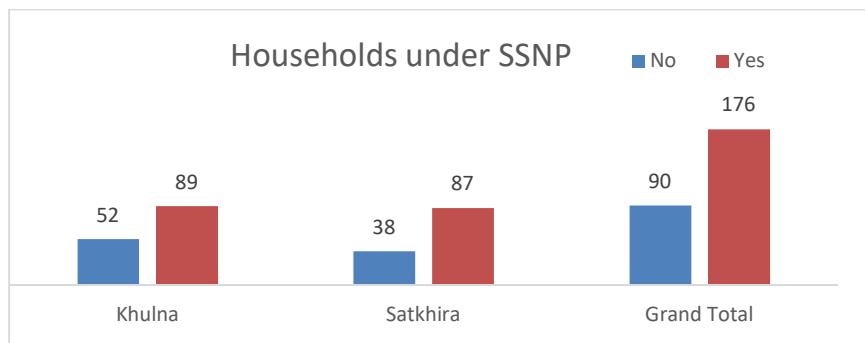
Respondent no-16 (54 years) said, “I have the fisherman Card and am getting support for 6-7 years. I also use the facility of 30kg Card but these are not enough. My family needs at least BDT 10000 to meet up the expenses.”

The majority of respondents receive food packages as part of their SSNP benefits. Only a small percentage of respondents’ families receive services of multiple SSNP facilities. These people's demands are just greater than what they receive from the SSNPs because of their loss of income sources and the shoddy economic conditions.

Quantitative survey:

In this section, the survey depicts the number of households enjoyed SSNP benefits, type of benefits and received with in period of time and the sources of the benefits. It also provides information regarding types of facilities other than regular SSNP for cyclone and storm surge affected people. Figure- 5.8 shows the number of households receive SSNPs.

Figure 5.8: Number of households got SSNP facilities



From Figure- 5.8, it is shown that total 176 (66%) households out of 266 households got SSNP facilities, of which 89 households out of 141 in Khulna (Koyra) and 87 households out of 125 in Satkhira (Shyamnagar) which is 63% and 70% respectively of total households.

Figure 5.9: Top SSNP facilities got by Households

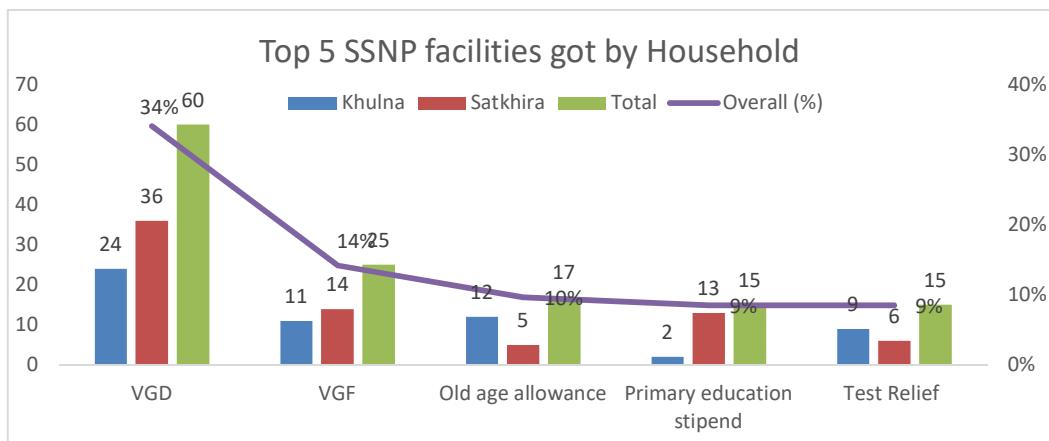


Figure- 5.9 illustrates that out of 176 households who get benefits, total 60 (34%) households get only VGD, 25 (14%) households get only VGF, 17 (10%) households get only old age allowance, 15 (9%) households get only primary education stipend and 15 (9%) households get only Test Relief. Eleven households get widow allowance and 10 households get disabled

person's allowance. Two households get both old age allowance & VGD and 2 households get VGD & Secondary stipend.

Table- 5.8 presents the number of households get other facilities along with regular SSNPs. Out of total 266 households, 192 (72%) households got benefits as affected people of cyclone and storm surge other than regular SSNPs; where 69 (26%) households did not get other benefits and 5 households' data is missing. Of which 102(72%) households out of 141 is in Koyra (Khulna) and 90(72%) households out of 125 is in Shyamnagar (Satkhira) got benefits as affected people of cyclone and storm surge other than regular SSNP benefits.

According to the survey data, 140 households get both SSNP benefits and other facilities which is 53% of total surveyed households. Thirty-six households did not get any facilities which is 14% of total surveyed households. Thirty-three households get only SSNP benefits and 52 households only get other facilities.

Table 5.8: Household got SSNP and other facilities

Cyclone & Storm Surge				
SSNP	NA	No	Yes	Total
No	2	36	52	90
Yes	3	33	140	176
Total	5	69	192	266

Out of 192 households who got benefits other than SSNP benefits, 113 (59%) households got only food grains; 50 (26%) households did not answer; 8 (4%) households got only relief facility; 4 households got health facilities and 4 got hand cash.

Figure 5.10 Households got benefits in days



Figure- 5.10 shows the time of getting benefits after the cyclone. The households who got affected by cyclones and storm surges need to have the assistance for food, medicine, cloth, shelter or even money as early as possible. As per respondents reply, 123 (46%) households got benefits within 30 days of the disaster, 60 (23%) households got within 60 days, 28 (11%) households got within 180 days and 17 (6%) households got within more than 180 days.

Figure 5.11 Benefit Sources

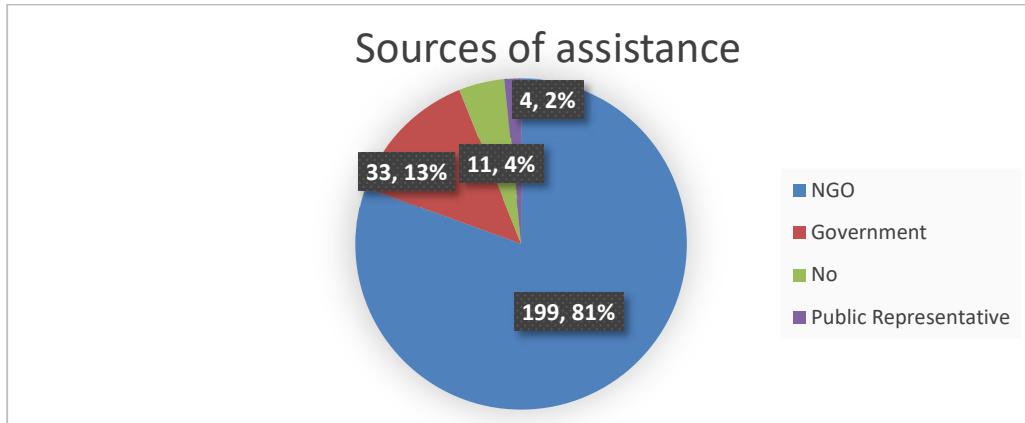


Figure- 5.11 depicts the sources of different SSNPs. Cyclone and storm surge affected the people's income, house, asset and livelihood. After the cyclone and storm surge the government agencies, public representatives and NGOs extend their helping hands. Other than the SSNP benefits out of 266 households, 199 households got assistance from NGOs, 33 households got from government agencies and 4 from public representatives.

Figure 5.12 Types of benefits

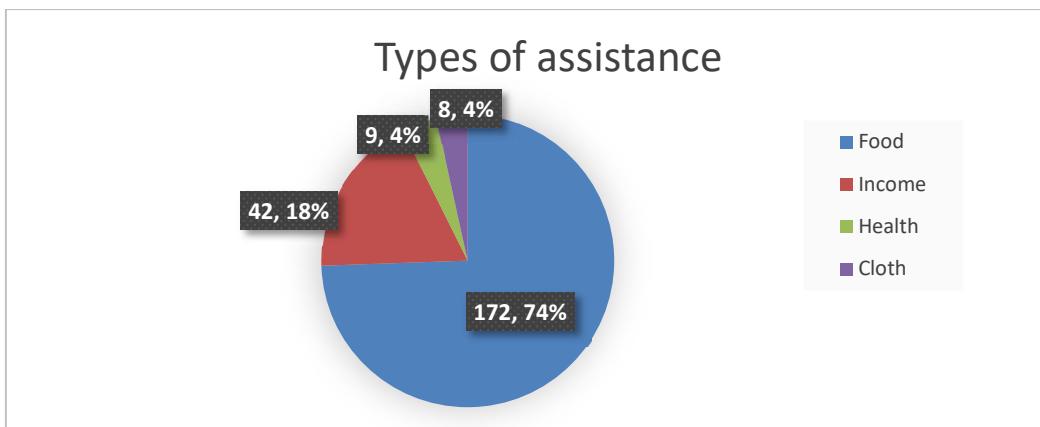


Figure- 5.12 shows the types of different SSNPs. After the cyclone and storm surge the government agencies, public representatives and NGOs offer assistance other than SSNP benefits. Out of 266 households total 172 households got food grains, 42 household got income support, 9 got health benefits and 8 got clothes.

Focus Group Discussions

The Focus Group Discussion of both government officials and NGO representatives discussed about the regular distribution of SSNP supports and others supports for the beneficiaries to reduce the adverse effect of the disaster. The FGD-1 explored the government initiatives in Koyra upazila. One of the representatives of FGD -1 stated:

From the perspective of the department of social services, there was no specific and dedicated program to support the climate change survivors. Normally the poor and affected persons were supported by the regular SSNP support given to old aged, disabled persons and widows. After the super cyclone Amphan, the Social Welfare Parishad, a local initiative supported each affected person by providing BDT 5000-7000.

On behalf of the Department of Agriculture Extension, local office provided agricultural incentives to the affected people based on the decision of higher authority.

The Upazila Engineer of LGED normally constructs the cyclone shelters in the coastal area. Currently, there are 78 school cum cyclone shelter in Koyra upazilla which are under supervision and maintenance of Upazila Engineer. Normally Upazila Engineer's office supervise the need-based maintenance in this region. After Amphan, the department checked whether the structure was stable or not. They revised the communication road connecting to the cyclone shelter. Recently, the LGED devised a software named REDUST which could capture picture and assess the damage of structure like bridge, culvert, cyclone shelter and other infrastructure. REDUST software has the flexibility to share the captured information to the top authority for planning and redesign.

The Ministry of Land (MoL) administer the land for the Asrayan project in Koyra through three stages. One hundred and forty houses were distributed to the affected people. The Assistant Commissioner of Land has been processing another 100 houses.

Another representative of FGD-1 stated that normally the DSS provide cash support to the affected people. The disaster management department support the affected people by distributing packaged food and saline. Medicine was also distributed after the cyclone Amphan. Another Representative of FGD -1 stated:

Koyra has been suffering the river erosion problem. Along with the cyclone, Koyra faced the river erosion problem due to storm effect of river. The road got damaged this year due to storm effect of river. The embankment was not sustainable enough to withstand the effect. Currently, in South Bedkashi union, a project for reconstruction of embankment at BDT 1000 crore has been taken by the GoB.

In our country, most of the cyclone shelters are based on school. Every year BDT 100 crore normally budgeted for the disaster. The Food for Work project sanctioned the 2nd highest budget for Koyra upazila whereas the highest budget for Shyamnagar upazila. In Koyra, there were 239 landless families. Among them, already 90 landless families have been provided house at 'Asrayan'. House for another 100 landless has been under process to distribute. For the rest 39 landless families, the land has been selected. During disaster, a list of landless family has been prepared.

Three or four Guccho grams had been developed in Koyra in 2017. Almost 450 families had been living there since then. Those families had been rehabilitated due to the disaster issues.

The Roads and Highway Department (RHD) has taken a project connecting the Shayamnagar to Uttar Bedkashi Union of Koyra in order to develop the area. The budget has been allocated for this project.

For the fisheries management, cluster-based budget has been allocated and distributed to the affected people. Alternative livelihood management step has been taken to recover their situation and also for the restoration of the Sundarban. Most of the people living here are directly or indirectly affiliated with fishing. The fishermen

normally enter into the Sundarban mainly for fishing. But the people disturb the ecological balance through hunting the deer, cutting the mangrove trees. In that perspective, aquaculture has been initiated and practiced to build up their capacity.

The FGD-2 Participants shared that steps had been taken to revert the damages caused by cyclone and storm surge. With the help of the donor support as per government requirement, tree plantation has been initiated to protect the coastal belt under the monitoring of Union Disaster Management Committee.

NGOs representatives stated that under the German donor fund 1 lakh 44 thousand people in two unions of Koyra is getting support. One of the two unions is Uttar Bedkashi. Cyclone shelter and Asrayan Project has been initiated in the Uttar Bedkashi and currently there is 2 cyclone shelters. With the help of NGOs, steps were taken to supply the potable drinking water and proper sanitation support to the affected people. The road had been developed to reach the cyclone shelter during the period of disaster. Alternative livelihood project had been initiated to support the local people. For that purpose, capacity building training program is in the ongoing phase in different sectors like livestock, farming and poultry rearing, aquaculture, sewing machine etc. Awareness raising was another crucial program to recover the damage of cyclone and stopping the migration of climate affected survivors. The NGOs played the lead role to establish linkage with the government. NGOs celebrate the World Environment Day, World Water Day and several national and international programmes for mass awareness. Though the government initiatives were focused on bank protection and infrastructure development, currently the socio-economic aspects were taken care by the NGOs in the local and national level.

Some NGOs provided several small-scale microfinance activities to the affected people to fulfil their needs. They took steps to initiate the supply of potable drinking water to the community through joint financial sharing of community and NGO. But to maintain the financial balance, the interest rate and method of recovery/withdrawal were not flexible enough. NGOs provided health support to the local people.

Key Informants' Interview

The in-depth interview, quantitative survey and FGD focused on the SSNP and regular support practiced in Koyra and Shaymnagar Upazila whereas the KII showed the overview of the SSNP support practiced in whole Bangladesh and any other exceptional support to disaster affected beneficiaries. One of the KIs shared:

SSNP has constitutional legality. Article 15(C) of the Constitution stated the obligation for social security for old and disabled persons and also for disaster affected people. Along with Department of Social Services, there are 22 ministries who are working on social security programme. Currently govt has allocated budget for 123 programmes with BDT 1 lakh 26 thousand crore. It is 16.48% of current national budget and 2.5% of GDP in FY 2023-24. National Social Security Strategy has been taken in 2015. GoB has been implementing lots of programme under this strategy. Department of Social Services has been given special responsibility to implement program through two phases under this programme. In the phase of 2015-2026, cluster-based programmes would have been implemented. In FY 2023-24, there are several programmes under NSSS. Department of Social Services has 19 programmes, among them, 17 are direct and 2 are support based programs such as Cyclone Preparedness Program (CPP) and CTM. Here total budget is BDT 10400 crore. Among the programmes, the SSNP budget for older aged people is the highest and 58,01,000 older aged people have been provided support under this programme. A policy developed in 2013 for providing support to old people, is under revision. Now all the works are done digitally, which was done in manual process previously. The distribution of support is done by digital mobile transaction process. Selection process is done with MIS system.

One of the KIs explained the current SSNP support and Asrayan project's information in details. He said:

21 Ministries along with the Ministry of Social Welfare are working on the SSNP where 115 programmes have been taken to support the beneficiaries. The Ministry of Social Welfare is the main stakeholder to distribute the SSNP among the tea labourers, disabled persons, widow and old aged people. For the tea labourers, initially BDT 4000 for each labour was distributed annually. SSNP support for the disabled person, widow

and old aged persons are BDT 800, BDT 550 and BDT 550 per month respectively. The coverage of the SSNP for the disabled person, widow and old aged persons are almost 29 lakh, 26 lakh and 58 lakh respectively. Currently BDT 4206 crore and BDT 1712 crore have been allocated for the old aged allowance and widow allowance respectively in the Fiscal year 2023-24.

Under the Ministry of Women and Children Affairs (MoWCA), 13 lakh mother and children get benefit at BDT 800 per month in FY 2023-24 under the lactating mother program.

The Vulnerable Women Benefit (VWB) which was known as VGD has got the allocation here. The Global Climate Adaptation project of BDT 66 crore for 43,000 people is ongoing under GCA projects.

The Employment Generation Programme for the Poorest People (EGPP) is one of the largest social safety net programmes of the Government, implementing by the Department of Disaster Management under the Ministry of Disaster Management and Relief. This program plays a significant role in construction/repair/ renovation of rural infrastructure including capacity building for poverty alleviation and disaster risk reduction by generating short-term employment during the non-working season of a year. Under this programme, out of the total allocation of BDT 2,146.54 crore in FY 2022-23, 1,073.27 crore have been allocated in the 1st phase.

Under the Ministry of Education (MoE), the coverage of stipend programs for Primary, Secondary, Vocational and Madrasa, Higher Secondary, Undergraduate and post graduate students are 1.40 crore, 60.03 lakh, 62 lakh and 1.30 lakh respectively.

Several other funds are given under the Ministry of Environment, Forest and Climate Change (MoEFCC) to support the affected people described in Climate Budget 2023-24 in recent year.

Another KI from the PKSF stated:

Climate change offers three types of programs: adaptation; mitigation; and loss & damage calculation (which could occur despite adaptation and mitigation). So, loss &

damage is the prime focus for PKSF support. PKSF's mandate provide input through employment generation to cover fundamental rights.

PKSF offers livelihood support, build capacity in perspective of alternative livelihood and the major benchmark is to ensure the livelihood of poor despite climate change. The funding might be done from Green Climate Fund or from PKSF's own fund. PKSF normally provides the seed of high growth variant and saline tolerant species, strengthen and rehabilitation of house and cyclone shelter, capacity building program support, aquaculture, poultry rearing and livestock farming etc. PKSF also shares its technical capacity in climate advocacy and also develop insurance mechanism. Bangladesh needs to progress up the way forward for the climate fund through developing a mechanism of loss & damage estimation.

PKSF has a disaster fund of BDT 500 crore to address the sudden effect of cyclone or sudden salinity intrusion. Its use the interest from the deposit of main fund of BDT 500 crore. In order to combat the devastation just after the disaster, an amount of fund, without any survey, allocate to address the certain needs of the affected people. But the amount is not enough to cover the support. For example, a board meeting occurred in an instance to disburse the amount during the occurrence of major climatic events. As it is an institution other than government which could not distribute the revolving fund in a massive scale.

Currently, Green Climate Fund (GCF) has provided a grant of USD 42 million to PKSF. PKSF has set up its goal to distribute the fund through strengthening and rehabilitating the targeted peoples' house and, alternative livelihood support like livestock farming, aquaculture and agriculture of saline tolerant varieties, develop forestry in the coastal area where the affected people live.

The accountability of the PKSF fund program: PKSF implement the program through distribution of fund to the partner local NGOs. Based on the category and record, the fund is distributed to the NGOs and monitored by the PKSF. As PKSF has the good accountability system and global standard to acquire the GCF fund. There is also another GCF fund user named Infrastructure Development Company Limited (IDCOL). The current project funded by PKSF are ABASON; Agrosor; Buniad; ENRICH (Enhancing

Resources and Increasing Capacities of Poor Households towards Elimination of their Poverty); Environment and Climate Change Unit; Integrated Agriculture Unit; Jagoron; Livelihood Restoration Loan (LRL); Program for Adolescents; Risk Mitigation; Social Advocacy and Knowledge Dissemination Unit; Sufolon.

The land ministry provided support to develop the Asrayan project in Koyra and Shyamnagar which could be shown in the table 5.9 below:

Table 5.9: The list of Gucchogram in Koyra & Shyamnagar

No.	District	Upazila	Union	Guccho Gram	Family Number	Land area (Acre)	Applied fiscal year
1	Khulna	Koyra	Koyra	Gobra	50	2.5	2017-18
2	Khulna	Koyra	Koyra	Gobra-2	80	4	2017-18
3	Khulna	Koyra	Koyra	Gobra-3	50	2.5	2018-19
4	Khulna	Koyra	Koyra	Gobra-4	40	2	2018-19
5	Khulna	Koyra	Moharajpur	Khoriya Mothbari	70	3.5	2017-18
6	Khulna	Koyra	Moharajpur	Khoriya Mothbari-2	70	3.5	2018-19
7	Khulna	Koyra	Moharajpur	Khoriya Mothbari-3	30	1.5	2018-19
8	Khulna	Koyra	Bagoli	Shewora	60	3	2018-19
9	Satkhira	Shyamnagar	Burigoalini	Pankhali Chun	40	2	2016-17
Total					490	24.5	

(Source: SVRP Project 2nd phase; date: 30-6-2022)

The in-depth interview, quantitative survey, FGDs and KIIs provided the detailed information about the benefit provided to the affected people under SSNP to address their demand. But the activity of SSNP could not fulfil the demand of the beneficiaries as the amount is very low compared to their need. The impacts of the social safety net programs on reducing vulnerabilities and ensuring sustainable livelihoods will be discussed in the next section.

5.3 Impacts of the social safety net programs on reducing vulnerabilities and ensuring sustainable livelihoods

The Social Safety Net Program (SSNP) and its practices in the coastal area for the vulnerable people affected by cyclones and storm surges, described in the above section shows the positive but limited impact on the beneficiaries. The main reason identified as the amount of support provided towards the beneficiaries were not satisfactory to address the damage.

The in-depth interview of the 16 beneficiaries explored the main focus on the gap of demand and supply of their food, health care, and livelihoods. The insights of the beneficiaries generated from the in-depth interview has been presented below:

In-depth interview:

Five out of 16 beneficiaries perceived that SSNPs are partially effective regarding food security and education. However, 11 out of 16 Beneficiaries argued that the SSNP support was not enough to provide support to reduce vulnerabilities. They suggested that the focus should be given on Food, health care, and income generation. Capacity building should be needed to develop their self-capacity of income generation in different fields like agriculture, livestock farming, sewing machine, pickup driving etc.

Education facilities and cyclone shelter construction should be included in major part of the coastal area. Table-5.10 shows the need range based on the information found from the beneficiaries

Table 5.10: Extra Demand identified beyond SSNP

SSNP	Amount of benefit	Need range depends on demand
Old age and Widow allowance	BDT 1500 per 3 months	BDT 7000-15000 per 3 months
Disabled person allowance	BDT 3000 per 3 months	BDT 8000-12000 per 3 months
30kg Card, 15Kg card, Ration card	Demand wise card-Ration card 30kg card provide 30 kg rice monthly 15kg card provide15 kg rice monthly	
Other: Fisherman card	80 kg rice annually	600-1000 kg rice annually

Quantitative survey:

Participants believe that Social Safety Net Programs are essential lifelines for communities that are at risk of cyclones and storm surges. These programs, which provide vital resources and support, are seen to be crucial in lessening the immediate aftermath. They include cash transfers, food aid, and employment opportunities. The participants recognize their part in helping the impoverished becoming more resilient, providing a safety net during times of crisis, and stabilizing livelihoods. In addition to meeting urgent needs, these initiatives are valued for helping communities recover over the long term by giving people the tools they need to start over after a disaster. Notwithstanding these advantages, problems like gaps in coverage and administrative roadblocks still exist and reduce overall efficacy. In order to optimize the programs' impact and guarantee a stronger safety net for the most vulnerable after the event of natural disasters, participants emphasize the need for increased accessibility, better coordination, and long-term solutions.

To explore the strengths and weaknesses of SSNPs as it means to reducing vulnerabilities and ensuring sustainable livelihoods of the beneficiaries, the researcher wanted to understand the experience of people getting SSNP benefits, is alone SSNP enough for reducing vulnerabilities and which specific sector, is SSNP ensuring better livelihoods of the poor survivors and which sector. Figure- 5.13 illustrates the experience of the beneficiaries.

Figure 5.13: Experience of getting SSNP benefits

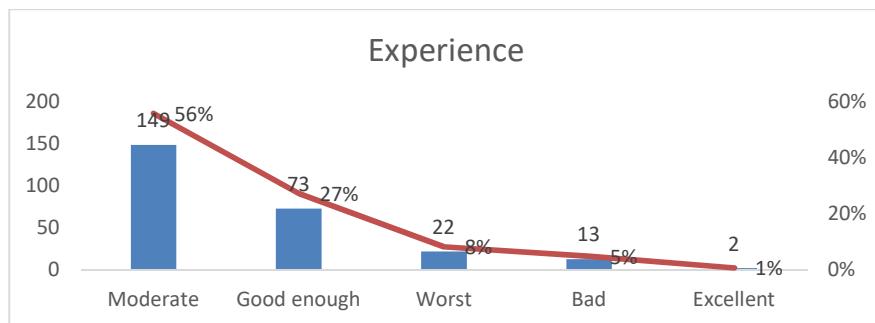


Figure- 5.13 shows that experience of getting SSNP benefits of 266 households; 149 (56%) household's experience was moderate; 73 (27%) household's experience was good enough; 22 (8%) household's experience was worst; 13 (5%) household's experience was bad and 2 (1%) household's experience was bad. Which shows that half of the people have neither bad

nor good experience while receiving the SSNP benefits. Currently the government should work on to provide better services to the poor.

Figure 5.14: Reducing vulnerabilities according to household

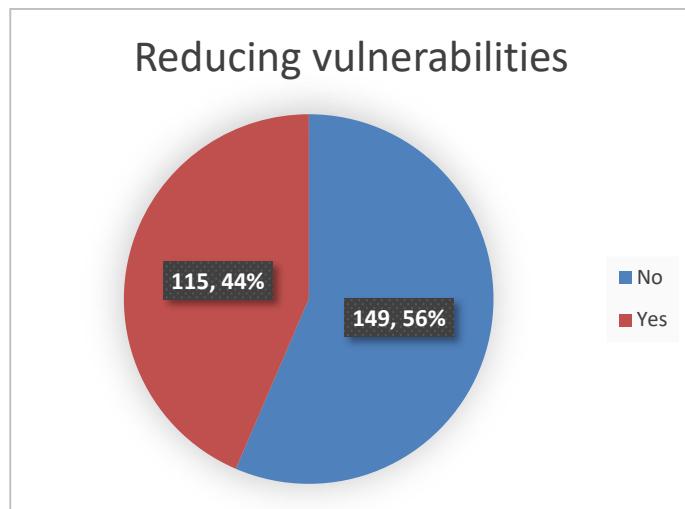


Figure- 5.14 depicts the experience regarding reducing vulnerabilities of the beneficiaries. Against the question of is alone SSNP enough for reducing vulnerabilities, Figure- 5.14 shows that out of 266 households 149 (56%) households perceived that SSNPs are not enough for reducing vulnerabilities and 115 (44%) households argued that it was enough. From policy and governance perspectives, the government should do detail study in the root level to find the initial demands of the poor survivors and focus on the program.

By questioning the households about which sector they find the SSNP is not enough out of 149 households 33 households replied food, 16 households said health care, 12 households said employment, 4 households said income; while 84 households did not answer the question. Out of 115 households who argued that the SSNPs are enough for reducing vulnerabilities, 70 households said that SSNPs are enough for reducing vulnerabilities in food, 16 households said in income, 15 in health, 9 in cloth and 5 in employment generation.

The researcher tries to understand the perception of the households about SSNPs whether it was ensuring better livelihoods of the poor survivors of cyclones and storm surges. According to the responses of the respondents, 167 households said that the SSNPs are ensuring better livelihoods of the poor survivors of cyclone and 91 households perceived that they were not enough.

According to the respondent of 167 household who thinks SSNP is ensuring better livelihood, 104 households in Food sector, 35 households in Income sector and 20 households in Health sector thinks SSNP ensuring better livelihoods of the poor victims of cyclone. Out of 91 household who thinks SSNP is not ensuring better livelihood, 22 household thinks in food sector, 15 in employment sector, 6 in health, 4 in income sector and 1 in education sector.

5.3.1 Social safety nets and sustainable development goals

The Social Safety Net Programs implementing by the government are aligned with the Sustainable Development Goals. The insights driven from the data in light of SDGs will help to identify the issues, gaps and impacts of the SSNPs to the beneficiaries.

Sustainable Development Goal 3 (SDG 3 or Global Goal 3), regarding "Good Health and Well-being", is one of the 17 Sustainable Development Goals established by the United Nations in 2015. The official wording is: "To ensure healthy lives and promote well-being for all at all ages." The targets of SDG 3 focus on various aspects of healthy life and healthy lifestyle. Progress towards the targets is measured using twenty-one indicators. SDG 8 provide the theme "Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all. "Goal 11 is about making cities and human settlements inclusive, safe, resilient and sustainable. Goal 16 of the Sustainable Development Goal is about creating inclusive and peaceful societies, ensuring that everyone has access to justice, and strengthening institutions. SDG 16 encompasses twelve targets, among them the advancement of the rule of law and guaranteeing fair access to justice, as well as significantly decreasing corrupt practices and bribery are more relevant to this study. SDG 16 calls for peaceful and inclusive societies based on respect for human rights, protection of the most vulnerable, the rule of law, and good governance at all levels. It also envisions transparent, effective, and accountable institutions, which are the key issues discussed in this research.

The beneficiaries shared their insights with the researcher which had been synchronised as per the target of the SDGs- 2, 3, 8, 11 and 16 as described below:

Food security (Goal-2)

Govt. has not taken any steps to ensure any special SSNP support other than regular SSNP in purpose of food security specifically for the disaster affected people and also for pre and post disaster management. The Fishermen card, 30Kg Card, 15 Kg card and the Ration card are the

practices for the beneficiaries in maximum case but those were not enough to meet up their demand. The fishermen VGF card provide 80 kg rice annually but the demand for rice per family was 600-1000 kg annually.

Health Security (Goal-3)

Govt has not taken any steps to ensure any special SSNP support other than regular SSNP in purpose of Health security specifically for the disaster effected people and also for pre and post disaster management. Vaccination like Vitamin-A along with several emergency vaccine like Covid- 19 vaccination are the prime and regular practices of government to ensure health safety. The area has only one community clinic in Koyra which is far from the Uttar Bedkashi Union and the communication route is not good enough for a patient to sustain. Most of the cases, the people get medical support from local doctor named Dr. Haripada and Dr. Anupom. The area has no salinity problem and tube-well coverage was well enough to meet the drinking water and other domestic demand.

Goal-8

The beneficiaries spoke out about the discrimination between the wages of male and female workers. Everyone said that in case of day labourer for agricultural land, the male one gets BDT 200-300 more than that of female. But their perception was that male normally do more hard work than that of female. Most of the beneficiaries lost more than 50% of their monthly income and income sources like agriculture, fishing, trade etc due to the devastating cyclone and storm surge. The loss of income in maximum case varied from BDT 3000 to 15000. The benefits had been given to the selective targeted people like old aged, physically challenged and mentally disabled persons and widowed; but the benefits could not meet the demand of their daily livelihoods. Most of them wanted a permanent solution of livelihood options in which he or she used to be. They proposed alternative livelihood like livestock farming, aquaculture and sewing machine or grocery shops and fruits market. But most of them agreed strongly about the capacity building program and supply of the resources for income generation.

Goal-11

The beneficiaries had different amount of agricultural land but after calculation it is understood that almost 45-60% owned land eroded due to the cyclonic effect of 'Amphan'. Among the beneficiaries, 40% people were living in the khas land beside the embankment which would be harmful for stability of the embankment. The Asrayan project could help

them to relocate and live safely but due to social status and lack of income generation opportunities, most of the people did not want to relocate themselves. Several beneficiaries were seemed uninterested to relocate though they had no permanent house and they lived with economic hardship.

Ease to get Social Safety Net Program support (Goal-16)

Fourteen out of 16 beneficiaries said that they did not face any trouble to withdraw the benefit of SSNP as provided by electronic transaction like bKash, Nogod etc. and moreover, the government officials and the local union chairman, members were cooperative in this regard. But they provided insights about revision of the list of beneficiaries in every year because the cyclone and storm surge occur frequently, a lot of new people would become the victims of the cyclone and storm surge.

In align with the in-depth interview, the quantitative survey provided the similar information for attaining the target of SDG.

Quantitative Survey

GOAL 03:

Sustainable Development Goal 3 (SDG 3) aims to ensure health and well-being for all. This encompasses: Attaining comprehensive health coverage, ensuring availability of safe and efficient medications and immunizations for everyone, eradicating avoidable mortality among newborns, infants, and children under five. SDG 3 centers on vital objectives that enhance a nation's populace health. Emphasized areas are elevated disease prevalence and marginalized populations, aiming to address neglected regions and demographics with health disparities.

Through this study, the researcher had the opportunity to find the common diseases, which age group suffers the most for disease, which gender suffers the most, after cyclone the expenditure amount increased or decreased for disease purpose per month and after cyclone life expectancy of the poor people who are affected by cyclone and storm bore.

On the question of common disease from 266 households, 94 households responded as heart (36%), 83 households responded as skin (32%), 47 households responded as water related (19%) and 24 households responded as blood pressure (9%) diseases were common.

About which age group suffers the most for diseases: 94 households responded as child (35%), 87 households responded as mid aged (33%) and 78 households responded as old (30%) age group suffers the most.

Against which gender suffers the most: 151 households responded as female (60%) and 89 households responded as male (35%) suffers the most.

After cyclone the expenditure amount increased or decreased per month for disease purpose: 261 households replied the expenditure amount increased for treatment purpose.

On the question of after cyclone life expectancy of the poor people who are affected by cyclone and storm surge: 138 households stated that after cyclone life expectancy increased (61%) and 76 households thought that life expectancy decreased (33%).

It concludes that, most of the poor people have heart, skin and water related diseases; child and working age group suffers the most; female who maintain and handle the house work suffers the most and after cyclone the expenditure amount increased for treatment purpose.

GOAL 08:

Sustainable Development Goal 8 (SDG 8) is about "decent work and economic growth". With full employment, decent work for all, and sustainable economic growth as its goals, SDG 8 acknowledges the significance of high productivity in generating well-paying jobs. It integrates economic, social, and environmental issues and addresses all three dimensions of sustainable development. A few strategies for encouraging respectable employment and boost the economy include funding, training and education, helping in start-ups, advocating for equitable pay and working conditions, and advancing gender equality.

Related to SDG Goal 8, the researcher tried to find the wage equality on the job, if any training provided for job or employment or business purpose from government agencies or NGOs, if yes then, what type of training is provided, after training what percentage of people got jobs or employment or started business, and age group of earning members in percentage.

Figure 5.15 Gender equality (Wage wise)



Figure- 5.15 shows the gender wise wage. Against the question, “Does female get equal wage to male on the job”, Figure- 5.15 states that 223 households (85%) replied female do not get equal wage to male on the job where there were 147 female respondents and 76 male respondents. On the other hand, 39 households (15%) replied they get equal wage where there were 28 female and 11 male respondents. 4 households did not answer.

Under the question if any training provided for job or employment or business purpose from government agencies or NGOs, 243 households said, they did not get any training (91%). Only 2 households said they had a family member who got training. One household got goat farming training and other got tailoring training. Twenty households did not reply to this question.

About earning members age group, (18-60) was 84% which is 224 households and 2 households had 60+ years earning members.

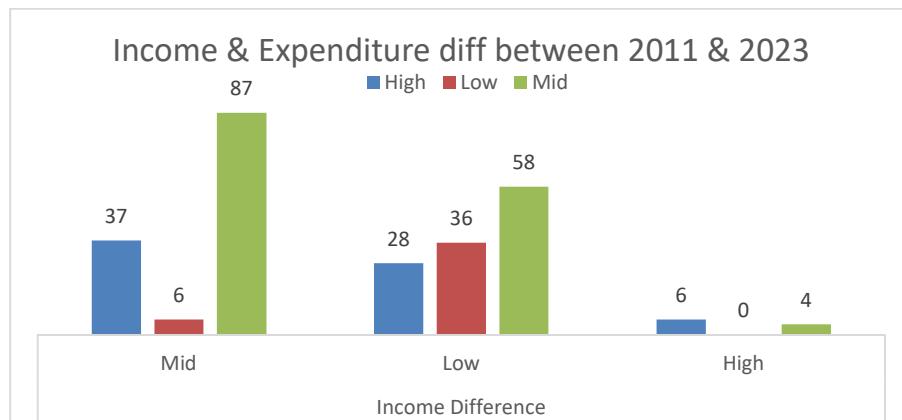
It can be summarised here that according to 85% respondents, female do not get equal wage to male on the job. Only 2 households got training where primary strategies of SDG 8 to promote decent work and strengthen the economy include financial support for education and training, as well as assistance to start-ups that promote gender equality. The government might focus on training for the poor who are affected by cyclone and storm surge. Gender equality should be implemented also.

GOAL 10:

Sustainable Development Goal 10 (SDG 10) aims to reduce inequality in countries by eliminating discriminatory laws, policies, and practices. It focuses on reducing inequalities across income, social services, and political representation, ensuring equal opportunity and promoting appropriate legislation and action.

The researcher wanted to understand the income and expenditure difference between 2011 and 2023, family members work in abroad and send remittance, if yes then, how do they receive the remittance and number of persons in family receives any other benefits (other than the old age, widow or disable person's allowance) for income generation (job or business or employment) of poor people. Figure- 5.16 portrays the income and expenditure difference between 2011 and 2023.

Figure 5.16 Income & Expenditure difference between 2011 & 2023



In this research questionnaire on income and expenditure difference between 2011 and 2023 divided into three categories: low (BDT 1,000-5,000), medium (BDT 5,001-20,000) and high (more than BDT 20,000). Figure- 5.16 shows that out of 266 households, 131 households said the income difference between 2011 and 2023 was medium (49%), 122 households said low (46%) and 11 households said high (4%).

One hundred forty-nine households said the expenditure difference between 2011 and 2023 was medium (56%), 42 households said low (16%) and 72 households said high (27%); where the value for low was BDT 1,000-5000, medium was BDT 5,001-20,000 and high was more than BDT 20,000. Only one household's family member work in abroad and send money through bank.

As the output shows that, before cyclone average income was BDT 8,622 and after cyclone average income was BDT 7,492. Overall 13% income loss occurred after cyclone. So, it was obvious that the income and expenditure difference would be in medium category.

Under the question of family member work in abroad and send remittance, only one household said one of the family members work in abroad and send remittance through bank.

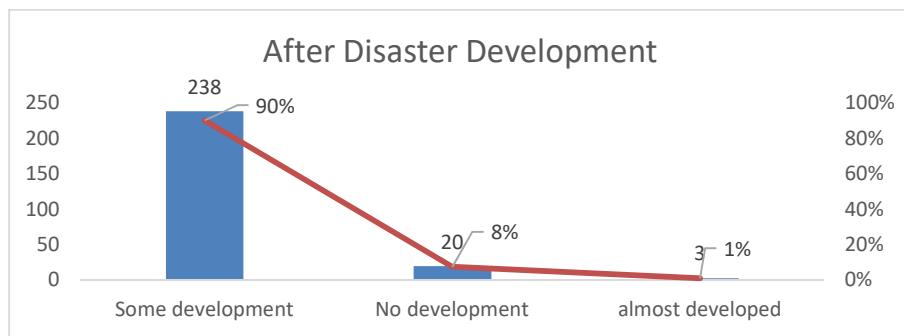
Against other question about number of persons in family receives any other benefits (other than old age, widow or disable person's allowance) for income generation, 41 households said one person of their family (15%) and 2 households said two persons of their family receive other facility (other than old age, widow or disable person's allowance) for income generation.

GOAL 11:

Sustainable Development Goal 11 (SDG 11) aims to make cities and human settlements inclusive, safe, resilient, and sustainable. This involves enhancing impoverished residential areas, allocating funds to public transportation, establishing environmentally friendly public areas, enhancing urban planning and administration, and ensuring urbanization and transportation are accessible and sustainable.

The researcher had the opportunity to know what type of development works done for road protection, and bridges after disaster, any solid or liquid waste management system was there and if no, then where did they release the waste of the area when the cyclone and storm surge affected poor people. Figure- 5.17 shows the development works after the cyclone.

Figure 5.17 Information of development after cyclone & storm surge



Under the question of development works done for road protection, and bridges after disaster was divided into 4 categories: no development, some development, almost developed and all developed. Figure- 5.17 demonstrates that only 3 households said almost developed, 20 households said no development and other 238 households said some development (90%). Certainly, those people were not satisfied with the development works done after cyclone. Most of the respondents added, due to lack of initiatives to refurbish the

embankment, the only road which was the major road of Koyra was under construction and almost finished was fully damaged. It caused the damage of agriculture field and fisheries.

Regarding solid or liquid waste management 225 households said there was no solid or liquid waste management (85%). Other 38 households (14%) said they had solid or liquid waste management and 16 households of them put their waste in roadside.

Out of 225 households who said there was no waste management, 87 households threw their waste in the khal and 84 households in the river. Throwing the solid and liquid waste in the water bodies like khal, river or other wet lands and using the same water can cause diseases like skin disease or other disease.

Earlier we found that the common diseases of this area were heart problem (36%), skin problem (32%), water related (19%) and 24 households replied as blood pressure (9%) was the common. The local government should work on waste management for the betterment of these poor people.

SDG 16

Goal 16 of the Sustainable Development Goal is about creating inclusive and peaceful societies, ensuring that everyone has access to justice, and strengthening institutions. SDG 16 encompasses ten goals, among them some are the advancement of the rule of law and guaranteeing fair access to justice, as well as significantly decreasing corrupt practices and bribery. SDG 16 calls for peaceful and inclusive societies based on respect for human rights, protection of the most vulnerable, the rule of law, and good governance at all levels. It also envisions transparent, effective, and accountable institutions.

The researcher conducted survey through a questionnaire on the experiences of whether 266 households were receiving SSNP benefits or not, focusing on SDG 16's goals of creating inclusive societies, ensuring access to justice, and strengthening institutions. The results show that 56% had moderate experiences, 27% had good enough, and 8% had the worst experience while taking SSNP benefits. The government should improve services for poor people.

The researcher asked through questionnaire about the experience of people getting SSNP benefits which is divided into excellent, good enough, moderate, bad and worst. This question is connected to SDG 16 where it says, creating inclusive and peaceful societies, ensuring that everyone has access to justice, and strengthening institutions.

Focus Group Discussions (FGDs)

During the FGDs the respondents stated about the impact of SSNPs relating SDGs in limited way. They said that, though Bangladesh has been developed profoundly in last 20 years but sectoral change targeting SDG in the coastal area would show limited improvement.

In health sector, the lack of proper support to the woman, child and physically and mentally disabled person would not get proper care as there is only one community clinic which had limited resources. For advance treatment, this clinic could not help the patients specially the women. Women in that area suffering from uterus related diseases due to salinity problem, would not get proper treatment. The affected people would go to the local quack for treatment. The benefits provided by the SSNPs for the old age, widow, physically challenged and mentally disabled people were not sufficient enough to give the extra support. During cyclone and storm surge, if anyone suffer from disease, they could not get extra fund as there is no post disaster fund allocated there for the affected people. Though the Department of Social Services provided extra support but that was not well enough. People are aware of waterborne diseases like cholera, diarrhoea etc. but lack of potable drinking water, the situation gets worst during the post disaster period. The Department of Disaster Management tried to provide support by supplying potable drinking water, water purification tablet, hygiene kit, sanitary napkin etc.

Resembling the SDG-8, the livelihood sources became scares during the post disaster period. Though most of the people were involved in fishing and getting VGF support along with SSNP benefits, but they could not fulfil their need due to lack of proper income generation sources. Not only that, in case of day labourer, there was a discrimination in earning for both male and female.

The embankment maintenance would be the source of livelihood for several people for the extra income generation and sustainable management of the hydraulic structures. One of the respondents stated the situation in favour of SDG 11 (sustainable settlements). He informed:

The Asrayan Project for the 239 homeless people is in ongoing process. But several people those who lost their resources in disaster are not willing to relocate their family in the Asrayan Project due to social status. Strong motivation is needed to relocate them. Currently the list of homeless should be revised as every year lots of people are being affected by cyclone and disaster.

One of the respondents stated:

The governance and regular monitoring have been improved and become better than earlier. The list of vulnerable people and distribution of the benefits to the beneficiaries has record of transparency. There are several exceptional issues like lack of accountability the local mobile banking agent or the local people helping beneficiaries inconvenient to technological susceptibility. The district, upazila and union wise committee for regulation and monitoring for supporting distribution should be mandatory for proper execution.

Key Informants interview:

The Key Informants' interview resembled almost same with the FGDs for the perspective of Sustainable Development Goals. The voices raised from the local level for their demand, the extra disaster oriented quick responsive support initiation and technological capacity building for the monitoring mechanism for the proper distribution of support through agent banking are the additional points to be addressed.

5.4 Implications for policy and practice

The in-depth interviews, quantitative survey, Focus Group Discussions and Key Informant's Interviews summarise the gaps and needs of the current SSNP programs for the vulnerable people affected by cyclones and storm surges. Though the in-depth interview and quantitative survey provided the basic needs and demands of the beneficiaries but discussion through the FGDs and KIIs provided the selective and integrated outline for the implications for policy and practice.

In-depth Interviews:

The in-depth interviews provided several outlines for policy implications and practices as follows:

The current implication for policy and practice in relation to existing system of SSNPs in order to reducing vulnerabilities and ensuring sustainable livelihoods of the poor survivors of cyclones and storm surges based on suggestions generated from the beneficiaries were:

- Support for agricultural damages should be implemented through providing high breed seeds and fertilizer. Government could provide support in livestock farming and

capacity building program for the farming and fishing. For the women, sewing machine could be another source of income.

- Transportation of goods carried through Koyra river would add more economic value for the area. Minivan, paddle van, pickup service could be helpful. Government can provide training for the potential drivers of the aforesaid vehicles for better shipment of goods and services for the people.
- The medical care facilities should be widespread in the area as the people are normally deprived from proper treatment and regular check-up.
- River training and embankment protection is necessary for the coastal areas' stability. To resist the cyclonic effect and storm surge, increment of cyclone shelter is necessary for both human and livestock. For transportation, the mass communication would increase if the only road for communication be repaired.

Quantitative survey:

Specific policies for the survivors of cyclones and storm surges are necessary for Bangladesh to implement strong Social Safety Net Programs (SSNPs). It is essential that disaster risk reduction strategies be synchronized with SSNPs to improve their coverage, accessibility, and efficiency. Survival is strengthened by emphasizing timely aid distribution after disasters, utilizing local knowledge for adapted assistance, and encouraging community involvement. Sustained support can be guaranteed by flexible SSNPs that adjust to changing vulnerabilities and undergo ongoing review and modification. To pool resources and implement policies effectively, cooperation between international organizations, NGOs, and the government agencies is essential. Promoting self-sufficiency among survivors through skill-development programs in SSNPs can promote livelihood improvements over the long term, even in the face of frequent natural disasters.

The researcher tried to understand the respondents' point of view on what could be added to SSNP or other programs in order to reducing vulnerabilities and ensuring sustainable livelihoods of the poor survivors of cyclones and storm surges. To understand the issue, the researcher had the opportunity to find the respondents' opinion in which sector SSNP should be work on and what should be added in the SSNP schedule (max three facilities).

On the basis of the question about which sector SSNP should work, 105 Households replied as income (40%), 104 Households thought as food (39%), 18 households as others, 15

households stated as clothes and 11 households as health (10%). It is visible that the food grains poor people getting is not adequate. Moreover, 40% of the respondents asked for income generation or employment opportunities. On the other hand, some of the respondents just wanted to get the aid all the time and not wanted to focus on employment or self-reliance.

Figure 5.18: On which facility should the govt. provide

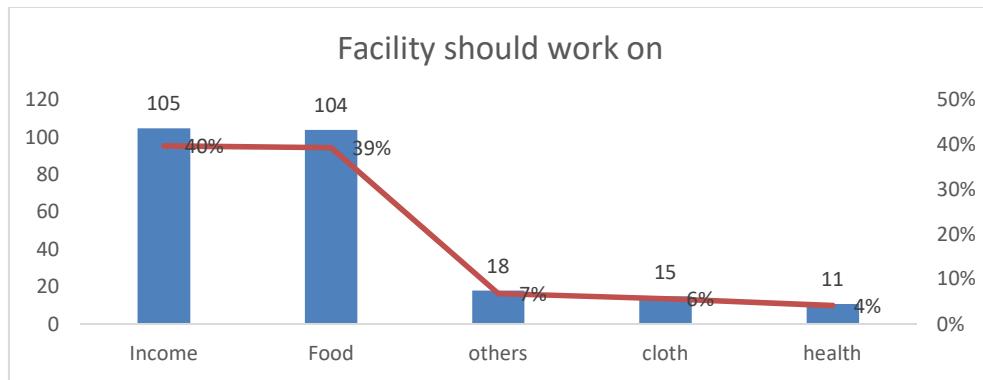


Figure- 5.18 states the sectors the government should give priority. On the basis of the question about which sector SSNP should work, Figure- 5.18 shows that 105 households replied in Income (40%), 104 households think in Food (39%), 18 households in others, 15 households think in cloth and 11 households in Health (10%) SSNP should work on. It is visible that, the poor people are not getting adequate food.

To find the response about what should be added in the SSNP schedule, the survey questionnaire offered maximum three choices. One-seventy-two households (66%) choose Food as their first choice, 19 households (7%) choose Health, 16 households (6%) choose Education, and 14 & 13 households choose House & Income respectively. For second choice 64 households choose Cloth (26%), 61 households choose Health (25%), 39 households choose Income (16%), and 26 households choose Food that SSNP should add. As third choice 107 households choose Health (47%), 28 households choose Income (12%), 16 households choose Education (16%), and 11 households choose Road that SSNP should add. It concludes that, SSNP should add more in food, health, cloth, income, and education to reduce the vulnerabilities of the poor people.

In conclusion, it can be argued that the majority of households required additional food, healthcare, clothing, cash money, and education services. Although the majority of SSNP benefits are offered to vulnerable persons in the form of food, clothing, cash, or in rare cases,

health-care. According to the responses, the quantity of benefits is insufficient for the cyclone-affected people. The government should analyse, do additional study, and make a policy decision on how much the quantity of SSNP benefits should be increased.

Focus Group Discussions (FGDs)

Along with the discussion in in-depth interview and quantitative survey, the FGDs had given insightful information for the policy implication to reduce the vulnerabilities of the poor due to the cyclone and storm surge. The respondents of FGDs shared their view that there is a list of vulnerable people affected by cyclone and storm surge and the loss and damage enlisted by the union level committee but the list should be revised. The observation and need from the poorest people should be taken care of by the relevant departments. The support given by agriculture and fisheries department in terms of alternative livelihood would be enough alongside the SSNPs provided by the 22 ministries if the accountability is ensured. But it would be better to generate a shock responsive fund to address the cyclone and storm surge. The NGOs should be engaged and monitored actively in the capacity building and awareness program under the regular monitoring. A separate body and monitoring mechanism should be established by the NGO communities to ensure the accountability of the NGOs.

Key Informants Interviews (KII):

To ensure sustainable development, both government and non-government organizations should work together to develop sustainable strategies for the coastal people. The fund provided by the internal and external donors to NGOs was not sufficient enough to maintain the activity. To mobilize more fund, the climate change impacts on coastal people should be capitalised by the relevant government agencies and negotiators. Effective coordination and ensuring accountability in program management can help attaining SDG -16.

The insights derived from the in-depth interview, quantitative survey and Focus Group Discussions, were shared with the 6 Key Informant Interviewees. The KII also added some insights for policy implication to reduce the vulnerabilities and ensure sustainable livelihoods for the survivors of the cyclones and storm surges.

One of the KII stated that,

- 1) A proper database of affected people should be developed. The location, amount of damage consists of both financial and immovable properties of affected people due to cyclone and storm surge should be identified. Based on that database, the people should be included in the SSNPs programs.
- 2) Designated SSNP for survivors of the cyclones and storm surges could be developed.
- 3) A disaster fund should be distributed in different amount based on the indicator setting cyclone, flood, storm surge but not area based for supporting the affected people. For example, the people affected in a particular cyclonic effect will get particular amount of support. It is very much possible mechanism for disaster fund disbursement.
- 4) To attain the SDG, the most affected, marginalized, poor, segregated people should be identified at first and the voice of the local people should be taken care of.
- 5) The fund disbursement should be digitalized as per developed proper database. If local government representatives and UNO might be included for better preparation of database.
- 6) The climate financing should be need based and capacity development of the affected people. SSNP might be good option rather than insurance.
- 7) More adaptive measures should be taken than the mitigation measures. Policy reformation is needed to adjust the SSNP support for the disaster affected people to attain the sustainable development goals.

Several policy recommendations provided by the other KIIs are as follows:

1. The poor beneficiaries' voices should be considered regarding the SSNPs' policy formulation and program management. The support system and strategic distribution should be focused mainly on the bottom-up process. Along with, the blending of top down and relevant middle approach would be more fruitful which has been done in the National Adaptation Plan of Action (2023-2050) recently.
2. A beneficiary from one SSNP is not entitled to another SSNP. This policy should be suspended in case of the cyclone and storm surge induced disaster affected people. These people need more support during post disaster period.

3. An exceptional and specific fund should be created under SSNP program to address the damage of the disaster during the post disaster situation. Unfortunately, there is no exact fund to address the damage of the affected beneficiaries. The support system should be developed based on inclusive and participatory consultation which could attain SDG-16.
4. A central database should be created for the proper allocation of SSNPs for poor people. The ministries working on the benefit distribution could take quick responsive action to address the damage immediately after the disaster.
5. To ensure accountability and good governance in the program management system, the union, upazila and district wise committee formed by the cabinet division should be more effective to attain the SDG-16.
6. The local people should be included in coastal embankment management and the ownership can be shared between the relevant government department and local people. The accountability should be ensured for the operation and maintenance of the embankment. This opportunity could be utilized as an alternative livelihood approach and building self-reliance for the local people. It would help to attain the targets of SDG-8.
7. For the proper environment management strategy, the local people should be involved in the community-based adaption and management for the coastal mangrove forest to attain SDG-8. The coastal mangrove forest management should be participatory and inclusive for the restoration and alternative livelihood management like the Nipa Palm (Golpata), honey collection and limited fishing. The branding and producing the Keora Fruit Pickle through capacity development programme would be another scope of alternative livelihoods.
8. The incentives in agricultural production like saline resilient high breed seed, fertilizer, the aquaculture in the surrounding area would create another source of alternative livelihoods.
9. For the potable drinking water, the rainwater harvesting should be prioritized than the reverse osmosis system which could take care the issue relevant to SDG-3 (Health). The people should be involved in rainwater harvesting system through capacity building program.

10. The use of asbestos in rainwater harvesting should be reduced. It is an emergency to take necessary action for reducing the health issues. The experts and local community and NGOs should be involved in the capacity building program.
11. Community medical practitioners should be utilized for the selection of the physically challenged and mentally disabled people for the SSNPs.
12. The health issues of female community should be taken care of for attaining the SDG-3 (Health).
13. The target of SDG-8 and 11 are mutually dependent for the perspective of coastal people affected by cyclone and storm surge. The Asrayan project is a satisfactory initiative but the management should be inclusive. The place should be selected in such a way that the affected beneficiaries could earn their livelihood nearby other than depending on the social security offered by the government and NGOs. For example, the fisher community should be relocated in the Asrayan project where the river, khal and wetlands are situated nearby and it would be easier to catch fish from the wetland. The motivation should be given for quick relocation and adaptation for the people. In addition, Asrayan projects should be implemented where income generating activities are available.
14. Currently a new cyclone shelter system has been piloting in the coastal areas. For example, in Kolapara upazila of Patuakhali, 35 double storied buildings had been constructed outside the embankment which could cover more than 10 times population than that of the cyclone shelter. This system could save the people, livestock and other resources than that covered by the cyclone shelter and communication strategy for the relocation of vulnerable people specially the physically challenged and mentally disabled people.

Furthermore, the findings from the in-depth interview, quantitative survey, Focus Group Discussions and the Key Informants' Interview would guide to a specific discussion and analysis for generating an efficient fund mechanism to address the damage of the cyclone and storm surge affected people.

6. Discussion and Analysis

This chapter discusses and analyse the data presented in the preceding chapter (Chapter- 5) in order to capture the summary of findings and present the perceptions, insights, experiences and suggestions emerged from the qualitative and quantitative data.

6.1 Effects of cyclones and storm surge on coastal peoples' lives

During the in-depth interview, the respondents stated that storm surges and cyclones affected 732 katha of land in total. The respondents stated that the storm surges and cyclones caused an income loss on average BDT 50,000 to 80,000. All sixteen respondents stated that cyclone Amphan had the greatest impact on them, despite the fact that cyclones Sidr and Aila were the most destructive cyclones of the twenty years prior to it. The quantitative findings showed almost same result, but some results showed in large scale.

During the quantitative survey, the data, tests and analysis showed that the cyclones and storm surges affected the poor people in monthly income and expenditure, house and sanitation, agriculture land and fisheries, roads, embankments, institutions and other constructions fully or partially. The cyclone and storm surge also caused their income loss and damaged their economic resources that took a long recovery time.

The respondents of the Focus Group Discussion (FGD) consisting of both government and NGOs stated almost the same regarding devastation of the coastal area. The government agencies and the NGOs assigned for the rehabilitation activity, needed to calculate the estimation of loss and damage before providing support to the affected people. Due to the governments' pre-cautionary step, the people of coastal area took shelter at the cyclone shelter, but other damage information were enormous. The people were normally affected by the loss of houses, agricultural fields or livestock. Though the in-depth interview, and quantitative survey did not provide any information about livestock damage, in the field observation, the damage of the livestock and poultry was a major issue. Therefore, the estimation should be inclusive. Exact damage estimation from the local people should be collected. From the FGDs, it is explored that Uttarbedkashi union of Koyra is highly vulnerable to disaster like cyclone and storm surge. According to the respondents, despite taking disaster preparedness program, Aila and Sidr damaged Koyra heavily but in the recent time, the Amphan was more devastating and people were highly affected. People faced the problem of

potable drinking water. Sixty percent respondents lost their house. People living nearby the Koyra/Kobodak river lost 50-60% arable land and livestock. The only road for communication with the district highway was damaged by the cyclone Amphan.

The pattern of climate change affected the nature of the cyclone and storm surge which has been stated in Intergovernmental Panel on Climate Change (IPCC) – 6. Previously the cyclone occurred in two phases like March-April or pre-monsoon period and another one was in October-November. But currently, the situation has changed a lot and in last two years, frequent occurrence of cyclones in the coastal area of Bangladesh are seen. Due to this reason, disaster forecasting and estimation of loss and damage would be quite tough. Though majority of people were sensitised but the loss and damage and regular update of the damage information would be very much important. The damage occurred due to the cyclone and storm surge should be enlisted union, upazila and district wise for the disaster management. The results of quantitative survey regarding the effects of cyclones and storm surges on coastal peoples' lives are corroborative with the insights driven from the in-depth interviews. The cyclones and storm surges affected the poor people in monthly income and expenditure, house and sanitation, agriculture land and fisheries, roads, embankments, institutions and other constructions fully or partially. The participants of both the FGDs also shared same views.

6.2 Safety programs for survivors of cyclones and storm surge

This study reveals that there is no dedicated social safety net program under the Department of Social Services (DSS) for the survivors of the cyclone and storm surge. The regular programs such as old age allowance and Widow allowance and Disabled persons' allowance are the programs which are implemented by the DSS. However, after the disaster, the coverage of the programs was increased. Some other departments also provide their regular assistance such as VGD, VGF, 30kg Ration Card, 15kg Ration Card, Fisherman card and incentives on high breed and saline tolerant seeds and fertilizer etc. Most of the respondents (66%) of quantitative survey also received SSNPs benefits. They also received old age allowance and Widow allowance and Disabled persons' allowance, VGD, VGF, 30kg Ration Card, 15kg Ration Card, Fisherman card and incentives on high breed and saline tolerant seeds and fertilizer etc from the other department.

Generally, a beneficiary of any program is ineligible to receive any other benefits. However, it is seen that other members of a household can enjoy benefits from other agencies. In addition to the government benefits, household can have assistance from the NGOs. Moreover, the Ministry of Land (MoL) provides housing facilities under Asrayan project for the survivors of the cyclones and storm surge. The disaster management department provide support the affected people by packaging, distribution of food, Saline, medicine after cyclone and other disaster. With the help of NGOs, Health Department, Department of Disaster Management and the Department of Public Health Engineering (DPHE) provide the facilities of potable drinking water.

6.3 Impacts of the programs on livelihoods of poor people of coastal area

This study explored a limited but crucial impact of the SSNPs on livelihoods of poor people of coastal area. Different government agencies and NGOs are working to reduce the vulnerabilities and ensure sustainable livelihoods for the survivors of cyclones and storm surges. However, due to meagre amount of benefits, lack of coordination, accountability and transparency; no participations of the community people either in policy formulation or program management and no dedicated safety net program under the DSS for the coastal area impede the effectiveness of the programs.

Most of the programs emphasize on short term recoveries and assistance like shock responsive program to adhere the demand of the affected people. However, income generation, capacity building, self-reliance, health issues and alternative livelihood programs are not getting priorities. Therefore, sustainable development goals (Goal - 3, 8, 10, 11, and 16) are not achieved at the desired level.

6..3.1 Inclusive and sustainable development

In health sector, the lack of proper support to the woman, child and physically and mentally disabled person would not getting proper care as there is only one community clinic which had limited resources. For advance treatment, this clinic could not help the patients specially the women. Women in that area suffering from uterus problem due to salinity problem, would not get proper treatment. The affected people would go to the local quack for treatment. The SSNP for the old aged and physically challenged and mentally disabled people were not sufficient enough to give the extra support. During cyclone and storm surge, if

anyone suffer from disease, they could not get extra fund as there is no post disaster fund allocated there for the affected people. Though the Social Welfare Department provided extra support but that was not well enough. People are aware of waterborne disease like Cholera, diarrhoea etc but lack of potable drinking water turn down the post disaster period. The disaster department tried to provide support by supply of drinking water, water purification tablet, hygiene kit, sanitary napkin etc.

Resembling the SDG-8, the livelihood source became scares during the post disaster period. Though most of the people were involved in fishing and getting VGF support along with SSNP, but they could not fulfil their need lack of proper income generation source. Not only that, in case of day labour activities, there is a discrimination in earning for both male and female. The embankment maintenance would be the source of livelihood for several people for the extra income generation and sustainable management of the hydraulic structures.

The situation in favour of SDG 11 (sustainable settlements) for The Asrayan Project for the homeless people was quite positive. But several people those who lost their resources in disaster are not willing to relocate their family in the Asrayan Project due to social status. Strong motivation would be required to relocate them. Currently the list of homeless should be revised as in every year, lots of people are being affected by cyclone and disaster.

In relevancy with SDG 16, the governance and regular monitor has been increased and become smooth than earlier. The list of vulnerable people and distribution of the support to the beneficiaries had record of transparency though there are several exceptional issues of lack of ethical support of the local mobile banking agent or the local people who would help the beneficiaries especially the old aged, disabled persons and women who are not convenient to technological susceptibility. The district, upazilla and union wise committee for regulation and monitoring of support distribution should be mandatory for proper execution.

6.4 Implications for policy and practice

Qualitative and Quantitative data analysis of this study based on the in-depth interview, quantitative survey, FGDs and KIIs explored some policy implications for reducing vulnerabilities and ensuring sustainable livelihoods for the survivors of the cyclones and storm surge. They are:

1. A proper database of affected people should be developed. The location, amount of damage consists of both financial and immovable properties of affected people due to cyclone and storm surge should be identified. Based on that database, the people should be included in the SSNPs programs.
2. Designated SSNP for survivors of the cyclones and storm surges could be developed.
3. A disaster fund should be distributed in different amount based on the indicator setting cyclone, flood, storm surge but not area based for supporting the affected people. For example, the people affected in a particular cyclonic effect will get particular amount of support. It is very much possible mechanism for disaster fund disbursement.
4. To attain the SDG, the most affected, marginalized, poor, segregated people should be identified at first and the voice of the local people should be taken care of.
5. The fund disbursement should be digitalized as per developed proper database. If local government representatives and UNO might be included for better preparation of database.
6. The climate financing should be need based and capacity development of the affected people. SSNP might be good option rather than insurance.
7. More adaptive measures should be taken than the mitigation measures. Policy reformation is needed to adjust the SSNP support for the disaster affected people to attain the sustainable development goals.
8. The poor beneficiaries' voices should be considered regarding the SSNPs' policy formulation and program management. The support system and strategic distribution should be focused mainly on the bottom-up process. Along with, the blending of top down and relevant middle approach would be more fruitful which has been done in the National Adaptation Plan of Action (2023-2050) recently.
9. A beneficiary from one SSNP is not entitled to another SSNP. This policy should be suspended in case of the cyclone and storm surge induced disaster affected people. These people need more support during post disaster period.
10. An exceptional and specific fund should be created under SSNP program to address the damage of the disaster during the post disaster situation.

Unfortunately, there is no exact fund to address the damage of the affected beneficiaries. The support system should be developed based on inclusive and participatory consultation which could attain SDG-16.

11. A central database should be created for the proper allocation of SSNPs for poor people. The ministries working on the benefit distribution could take quick responsive action to address the damage immediately after the disaster.
12. To ensure accountability and good governance in the program management system, the union, upazila and district wise committee formed by the cabinet division should be more effective to attain the SDG-16.
13. The local people should be included in coastal embankment management and the ownership can be shared between the relevant government department and local people. The accountability should be ensured for the operation and maintenance of the embankment. This opportunity could be utilized as an alternative livelihood approach and building self-reliance for the local people. It would help to attain the targets of SDG-8.
14. For the proper environment management strategy, the local people should be involved in the community-based adaption and management for the coastal mangrove forest to attain SDG-8. The coastal mangrove forest management should be participatory and inclusive for the restoration and alternative livelihood management like the Nipa Palm (Golpata), honey collection and limited fishing. The branding and producing the Keora Fruit Pickle through capacity development programme would be another scope of alternative livelihoods.
15. The incentives in agricultural production like saline resilient high breed seed, fertilizer, the aquaculture in the surrounding area would create another source of alternative livelihoods.
16. For the potable drinking water, the rainwater harvesting should be prioritized than the reverse osmosis system which could take care the issue relevant to SDG-3 (Health). The people should be involved in rainwater harvesting system through capacity building program.
17. The use of asbestos in rainwater harvesting should be reduced. It is an emergency to take necessary action for reducing the health issues. The experts and local community and NGOs should be involved in the capacity building program.

18. Community medical practitioners should be utilized for the selection of the physically challenged and mentally disabled people for the SSNPs.
19. The health issues of female community should be taken care of for attaining the SDG-3 (Health).
20. The target of SDG-8 and 11 are mutually dependent for the perspective of coastal people affected by cyclone and storm surge. The Asrayan project is a satisfactory initiative but the management should be inclusive. The place should be selected in such a way that the affected beneficiaries could earn their livelihood nearby other than depending on the social security offered by the government and NGOs. For example, the fisher community should be relocated in the Asrayan project where the river, khal and wetlands are situated nearby and it would be easier to catch fish from the wetland. The motivation should be given for quick relocation and adaptation for the people. In addition, Asrayan projects should be implemented where income generating activities are available.
21. Currently a new cyclone shelter system has been piloting in the coastal areas. For example, in Kolapara upazila of Patuakhali, 35 double storied buildings had been constructed outside the embankment which could cover more than 10 times population than that of the cyclone shelter. This system could save the people, livestock and other resources than that covered by the cyclone shelter and communication strategy for the relocation of vulnerable people specially the physically challenged and mentally disabled people.

7. Conclusion

The main focus of the current research was to explore the empirical experiences, perceptions, insights and views of the poor of coastal area of Bangladesh, particularly the districts of Khulna and Satkhira, on the impacts of SSNPs. In order to do this, this study used a mixed method approach to collect and analyse data. Four techniques were utilised to collect data. They were: (a) In-depth Interview; (b) Focus Group Discussions (FGD); (c) Key Informants' Interview (KII); and (d) Survey Questionnaire. This research also examined the participation of the poor in policy formulation and program management which is crucial for achieving the aims of the SSNPs. Therefore, the participatory approach has been used as the theoretical framework to analyse the issue.

The findings of this study revealed some key issues, they are: (a) the cyclones and storm surges affected the poor people in monthly income and expenditure, house and sanitation, agriculture land and fisheries, roads, embankments, institutions and other constructions fully or partially; (b) there is no dedicated social safety net program under the Department of Social Services (DSS) for the survivors of the cyclones and storm surges. The regular programs such as Old age Allowance, Widow Allowance and Disabled persons' Allowance are the programs which are implemented by the DSS. Some other regular assistance programs such as VGD, VGF, 30kg Ration Card, 15kg Ration Card, Fisherman card and incentives on high breed and saline tolerant seeds and fertilizer etc. are in place implementing by other government agencies; (c) the SSNPs had a limited impact on reducing vulnerabilities and ensuring sustainable livelihoods of the beneficiaries; and (d) dedicated programs for capacity building and income generation for the cyclone affected people of coastal area can be devised by the Department of Social Services and other relevant government agencies.

7.1 Limitations of the study

There are some limitations and caveats to methodological approaches adopted throughout this research that need to be taken into considerations. The first limitation of the research is that this research employs a mixed method technique. However, no one of the research team has experience on mixed methods research. The qualitative data through in-depth interview, Focus Group Discussions and Key Informants' Interviews were collected, transcribed and analysed by the team leader and one of the research associates. The quantitative data collection, data entry, processing and analysis was conducted by another associate

researcher. The synchronisation and harmonization of both qualitative and quantitative data was difficult for the researchers.

Second, as the hardest hit area by cyclones and storm surges, the coastal population of Koyra and Shyamnagar upazila are used to face many researchers during last 15 years. Therefore, their responses might not be realistic because they know that should they participate in a research project, they might have some financial benefits and establish a linkage with the officials and researchers which may benefit them in the long run.

7.2 Contribution and directions for further research

To obtain the SDGs this study is very significant in the line of the Goal 3: Ensure healthy lives and promote well-being for all at all ages; Goal 8: Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all; Goal 10: Reduce inequality within and among countries; and Goal 11: Make cities and human settlements inclusive, safe, resilient and sustainable and Part II, Sector 10, Chapter 10- Health, Population and Nutrition; Sector 14, Chapter: 14-Social Security, Social Welfare and Social Inclusion of the Eighth Five Year Plan. This research will also be aligned with the Bangladesh Delta Plan 2100. Chapter 8 (8.1- Climate Change and Food Security; 8.4- Adaptation and Mitigation Measures in Agriculture, Food Security, Nutrition and Livelihoods) of Volume 1: Strategy is relevant with the objectives of the current research. The study has generated some valuable inputs and insights to the policy implications for the development and protection of the under privileged section of the people, particularly old age, women and children. The Ministry of Social Welfare, the Department of Social Services (DSS) and other relevant ministries, divisions, departments and agencies will be benefitted from the insights that will be derived from this research. Finally, the study will open the opportunity to conduct further research in this field as to whether the SSNPs currently in place are enough for reducing vulnerabilities and ensuring sustainable livelihoods of poor people in cyclone affected area.

7.3 Implications for policy and practice

In the examination of poor people's perceptions, views and suggestions regarding impact of the SSNPs on their lives, this research has found many governance and management issues that hinder the efficiency of the programs. The participants of this study also suggested some

specific solutions, as well as ways to improve the lives of poor people of coastal area of Bangladesh. The key policy implications derived from the research are given below:

1. A proper database of affected people should be developed. The location, amount of damage consists of both financial and immovable properties should be identified. Based on that database, the people should be included in the SSNPs programs.
2. Designated SSNP for survivors of the cyclones and storm surges could be developed.
3. A disaster fund should be distributed in different amount based on the severity of cyclones and storm surges but not area based.
4. To attain the SDGs, the most affected, marginalized, poor, segregated people should be identified at first and the voice of the local people should be taken care of.
5. The fund disbursement should be digitalized according to the database.
6. The climate financing should be need based and capacity development of the affected people.
7. More adaptive measures should be taken than the mitigation measures. Policy reformation is needed to adjust the SSNP support for the disaster affected people to attain the sustainable development goals.
8. Poor people's voices should be considered during the SSNPs' policy formulation and program management. The support system should be developed based on inclusive and participatory consultation which can ensure attaining SDG-16.
9. A beneficiary from one SSNP is not entitled to another SSNP. This policy should be suspended in case of the cyclone and storm surge induced disaster affected people. These people need more support during post disaster period.
10. To ensure accountability and good governance in the program management system, the union, upazila and district wise committee formed by the Cabinet Division should be more effective to attain the SDG-16.
11. The local people should be included in coastal embankment management and the ownership can be shared between the relevant government department and local people. It would help to attain the targets of SDG-8.
12. The coastal mangrove forest management should be participatory and inclusive for the restoration and alternative livelihood management like the Nipa Palm (Golpata), honey collection and limited fishing. The branding and producing the Keora Fruit Pickle

through capacity development programme would be another scope of alternative livelihoods.

13. For the potable drinking water, the rainwater harvesting should be prioritized than the reverse osmosis system which could take care the issues relevant to SDG-3 (Health). The use of asbestos in rainwater harvesting should be reduced.
14. Community medical practitioners should be utilized for the selection of the physically challenged and mentally disabled people for the SSNPs.
15. The health issues of female community should be taken care of for attaining the SDG-3 (Health).
16. The targets of SDG-8 and 11 are mutually dependent for the coastal people affected by cyclone and storm surge. The site for Asrayan project should be selected in such a way that the affected beneficiaries could earn their livelihood nearby other than depending on the social security offered by the government and NGOs.
17. Double storied houses owned by the coastal people could save more people, livestock and other resources than that of the current system of cyclone shelter. The government can construct the buildings at people's own lands. This program is piloting in Kalapara Upazila of Patuakhali District and treated as very successful program.

8. Appendices

Appendix- 1: Interview guidelines for In-depth Interviewees

Interview guidelines for Beneficiaries

* Start with greetings and brief description of the researcher and research, i.e. introduction to the researcher, objectives and the ethical considerations of the research. These questions are designed to be open ended.

Personal Information

1. Name:
 2. Age:
 3. Sex: Male/ Female
 4. Height: Weight:
 5. Children: Y / N If yes, how many: Children: Male: Female:
 6. Age distribution: Up to 18: 18-25: 25+ :
 7. In case of widow/widower, when did your husband/wife die: years ago
 8. How did he/she die: Illness Old age Others
 9. During illness did he/she receive necessary medical care: Y / N If not, Why:

Livelihood related information

1. Whether you run the family: Y/ N
 2. If yes, what is your major source of income: Agriculture/wage from selling labor as house worker/social safety net allowance/others?
 3. What is the amount of monthly income?
 4. How much land do you/your family own: decimal
 5. Income other than agriculture:
 6. What did you do before enrolling with the SSNP?
 7. How did you manage your daily meal before enrolling with the SSNP?

Living standard

1. Do you afford to manage daily meals regularly for all members of your family?
 2. How many times you/your family members took meals last year in a day: 1/2/3/4

3. What do your daily meals normally consist of:
 - a. Breakfast
 - b. Lunch
 - c. Dinner

Information regarding impact of Cyclone and storm bore

1. Affected by which Cyclone/s: 1. Sidr 2. Aila 3. Mohasen 4. Bulbul 5. Foni 6. Nargis 7. Sitrang 8. Yaas 9. Jawad 10. Amphan 11. Other
2. Most affected by which cyclone: 1. Sidr 2. Aila 3. Mohasen 4. Bulbul 5. Foni 6. Nargis 7. Sitrang 8. Yaas 9. Jawad 10. Amphan 11. Other
3. Did you loss any family member/s : Yes/ No; If Yes then how many:
4. Household damaged: 1. Fully 2. Partially
5. Agricultural Land/ Fishing ponds damaged: 1. Fully 2. Partially
6. Area of Agricultural Land/ Fishing ponds damaged (in decimal): 1(Agri) 2. (Fishing).....
7. Roads/ Embankments/ Culverts damaged and count: 1. Fully..... 2. Partially.....
8. Damaged institutions and count: 1. Fully..... 2. Partially.....
9. Income loss due to cyclone.....

Food Security and Social Safety Net Program related information

1. How did you come to know about the program?
Government channel/ LG officials/ Neighbours/ Other source
2. Did you face any trouble joining the program:
3. Who helped you most in joining:
4. How long have you been getting the benefit:
5. How do you use the money:
For subsistence only/ use fully or partly for income generation
6. What impact you think has been crucial by the benefit:
7. Do you experience any problem in drawing the benefit (SDG-16):
8. How do you rate the behaviour of the respective government officials in distribution of the benefit (SDG-16):
9. Do you feel the need to increase the amount of benefit:
10. If yes, then what are the reasons: In your opinion what should be the minimum amount :
11. Does any other member of the household enjoy social safety net benefit?
12. If the answer is 'Yes' A) Received number of facilities of Social Safety Net Program:

B) what types of benefit does the member enjoy? (1. VGD 2. VGF 3. GR 4. Test Relief 5. Primary Education Stipend 6. Secondary Education Stipend 7. Old Age Allowance 8. Widow Allowance 9. Disabled Allowance 10. Freedom Fighters Honorarium 11. Lactating Mother Allowance 12. Others (please specify)) -----

Food security

13. What steps under SSNP has Government taken for resolving food insecurity during the time of cyclone and storm bore for combating the pre disaster and post disaster situation?
14. What are the impacts of these activities?
15. Are these effective?
16. Do you think that the program is helping ensure your food security? How and to what extent?
17. Do you think the program alone is adequate to ensure food security of the extreme poor people:
18. If this program does not continue, how will you manage your meal?
19. What are your suggestions to make the program more effective for ensuring food security of the rural poor people:
20. What steps should be taken for combating the pre disaster and post disaster situation?

Health

21. What are the steps under SSNP regarding sanitation and health issue improvement taken by Government for combating the pre disaster and post disaster situation?
22. What are the impact of these activities?
23. Are these effective?
24. What type of health care are you enjoying?
25. Is this health care enough?
26. Are the infants, women and old people get the proper care?
27. What is the current condition of salinity intrusion in your area?
28. How do you meet up your regular demand of water for drinking, cooking, sanitation and other purposes?
29. What are the sources of drinking water?
30. Are these sources readily available for Drinking water? Pond/ tubewell/ rainwater harvesting?
31. Specify the number of tubewell/ pond.
32. What are the steps under SSNP regarding desalination water treatment taken by the government?

Social protection

33. What are the steps under SSNP regarding sanitation and health issue improvement taken by Government for combating the pre disaster and post disaster situation?
34. What is the impact of these activities?
35. Do you think that the program is helping reduce your poverty and vulnerability?
36. If yes, then how does the program help you reduce your economic vulnerabilities:
37. Are these effective?
38. Which one is more effective?
 - income security for the elderly, widows and persons-with-disabilities,
 - generating temporary employment for working age men and women, and
 - Supporting the healthy development of young mothers and children.
 - Others
39. What should be done for long-term capacity building programme?

Overall SSNP experience

40. How is the experience of getting SSNP facilities?
 41. Is SSNP alone reducing vulnerabilities: 1. Yes 2. No
 42. If yes then in which specific sector: (1. Food 2. Education 3. Cloth 4. Income 5. Health)
 43. Is SSNP ensuring better livelihoods of the poor victims of cyclone: 1. Yes 2. No
 44. If yes then in which specific sector: (1. Food 2. Education 3. Cloth 4. Income 5. Health)
 45. In which sector SSNP should be work on (1. Food 2. Education 3. Cloth 4. Income 5. Health 6. Service 7. Others)
- If possible, specify the field with elaborate reasoning
46. What should add in the SSNP schedule:
 47. How much time needed to regain the natural life with income/ farming/ working:
 48. What type of SSNP could be added for meeting the emergency response generated due to cyclone and storm bore?

NGOs activity:

49. Which NGOs are working here relevant to SSNP? If multiple, which one is the effective one?
50. What are the effective ones activities?
51. Are you involved in any other NGO/GO support such as micro credit or safety net program:
52. Did any policy maker consult with you regarding the development of the policy or program?
53. Do you have anything more to say about the issues discussed today:

* Conclude by giving thanks to the respondent for their participation and cooperation in the interview.

Appendix- 2: Interview guidelines for Key Informant Interviewees

Key Informant's Interview Guidelines

1. Name
2. Position
3. Age
4. Field of Working
5. Experience in the Field
6. Relevancy with this thematic work
7. What is the current situation of the SSNP in Bangladesh?
8. Is the SSNP relevant to SDGs, BDP2100 and NSSS?
9. Which SDG goals are directly relevant to the current SSNP activities?
10. What do you think about the effectiveness of SSNP in Bangladesh?
11. What are the laps and gaps of SSNP in our country?
12. Are the climate victims getting proper support from these initiatives?
13. If No. What are the drawbacks regarding the fulfilling the loss of climate victims? Describe briefly.
14. What should be done regarding reduction the gaps of current SSNP?
15. Is there any scope to introduce new idea in the part of SSNP especially for the climate victims?

SDG related:

1. Do you think are these initiatives successful?
2. Are these SSNP meet the SDG? Which SDGs are meet by the SSNP?
3. What do you think about the success rate of different SDGs?
SDG-3, SDG-8, SDG-11, SDG-16
4. Are there any gaps to attain SDG, BDP2100and NSSS? Could you please describe elaborately?
5. What should be done for climate victims to attain SDGs?
6. What should be done in policy level for attaining SDGs?
7. How could we adjust the current situation without changing the policy right at the moment?

Appendix- 3: FGD checklist

FGD checklist

Start with greetings and brief description of the researcher and research, i.e. introduction to the researcher, objectives and the ethical considerations of the research

1. Introduction of the participants: name, designation and relevancy with any SSNP (Attendance list)
 2. Impacts of the SSNPs on ensuring food security, health and social protection of the rural poor people
 3. Amount of allowance/ necessity for increase (if any)
 4. Number of the beneficiaries in an Upazila
 5. Procedures of publicity about the scheme
 6. Ensuring fairness in selection and disbursement
 7. Role of the Accounts Office in disbursing the fund: Attitude/behaviour/cooperation/corruption
 8. Role of the Bank in payment of the allowance: attitude/ behavior/ cooperation/corruption
 9. Disbursement from the bank or going to the house of the recipients which is better
 10. Leakage and misappropriation of power by any person involved with the programs
 11. Once any person is included, is there any provision to exclude him/her
 12. Suggestions to make the programs more effective for ensuring food security health and social protection of the rural poor people during the period of pre-stage and post-stage Cyclone and Storm bore

Information regarding impact of Cyclone and storm bore

10. Affected by which Cyclone/s: 1. Sidr 2. Aila 3. Mohasen 4. Bulbul 5. Foni 6. Nargis 7. Sitrang 8. Yaas 9. Jawad 10. Amphan 11. Other

11. Most affected by which cyclone: 1. Sidr 2. Aila 3. Mohasen 4. Bulbul 5. Foni 6. Nargis 7. Sitrang 8. Yaas 9. Jawad 10. Amphan 11. Other

12. Did you loss any family member/s : Yes/ No; If Yes then how many:

13. Household damaged: 1. Fully 2. Partially

14. Agricultural Land/ Fishing ponds damaged: 1. Fully 2. Partially

15. Area of Agricultural Land/ Fishing ponds damaged (in decimal): 1(Agri) 2. (Fishing).....

16. Roads/ Embankments/ Culverts damaged and count: 1. Fully..... 2. Partially.....

17. Damaged institutions and count: 1. Fully..... 2. Partially.....

18. Income loss due to cyclone.....

SDG related

Goal 3

Goal 8:

- 8.1 Does Female get equal wage to male on job perspective: a. Yes b. No

8.2 From Government or NGO any training provided for job, employment or business purpose: a. Yes b. No

8.3 If yes then, what type of training is provided: a. b. c.

8.4 After training what number of percentage people got jobs, employment or started business:

8.5. Earning members age:

Goal 10

- 10.1 What is the income difference between 2011 and 2023

10.2 What is the expenditure difference between 2011 and 2023

10.3 Any family member work in abroad and send remittance: a. No b. Yes (.....person/s)

10.4 If yes then, how do they receive the remittance: a. Bank b. Hundi c. Mobile Banking
D. others (.....)

10.5 Number of persons in family receives any facility for old age, women or disable person regarding income (Job or business):

Goal 11

- ## 11.1 After disaster what type of development done for roads, protection, and bridges:

a. No development b. Some development c. almost developed d. all developed

11.2 Is there any solid or liquid waste management: a. Yes b. No

11.3 If no, then where did they release the waste: a. River b. Khal c. other wet lands d. Road side e. other place (.....)

* Conclude by giving thanks to the participants for their participation and cooperation in the discussion.

Appendix- 4: Survey questionnaire

Survey Questionnaire for Social Safety Nets for survivors of climate change: A study of the impact of cyclones and storm surge on poor people of coastal Bangladesh.

General Information:

Interview schedule No.-----

1. Name of the respondent----- Gender: A) Male- [] B) Female-[] C)

Others []

2. Name of husband/father-----Name of mother-----

3. NID/Birth Registration No.-----Mobile No.-----

4. Present address: Village.....Ward.....Union-----Upazila-----District: -

5. Permanent address: Village.....Ward.....Union-----Upazila-----

District: -----

5. Marital status of the head of the household: 1= Married 2= Unmarried 3=Divorced 4= Widow/Widower 5= Separated 6= Other (please specify) -----

6. Total members of the household-[] A) Male- [] B) Female- [] C) Children [] (below 05 years) D) Adolescent [] (10-19 years) E) Disability []

7. Total number of earning member/s: 1. One 2. More than one 3. None (specific number.....)

8. Occupation of earning member/s: **[Code:** 1. House wife 2. Fisherman 3. Day labor 4. Unemployed 5. Hotel/restaurant boy 6. Small shop/small business 7. Hawker/peddler 8. Driver/helper 9. Construction worker 10. Rickshaw/van/push-cart puller 11. Rick/van/bicycle maker 12. Mechanic 13. Boutique/ sewing/tailor 14. Farmer 15. Maid servant 16. Beggar 17. Government employee 18. Non-government employee 19. Security guard 20. Others (please specify) -----

Other Information :(Research Questions)

RQ1. How and to what extent poor people of Khulna & Satkhira District affected by cyclones and storm surge?

1. What type of natural disaster you are affected by? a. Cyclone b. storm surge/ storm surge c. flood d. drought
2. Most affected by which cyclone: 1. Sidr 2. Aila 3. Mohasen 4. Bulbul 5. Foni 6. Nargis 7. Sitrang 8. Yaas 9. Jawad 10. Amphan
3. Before cyclone:
 - A) Total monthly income of the members of the household (including house rent) -----
-----Tk.
 - B) Per head monthly income of the household-----Tk.
4. After cyclone:
 - A) Total monthly income of the members of the household (including house rent) -----
-----Tk.
 - B) Per head monthly income of the household-----Tk.
5. Before cyclone:
 - A) Total monthly expenditure of the members of the household (including house rent) ---
-----Tk.
 - B) Per head monthly expenditure of the household-----Tk.
6. After cyclone:
 - A) Total monthly expenditure of the members of the household (including house rent) ---
-----Tk.
 - B) Per head monthly expenditure of the household-----Tk.
7. Types of houses before cyclone: 1. *Pucca* 2. Half *pucca* 3. *Katcha* 4. Wood/bamboo/*polithin* 5. Others (please specify) -----
8. Types of houses after cyclone: 1. *Pucca* 2. Half *pucca* 3. *Katcha* 4. Wood/bamboo/*polithin* 5. Others (please specify) -----
9. Area of agricultural land/ fisheries (in decimal)
10. Type of sanitation before natural disaster: 1. *Pucca* 2. Half *pucca* 3. *Katcha* 4. Wood/bamboo/*polithin* 5. Others (please specify) -----
11. Type of sanitation after natural disaster: 1. *Pucca* 2. Half *pucca* 3. *Katcha* 4. Wood/bamboo/*polithin* 5. Others (please specify) -----
12. Number of died or lost any family member/s (If):

13. Household damaged: 1. Fully 2. Partially
14. Agricultural Land/ Fishing ponds damaged: 1. Fully 2. Partially
15. Area of Agricultural Land/ Fishing ponds damaged (in decimal): 1(Agri)
2.(Fisheries).....
16. Roads/ Embankments/ Culverts damaged and count: 1. Fully..... 2. Partially.....
17. Damaged institutions and count: 1. Fully..... 2. Partially.....
18. Assumption income loss due to cyclone..... (TK)
19. Economic value of resource damage
 - a.10,000-20,000 b. 20,001- 50,000 c. 50,001- 80,000 d. 80,001-1,00,000 e. above
20. Recovery time needed: a. 2-6 months b. 6-12 months c. 12-18 months d. more than 18 months
21. How much time(days) needed to regain the natural life with income/ farming/ working:(days)

RQ2. What benefits received by the poor victims of cyclones and storm bores from the government and non-government sources?

1. Does any member of the household enjoy social safety net benefit? 1. Yes 2. No

If the answer is 'Yes' Received number of facilities of Social Safety Net Program:

2. What types of benefit does the member enjoy? 1. VGD 2. VGF 3. GR 4. Test Relief 5. Primary Education Stipend 6. Secondary Education Stipend 7. Old Age Allowance 8. Widow Allowance 9. Disabled Allowance 10. Freedom Fighters Honorarium 11. Lactating Mother Allowance 12. Others (please specify) ----- [could be more than one]
3. Cyclone and storm bore affected people got facilities: a. Yes b. No
If yes
4. What types of benefit does the member enjoy? (Please specify) -----
5. Within what period they get the facilities: a. 30 days b. 60 days c. 180 days d. more than 180 days
6. From which organization got the facilities:
 - a. Government b. NGOc. Public Representative d. Voluntary people.
7. What type of benefits does the member enjoy:
 1. Food 2. Education 3. Cloth 4. Income 5. Health 6. Employment

RQ3. What are the perceptions of participants about the impacts of the Social Safety Net Programs on reducing vulnerabilities and ensuring better livelihoods of the poor victims of cyclones and storm bores?

1. How is the experience of getting SSNP facilities: 1. Excellent 2. Good enough 3. Moderate 4. Bad 5. Worst [SDG -16]
2. Is SSNP alone enough for reducing vulnerabilities: 1. Yes 2. No [Policy & Governance]
3. In which specific sector:
 1. Food 2. Education 3. Cloth 4. Income 5. Health 6. Employment
4. Is SSNP ensuring better livelihoods of the poor victims of cyclone: 1. Yes 2. No
5. In which specific sector:
 1. Food 2. Education 3. Cloth 4. Income 5. Health 6. Employment

RQ4. What are the implications for policy and practice in relation to existing system of SSNPs in order to reducing vulnerabilities and ensuring better livelihoods of the poor victims of cyclones and storm bores?

1. In which sector SSNP should be work on: 1. Food 2. Education 3. Cloth 4. Income 5. Health 6. Service 7. Others
2. What should be added in the SSNP schedule: (any three keywords)

SDG related questions:

Goal 3:

- 3.1 What are the common diseases: a. water related b. blood pressure c. heart d. skin e. others (.....)
- 3.2 Which age group suffers the most for disease: a. child b. mid aged c. old
- 3.3 Who suffers the most: a. male b. female
- 3.4 After cyclone does the expenditure amount increased for disease purpose per month
 - a. Increased
 - b. Decreased
- 3.5 After cyclone life expectancy: a. Increased b. Decreased

Goal 8:

- 8.1 Does Female get equal wage to male on job perspective: a. Yes b. No
- 8.2 From Government or NGO any training provided for job or employment or business purpose: a. Yes b. No
- 8.3 If yes then, what type of training is provided: a. ----- b. ----- c.-----
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- 8.4 After training what number of percentage people got jobs or employment or started business:
- a. 1%-10% b. 11%-20% c. 21%-50% d. more than 50%
- 8.5. Earning members age percentage:
- a. 5-17 years % b. 18-60 years % c. 60+ years %

Goal 10:

- 10.1 What is the income difference between 2011 and 2023
- a. low (1,000-5000TK) b. mid (5,001-20,000TK) c. High (more than 20,000TK)
- 10.2 What is the expenditure difference between 2011 and 2023
- a. low (1,000-5000TK) b. mid (5,001-20,000TK) c. High (more than 20,000TK)
- 10.3 Any family member work in abroad and send remittance: a. No b. Yes (.....person/s)
- 10.4. If yes then, how do they receive the remittance: a. Bank b. Hundi c. Mobile Banking
D. others (.....)
- 10.5 Number of persons in family receives any other facility for old age, women or disable person regarding income (Job or business or employed): a. 1 b. 2 c. 3 d. 4 e.
more than 4

Goal 11

- 11.1 After disaster what type of development done for roads, protection, and bridges:

a. No development b. Some development c. almost developed d. all developed

11.2 Is there any solid or liquid waste management: a. Yes b. No

11.3 If no, then where did they release the waste: a. River b. Khal c. other wet lands d. Road side e. other place (.....)

Thank you very much for your kind co-operation

Filled by data collector

Name -----Survey household No.-----

Poverty status of the household: 1. Extreme poor 2. Poor 3. Solvent

Name of the Supervisor-----Signature-----Date-----

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