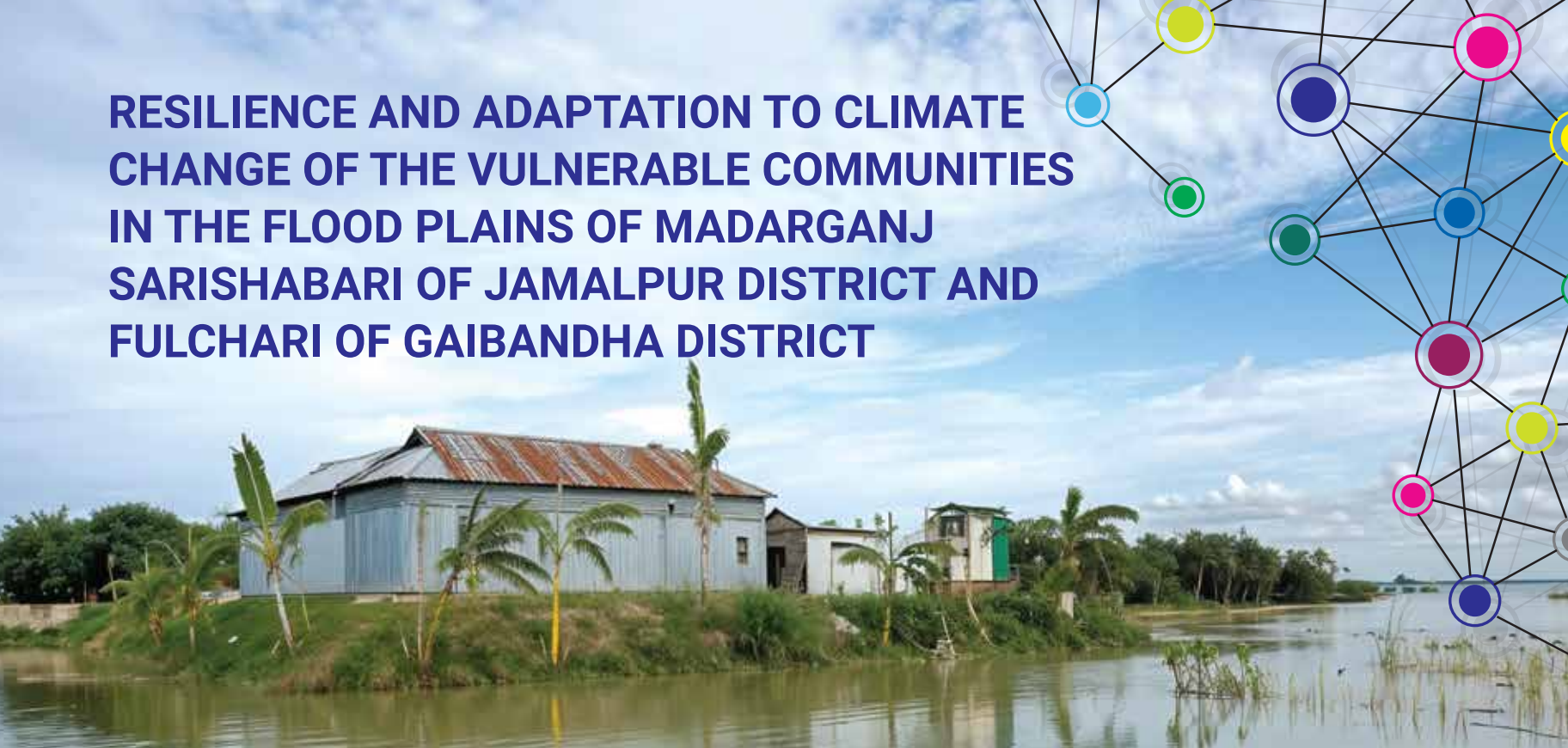
RESILIENCE AND ADAPTATION TO CLIMATE CHANGE OF THE VULNERABLE COMMUNITIES IN THE FLOOD PLAINS OF MADARGANJ SARISHABARI OF JAMALPUR DISTRICT AND FULCHARI OF GAIBANDHA DISTRICT



A Project Under

EXTENDED COMMUNITY CLIMATE CHANGE PROJECT-FLOOD (ECCCP- FLOOD)
SUPPORTED AND FINANCED BY PKSF AND GREEN CLIMATE FUND (GCF)

GREEN CLIMATE FUND

পল্লী কর্ম-সহায়ক ফাউন্ডেশন
PKSF

ESDO

Extended Community Climate Change Project (ECCCP-Flood) to provide climate-resilient shelters, livelihood, safe drinking water sources, and sanitation systems for those people in Madarganj, Sarishabari and Fulchari Upazila of Jamalpur & Gaibandha District

Advisor
Dr. Md. Shahid Uz Zaman
Founder Executive Director
Eco Social Development Organization (ESDO)

Dr. Selima Akhter
Honorary Director (Administration)
Eco Social Development Organization (ESDO)

Editor
Md. Mosheur Rahman
Head of Planning and Disaster Management Unit, ESDO
Md. Aynul Haque
Focal, ECCCP-Flood Project, ESDO

Contributor
Md. Pogidur Rahman
Project Coordinator (PC)
ECCCP-Flood Project, ESDO

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FOREWORD

In the face of unprecedented global challenges, the urgency to address climate change has never been more palpable. Within this landscape, Bangladesh stands as a poignant example of both profound vulnerability to climate impacts and the unwavering resilience of its people.

As articulated in the compelling narrative above, Bangladesh confronts a stark reality: it is among the countries most profoundly affected by climate change. The specter of extreme weather events, recurrent floods, and shifting rainfall patterns looms large over its landscape, threatening not only its natural resources but also the very fabric of its society and economy.

Yet, amidst this adversity, Bangladesh has not succumbed to despair. Rather, it has emerged as a beacon of hope, demonstrating a remarkable capacity to respond to climate hazards with resilience, innovation, and determination. The government of Bangladesh, cognizant of the existential threat posed by climate change, has undertaken bold commitments and actions, both domestically and on the global stage, to mitigate its impacts and build adaptive capacity.

However, the journey ahead is fraught with challenges. Bangladesh recognizes that effective climate action requires not only national resolve but also global solidarity. The call for support, articulated with eloquence and conviction, echoes across these pages-a plea for financial assistance, technological transfer, and unwavering political commitment from the international community.

As we navigate the complex terrain of climate change, let us heed the lessons of Bangladesh. Let us draw inspiration from its resilience, learn from its experiences, and unite in a concerted effort to safeguard our planet and ensure a sustainable future for all.

In the pages that follow, readers will encounter a profound testament to the indomitable human spirit in the face of adversity. May it serve as a rallying cry for collective action, a testament to the power of resilience, and a beacon of hope in our shared struggle against climate change

Together, let us rise to the challenge before us, for in unity lies our strength, and in action, our hope.

MESSAGE FROM THE EXECUTIVE DIRECTOR OF ESDO

A heartfelt thank you to PKSF for the opportunity to implement the Extended Community Climate Change Project-Flood (ECCCP-Flood). This project emphasizes community-led and gender-sensitive adaptation to climate change in the flood-prone districts of Bangladesh. Its goal is to enhance the resilience of poor, marginalized, and climate-vulnerable communities against the adverse effects of floods.

The ECCCP-Flood project aims to achieve this through various objectives, including strengthening the adaptation capacity of institutions and community groups, protecting homesteads from floods, and prioritizing support for female-led households and community groups. Increased flooding necessitates additional investments to mitigate the impacts of climate variability and extreme events. The ECCCP-Flood project represents a significant step towards building resilience in Bangladesh's flood-prone areas and has been highly appreciated by the local communities.

As the world's largest climate fund, the Green Climate Fund (GCF) accelerates transformative climate action in developing countries through a country-owned partnership approach and flexible financing solutions. The GCF achieves its goals by investing across four transitions: the built environment; energy and industry; human security, livelihoods, and Well-being.

As a Direct Access Entity (DAE), PKSF provides a wide range of development services, including financial, climate change, environmental, health, educational, capacity development, technology transfer, and business development services to disadvantaged segments of society. Mobilizing poor communities and providing necessary training with appropriate financial support have been ongoing interventions. Through the ECCCP-Flood project, PKSF and ESDO play vital roles in achieving the GCF's goals.

My sincere thanks and gratitude go to the ECCCP-Flood Project Management Unit (PMU) and PKSF for their excellent guidance in bringing this publication to fruition. I also extend my thanks to our ESDO project staff and head office colleagues for their dedicated efforts in preparing and presenting the manuscript on time.

(Dr. Md. Shahid Uz Zaman)

MESSAGE FROM THE HONORARY DIRECTOR (ADMINISTRATION), ESDO

The Extended Community Climate Change Project-Flood (ECCCP-Flood) is dedicated to community-led and gender-sensitive adaptation to climate change in Bangladesh's flood-prone districts. This project aims to strengthen the adaptation capacity and resilience of poor, marginalized, and climate-vulnerable communities against the adverse effects of floods.

By prioritizing gender-sensitive approaches and community-led adaptation, the ECCCP-Flood project plays a crucial role in building community resilience. It empowers vulnerable households and enhances their ability to cope with and recover from flood events.

The ECCCP-Flood is a community-based climate change resilience program that helps communities prepare for and respond to the impacts of climate change, especially floods. The program includes several key components. Homestead Plinth Raising involves elevating house floors above flood levels to protect homes and reduce the risk of property damage and loss of life. Ensuring Access to Safe Drinking Water is crucial in flood-prone areas since floods can contaminate water sources and increase the risk of water-borne diseases. Climate-resilient-latrines are designed to withstand extreme weather events like floods and cyclones, preventing the spread of disease during crises. Flood-Resistant Crop Production promotes the use of crops resistant to flooding and other extreme weather events, ensuring food security and reducing the risk of food shortages during crises.
Overall, the ECCCP-Flood project is vital for helping communities prepare for and respond to the impacts of climate change. By providing the necessary tools and resources, the program helps build resilience and reduces the risk of property damage and loss of life.

(Dr. Selima Akhter)

EXECUTIVE SUMMARY

The ECCCP-Flood project was launched by PKSF in response to climate change-induced vulnerabilities in Bangladesh. PKSF implemented this project in partnership with nine local non-governmental organizations (NGOs), including ESDO. The project is designed to increase the resilience of communities and participants to various climate-induced shocks and stresses in the project area. Considering climate change vulnerability and adaptation, ESDO is implementing the project in seven unions in Madarganj, Sarishabari, and Fulchari Upazilas of Jamalpur and Gaibandha districts.

In these areas, households primarily rely on agriculture, which is threatened by erratic and uncertain weather events, such as floods and droughts. The project works at both community and household levels to reduce their vulnerability to these risks.

At the community level, the project aims to help households protect their homesteads by raising plinths above flood levels in community clusters, installing community tube wells for safe drinking water, constructing climate-resilient community latrines, and promoting the development of climate change adaptation groups (CCAGs) for community decision-making and active participation in planning for common causes.

At the household level, the project focuses on diversifying livelihood approaches and adapting to increasingly uncertain weather patterns by providing technology, inputs, and training for rearing goats/sheep in slatted sheds, producing new cropland using sustainable agricultural practices, including flood-tolerant crop varieties, growing homestead gardens on plinth slopes, and cultivating high-value vegetables on sandbars and riverbeds.

Capacity building and training were provided on diversifying livelihood activities, such as flood-tolerant and early maturing crop varieties, high-value crop cultivation on sandbars, home gardening, and vermi compost production, as well as on broader topics related to climate change. CCAG leaders and community members participated in training sessions, often conducted with support from respective government service institutions/agencies, which increased their access to extension services.

The ECCCP-Flood project has had a significant positive impact on the resilience of participating households and communities. The activities have demonstrated tangible results, with CCAG leaders, community members, and beneficiaries already experiencing the advantages and benefits of the project. The project's achievements in building resilience can be summarized by its focus on community protection, livelihood diversification, and capacity building.

Resilience Capacity	Characteristic of resilient
Absorptive Capacity	**1.** Livelihood and Family Well-being: **The target beneficiaries have been able to diversify livelihoods and promote family well-being in various forms, creating a sense of security against the impact of climate change extreme events on the communities. Initiatives include:** • **Flood risk-free homesteads achieved by raising the plinth level of the homesteads above flood levels.** • **Implementation of innovative and locally adaptable technologies for rearing goats/sheep in slatted shades.** • **Promotion of flood-resistant crop varieties.** • **High-value crop cultivation in sandbars and riverbeds.** • **Home gardening on the raised plinths of the homesteads.** • **Vermi compost production, etc.** **2.** Access to Safe Drinking Water: **The installation of community flood-resilient tube wells ensures health protection against waterborne diseases as well as reduced expenses for treatment.** **3.** Access to Sanitary Latrines: **The construction of community sanitary latrines has contributed significantly to restricting pollution, safeguarding human and animal life, and preserving the environment.**
	Crop diversification: • Year-round Homestead gardening **with a wide variety of vegetables and fruits on the homestead areas and on plinth slopes during and after flood. Reduce the damage to vegetables and ensure nutrition's for the family members.** • Cultivating high-value crops on sand-bars **and riverbeds including vegetables (sweet gourds etc.) that can ensure the use of fellow char land.** • Cultivating flood-tolerant rice and wheat varieties **Cultivation of flood-resilient rice varieties like BRRI Dhan 51 and 52, and BINA Dhan 11. and drought-resistant early maturing and disease-resistant wheat variety BARI 26 to ensure better yield without compromising the flood.**
	Ownership of livestock: **Raising goats/sheep in slatted sheds has made it feasible to rear these livestock, which would have otherwise been challenging to raise. The slatted shed reduced the disease of livestock and increased production.**
	Savings: **Savings are considered a means to cope with disasters. The Community Climate Adaptation Groups (CCAGs), as a platform for their members, would encourage them to save more. The project participants have become members of Microfinance Institutions (MFI), where savings play a crucial and mandatory role in fostering a habit of saving.**
	Access to external early warning information: **CCAGs leaders are expected to access weather information and make decisions on the forecast before flood.**
	Social support networks**: The project enhanced social coherence and strengthened social support networks within the community and outside of it.**

Resilience Capacity	Characteristic of resilient
	Access to Seeds and Inputs: **The project provided seeds and inputs for climate-resilient crop varieties and information on the sources.**
Adaptive Capacity	**Improvements in** homestead infrastructure **by homestead plinth raising**
	Access to credit: **Access to credit links established**
	Understanding of climate change**:** **Training enhanced understanding of the climate variability of the community members**
	Use of early warning information **Training on the use of early warning information for preparedness and other measures before and during flood.**
Transformative Capacity	Attitude to change: **Confidence in building resilient measures**
	Adoption of innovative practices: **Practicing innovative technologies for rearing goats in slatted houses, cultivating flood-tolerant crop varieties, and practicing crop and vegetable cultivation on sand bars and plinth slopes**
	Involvement in community-based organizations – CCAGs in disasters or development planning. **CCAG is for discussions on concerns, and community decisions. Planning and implementation platform for community-based or owned activities. These CCAGs can ensure ownership do project activities.**
	Confidence in implementation: **Community confidence has increased to a significant level and accredited their participation in all activities. Enhanced confidence will help the community implement disaster or development plan**
	Networking with public service **agencies at the Upazila/District level. Established a network of public services agencies through different training, meetings, and workshops.**
	Participation in community groups: **Community members especially women are more interested in actively participating in CCAGs, project activities building solidarity within the community. Strong and proactive participation may be expected to curb any Gender-Based Violence (GBV) and bring on gender harmony.** **Encouraged and Active Participation of the community group in the implementation of the project and follow-on activities**
	Voice of women in the community: As **the project is gender-sensitive, women are members of CCAGs, have an active presence, and are engaged in implementing project activities; one can expect that women's voices are being heard.**
	Women's decision-making power: **Active engagement of women participants in community and household issues and activities is likely to enhance their ability to make decisions and participate in the decision-making process at both the family and community level**

CHAPTER 1
INTRODUCTION

Bangladesh is widely recognized as one of the world's most susceptible nations to the effects of climate change. The Global Climate Risk Index 2021, issued by German watch, Bangladesh ranked 7th among the countries most significantly affected by climate change between 2000 and 2019. Despite its minimal role in global emissions (accounting for less than 0.48% of total global emissions), the country bears the brunt of the numerous challenges posed by climate change.

As a deltaic nation, Bangladesh is located at the base of the Himalayas, where it is downstream of over 200 rivers, including the renowned Ganges, Brahmaputra, and Meghna, collectively referred to as the GBM river system. This river system covers an expansive area of 1.72 million sq. km, making it one of the largest in the world. Given its position in the lower reaches of these powerful rivers, nearly half of Bangladesh's territory lies within 10 meters above mean sea level, resulting in over 80% of the country being flood plains. Floods are a recurring problem in Bangladesh, and climate change exacerbates this issue. Increased rainfall intensity and changing precipitation patterns contribute to more frequent and severe flooding, causing damage to infrastructure, homes, and agricultural lands. This leads to loss of lives, displacement, and economic losses.

The Agricultural sector holds a pivotal role as it contributes to approximately 20% of the nation's Gross Domestic Product (GDP) and provides employment for about 45% of the total workforce. Agricultural growth has experienced progression, increasing from under 2.0% annually in the initial two decades following the country's independence in 1971, to approximately 3.0% in the past decade. Despite this consistent agricultural advancement and enhanced food production, Bangladesh has been grappling with persistent hurdles in ensuring food security. These challenges primarily stem from adverse weather conditions caused by natural disasters, which have become increasingly severe and are attributed to the impacts of climate change.

These updates consider the experiences and insights gained from the implementation of adaptation and associated research initiatives, as well as any emerging development priorities that may surface in the future. International support and collaboration are crucial in assisting Bangladesh in its efforts to tackle climate change. The country actively participates in global climate negotiations and seeks assistance for adaptation and mitigation initiatives.

Overall, the background of climate change in Bangladesh highlights the urgent need for action to address its impacts on vulnerable communities, protect livelihoods, and ensure sustainable development in the face of a changing climate.

1.1 Background of the ECCCP-Flood Project

Climate change has been defined as "a change of climate which is attributed directly or indirectly to human activity that alters the composition of the global atmosphere and which is in addition to natural climate variability observed over comparable time periods" (IPCC 2007). There are clear signs that the impacts of climate change are already being observed worldwide, and that it adversely impacts livelihoods through its effects on natural resources and ecosystems that are highly exposed to climate change (IPCC 2014). The impacts of climate change are also evident all over the world, including in Bangladesh (IPCC 2007, 2014). Human and material losses due to climate-induced impacts in Bangladesh are mostly in the form of water-related and other accentuated extreme events such as floods, cyclones, storm surges, salinity intrusion, heat waves, and cold waves.

Considering the climate change and its consequences, the global communities under the umbrella of United Nations Framework Convention on Climate Change (UNFCCC) formed the Green Climate Fund (GCF) to finance the developing countries to protect the climate change as well as adapt with the changing situation. The government of Bangladesh designated the Economic Relations Division (ERD) as the National Designated Authority (NDA) to the GCF. The NDA plays role in getting access to the GCF by enhancing capacities of its stakeholders (government and non-government organizations) and nominating them for getting accreditation to the fund. Playing this role, the NDA of Bangladesh nominated the Palli Karma-Sahayak Foundation (PKSF) for accreditation in 2015. In this consequence, the PKSF received accreditation as a Direct Access (DAE) to the GCF in October, 2017. It creates opportunities for the country to get access to the GCF directly. PKSF's roles as the DAE are: developing and submitting project proposals for the GCF, capacity building of government and non-government organisations on the mechanisms of the GCF, facilitate concepts and proposals developed by other organisations etc.

The PKSF submitted the Extended Community Climate Change Project-Flood (ECCCP-Flood) project in 2018 and get approval of the Board of the GCF in February, 2020 through a long and complex assessment process. The PKSF has been playing the role of both the Accredited Entity (AE) as well as the Executing Entity (EE) for the project. The project design involves local and national level NGOs for implementing the selected adaptation interventions at the community level. In this regard, the PKSF circulated the Expression of Interest (EoI) in national dailies to select the Implementing Entities (IEs) through a competitive process. The Gram Bikash Kendra (ESDO), a national level NGO and Partner Organisation (PO) of the PKSF responded to the call for EoI to get involve in this project, with the intention to serve the climate vulnerable communities in the flood affected areas of the country. However, the PKSF selected the ESDO as one of the selected nine IEs through a rigorous competitive selection process. The following table presents the list of 9 IEs with their working area.

1.2 Implementing Entity

In the five flood-prone districts of the ECCCP-Flood project areas, PKSF has been implementing the ECCCP-Flood project through nine Implementing Entities (IEs).

SL No	Name of IE	Working Area	
		Upazila	District
01	Eco-Social Development Organization (ESDO)	Fulchari	Gaibandha
		Madarganj	Jamalpur
		Sarishabari	
02	TMSS	Saghata	Gaibandha
03	Padakkhep Manabik Unnayan Kendro (PMUK)	Rowmari	Kurigram
04	National Development Organization (NDP)	Chilmari	Kurigram
		Char Rajibpur	
05	Society for Social Service (SSS)	Islampur	Jamalpur
		Melandah	
06	Self-Help and Rehabilitation Program-SHARP	Dimla	Nilphamari
07	Gram Bikash Kendra (GBK)	Dimla	Nilphamari
08	NAZIR (Natun Zibon Rochi)	Lalmonirhat Sadar	Lalmonirhat
09	People's Oriented Program Implementation (POPI)	Lalmonirhat Sadar	Lalmonirhat

1.3 About the Executing Entity

The Palli Karma-Sahayak Foundation (PKSF) was established by the Government of Bangladesh in 1990 and registered under the Companies Act 1913/1994 as a 'not for profit' organization with the vision: A Bangladesh where poverty has been eradicated; prevailing development and governance paradigm is inclusive, people-centered, equitable and sustainable; and all citizens live a healthy, appropriately educated empowered and humanly dignified life. Since its inception, PKSF has been relentlessly working to create a favorable environment for poor people by focusing on a holistic development approach, including climate change adaptation and mitigation through the efficient implementation of various programs and projects. The legal structure of PKSF allows flexibility and authority to undertake projects/programs in a dynamic environment, implementing them throughout the country and managing its affairs as an independent organization. It has been assisting the poor and ultra-poor people through various non-governmental organizations (NGOs) (known as Partner Organizations, POs) for the last 34 years. PKSF also works with semi-government and government organizations, voluntary agencies, local government institutions, groups and individuals with different financial instruments such as grants, appropriate credit, savings, and insurance. In addition, PKSF assists its POs in their institutional development. As a result, many countries and organizations follow standards, guidelines, and modalities developed by PKSF. PKSF has diversified its focus on non-credit programs in recent years, such as training, education, health, awareness building, nutrition, direct employment linkages, climate change, and environment, marketing, and value chain development. PKSF intends to provide all-inclusive services for the continuous betterment of the poor and ultra-poor. The Green Climate Fund (GCF) was set up by the United Nations Framework Convention on Climate Change (UNFCCC) in 2010. The fund aims to support a paradigm shift in the global response to climate change. It allocates its resources to low-emission and climate-resilient projects and programs in developing countries. The Fund pays particular attention to the needs of societies that are highly vulnerable to the effects of climate change. PKSF was accredited to GCF in 2017 and since then working with GCF to get access to climate finance. PKSF received a grant financing from the Green Climate Fund (GCF) and has been implementing the "Extended Community Climate Change Project- Flood (ECCCP-Flood)".

1.4 About the Implementing Entity

ESDO has a long history as a development Organization/NGO working in multiple disciplines to help solve tough community challenges including environmental and disaster response. ESDO was engaged in the PKSF's earlier project called CCCP – which was also a Community Resilience project and completed the project successfully in Kishoreganj Upazilla under Nilphamari district.

ESDO has been awarded the project 'Extended Community Climate Change Project- Flood (ECCCP- Flood)' for the implementation in Madarganj, Sarishabari and Fulchari Upazilas of Jamalpur and Gaibandha districts, to increase the resilience of the poor, marginalized and climate-vulnerable communities to the adverse effects of climate change in the flood-prone mentioned areas.

Through its experiences, ESDO has attained effective functionalities in organizing communities, building community-based organizations to ensure local ownership/ partnership and leaders within the communities, and committed to assigning a strong team for this type of project implementation and management; and responsibilities that address specific aspects of resilience, including the performance of project implementation systems for weather and climate-induced extreme events.

The ECCCP-Flood project has successfully brought together adaptive technology for the protection of flood through plinth raise in clusters, construction of resilient houses through loan, ensured safe drinking water by installation of tubewell, ensured hygiene practice for installation of climate resilient sanitary latrines and improved livelihoods options through rearing of goat/sheep in slatted shade, flood resilient crops cultivation. Additionally, organized and instituted local level 'Community Climate Change Adaptation Group-CCAG" to enhance and strengthen coherence among the community members, awareness building on disaster, network building and uniting efforts to minimize climate change induced calamities.

ESDO is an implementing agency, in the flood prone areas in 7 unions of Madarganj, Sarishabari and Fulchari Upazilas of Jamalpur and under Gaibandha district of the Northern Bangladesh. To increase the resilience of the poor, marginalized and climate-vulnerable communities to the adverse effects of climate change in the flood-prone areas of Madarganj, Sarishabari and Fulchari Upazilas of Jamalpur and Gaibandha Bangladesh. ESDO has been implementing the project since 2020 in 7 unions namely Balijuri, Charpakerdha, Pogoldigha Satpowa, Erendabari, Fazlupur, and Udakhali under the Madarganj, Sarishabari and Fulchari Upazilas of Jamalpur and Gaibandha district and will be continued to April 2024 which covered total numbers of direct project participants are 6984 vulnerable families/ Households where indirect number of participants/Households is 23830.

CHAPTER 2
DESCRIPTION OF THE ECCCP-FLOOD PROJECT

2.1 Climate Rationale of the project

While establishing the climate rationale of the project during the design phase, the PKSF has analyzed historical flood events, the extent of floods over time, analysis of rainfall characteristics, and economic loss due to floods. The historical analysis found that Bangladesh is predominantly flood-prone country due to its geographical location i.e., located in between the Himalayan Mountain in the north and the Bay of Bengal in the South, and flat morphology. The floodplains of the countries, consisting of three major rivers i.e., the Ganges, the Brahmaputra, and the Meghna (GBM), occupy 88% of its total landmass. Interestingly, the country occupies only 7% of the GBM system, whereas it drains 92% of its discharge. Moreover, this discharge is highly seasonal. About 80% of the discharge occurs June to September, due to the monsoon rainfall. This brings an extremely large volume of water to Bangladesh, which the rivers often cannot transport to the ocean (Mirza et al., 2003; Rahman et al., 1990). This is why floods occur in the country so frequently (Mirza and Ahmad, 2005; Mirza and Ahmed, 2009).

A careful analysis of flood occurrence in the country reveals that the high-intensity floods are occurred more frequently in recent decades, despite having flood protection embankments (Ahmed, 2008). Researchers indicated that the climate variability and change- induced (monsoon) rainfall throughout the eastern Himalayan region and also within the country has been causing an increase in flood-proneness of the country. The increase in flood extent and the frequency of occurrence of high intensity floods despite the embankments may be better captured in Figure1. The areas under flood plotted against time (year), which indicates that, soon after the flood protection initiatives taken by the BWDB, smaller floods were controlled, however, due to a multitude of factors explained in the above paragraphs, including the regional rainfall runoff that is induced by climate variability and change, the system can no longer offer protection of the lands and high- intensity floods are occurring at smaller time intervals.

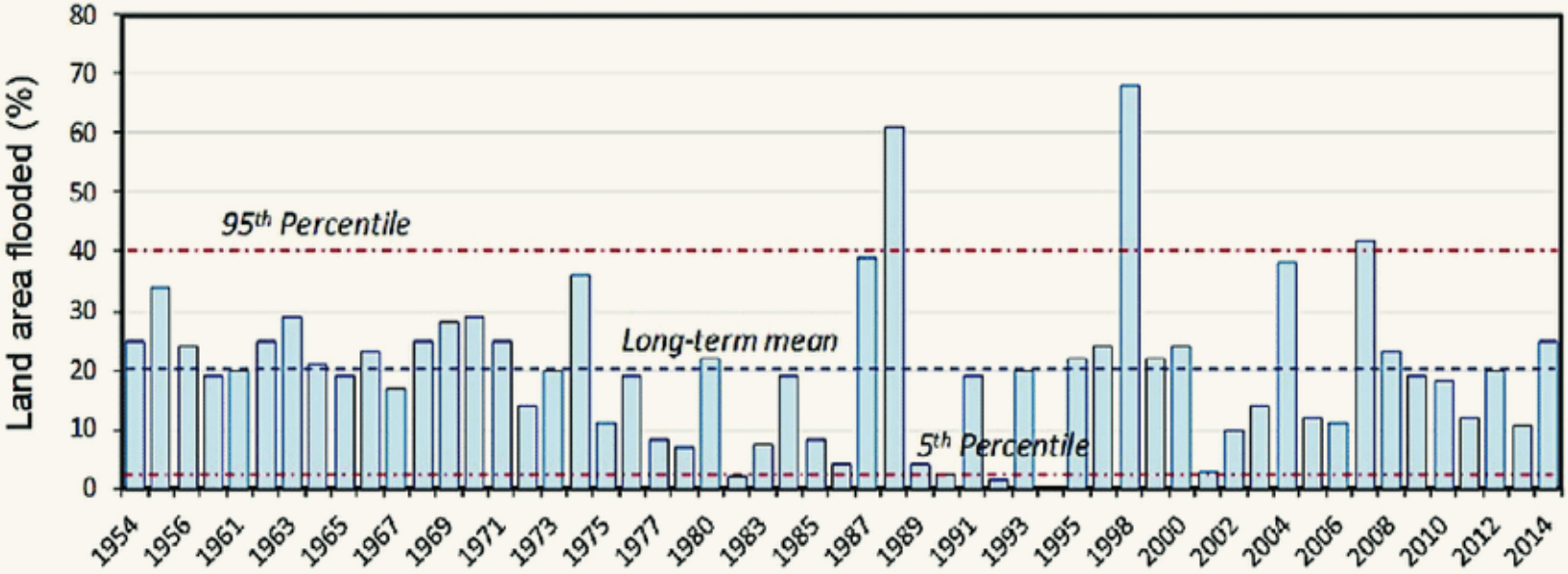


Figure-1 Area affected by floods in different years in Bangladesh

Analysis of average annual rainfall shows a positive (i.e., increasing) trend at a 90% confidence level. Sen's trend analysis method reveals that the rate for annual average rainfall over the specified timeline has been +6.58mm/year across Bangladesh. The study also indicates that, generally the northern regions of the country are experiencing higher extents of increasing annual rainfall. Since the monsoon seasonal rainfall dominates the annual rainfall (over 80% of annual rainfall occurring in monsoon), the results may be extended to indicate that the monsoon rainfall is increasing over Bangladesh. A further analysis based on seasonal rainfall suggests that the pre-monsoon rainfall is also showing significant positive change (on average 3.78mm/year), which however is increasing at a slower rate than in the monsoon.

The numbers of rainy days at the majority of the stations are found to increase over the same time period. The trends regarding extreme rainfall of the country are also found to increase in most of the stations covered under the study. The same analysis also reveals the trends regarding extreme rainfall in Bangladesh. At a 90% confidence level, it is reported that the average number of heavy rainfall days is increasing by 0.12 days/year. Again, the maximum increase in average heavy rainfall days is observed in Rangpur, located in the northern region, by 0.22 days/year at 99% levels. Since the landmass of Bangladesh has a gentle slope towards the South and most rivers are flowing North to South, an increase in the northern territories means greater flood susceptibility in the central and southern regions of the country.

Now the critical question is where climate change is occurring in Bangladesh and whether the increase in rainfall over the country is somewhat related to climate change. Several research initiatives in the recent past have shed adequate light on the occurrence of climate change over the temperature in Bangladesh has risen sharply. The Centre for Environment and Geographic Information System (CEGIS) studied the temperature change for two consecutive periods. It was found that temperature variations were minimal (0.0067°C per year) from 1961-1990, the variations rose sharply (to 0.03°C per year) from 1991 to 2019 (CEGIS, 2022). They also found that in recent decades, the mean temperature has been rising very rapidly. From 1991 to 2000, the mean temperature increased by 0.39°C, which further increased by 0.53°C during 2001-2010 and 1.06°C during 2011-2019 (CEGIS, 2022). The minimum temperature has risen by 0.45°C and 0.52°C for the winter and monsoon, respectively. As such, winters are becoming warmer with a minimum temperature increase of 0.02°C per year. Even hotter summers during the pre-monsoon and monsoon have seen a maximum temperature increase of 0.022°C per year and 0.035°C per year, respectively, and minimum temperature rises of 0.024°C per year and 0.043°C per year, respectively (CEGIS, 2022). It is clear that climate forcing has been responsible to change the in-country rainfall and consequential runoff, which aggravates floods, as explained in the earlier paragraphs.

Mirza extensively studied the implications of climate change on floods in Bangladesh (Mirza, 1997; Mirza, 2005). The indications emanating various modelling works clearly indicate the positive correlation between climate change and increased flooding in Bangladesh. With greater climate forcing, there will be higher levels of evaporation from the Indian Ocean to cause heavier rainfall and subsequent runoff in the eastern Himalayan rivers, leading to much greater runoff volumes entering Bangladesh and a greater probability of flooding (Mirza and Ahmed, 2005).

Choudhury et al.(2004) studied future flood-related hazards under climate change using HadRM2, a regional climate model validated for Bangladesh. The modeling analysis indicate, it is found that the monsoon rainfall is expected to increase by 10-11% by 2050 under a moderate scenario (assuming 2^{o}C by 2100), which indicate that the surface runoff will increase by 20% in the corresponding year. It is also concluded that high-intensity floods, under such aggravated inundation regime, will occur more frequently, and the depth-duration matrix for future floods will cause much greater impacts than usual. Already Bangladesh has suffered the worst flood in recorded history in 1998, which inundated over 68% of the landmass for a consecutive 72 days, resulting in economic damage worth USD 4.3 billion!

The areal extent of floods in Bangladesh indicates where the water generally inundates the landscape. Figure 2 shows the average extent of a monsoon flood in Bangladesh (the shaded areas indicated). When flood water engulfs an area, not only the standing agriculture get severely affected, thereby adversely affecting poor people's main livelihoods, but it also affects homesteads including dwelling units, water supply system (by inundating tube wells), the rural markets which are generally located in low- lying areas, industries and commercial activities and disrupts, if not destroys, physical infrastructure including health care facilities.

The above analyses suggest why the recently exacerbated floods are linked with climate variability and change and why it is urgently needed to address the vulnerabilities of rural poor people affected by floods.

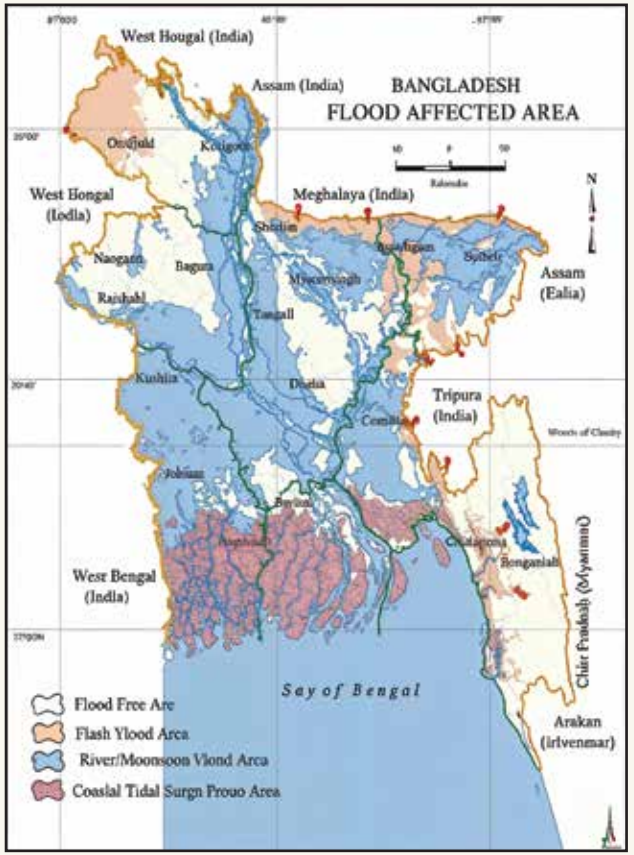


Figure-2: The flood vulnerable areas of Bangladesh

2.2 Impacts of climate change-induced floods

Bangladesh Bureau of Statistics (BBS) carried out the impacts of various disasters for the period of 2009-2014. The report shows that about 42% of HHs of the Rangpur division (which is the main working area) was affected by floods whereas national average is 34.48%. Over this period, 26.93% of the households did not have any work due to floods, meaning they did not earn money for their livelihood. It is also important to note that 10.62% of the households did not have work for 8 to 15 days, and 9.39% of HHs did not have work for 16 to 30 days due to climate change-related extremes.

In 2017, floods occurred three times in different parts of the country. The first one was in March and April 2017 which was a severe flash flood; the second one was in July2017 and the third one was in August 2017. These flood affected 8 million people, causing deaths and injuries, loss of livestock and food supplies, and damage to housing and infrastructure. According to official estimates, the July flood affected 1.6 million people (some 338,500 households), damaged over 100,000 houses, and destroyed schools, roads, bridges, and embankment. Floods in August 2017 affected 31 out of 64 districts of the country. Floods adversely affected the livelihoods of about 6.8 million people and caused significant damage to housing and infrastructure. Floods resulted the loss of 1.1 million cows and buffalos; 270,000 goats and sheep 3.2 million ducks and hens, and 220,000 tons of fish. However, the final estimates may be increased further. Again, in July-August 2019, a major flood occurred in Bangladesh, particularly in the northern districts including the target districts under this project, where large-scale social and economic damage occurred involving the affected population.

For both climate variability and climate change, around 80% of total losses fall directly on household consumption (cumulative total consumption losses of US$441.7 billion and US$104.7 billion for climate variability and climate change, respectively). Per capita consumption will fall for both farm and nonfarm households. It is argued that women in the affected villages are the primary victims of indigenous coping strategies being employed during floods: they suffer from malnutrition as a result of drastically reducing their food intake when the opportunity for selling labour of the dominant male in the household is decreased during a high flood (Etzold et al., 2014; Ahmed et al., 2012). This is more prevalent in the greater Rangpur region (particularly in Kurigram, Nilphamari, and Gaibandha districts – all of which are project target areas), where the extent of poverty is still very high. Thus, climate change induced-floods affect every sphere of life, including income, health, nutrition, communication, infrastructure and so on.

The ECCCP-Flood project is designed to address these impacts in collaboration with the flood-vulnerable communities, local government, and non-government organisations through promoting adaptation technologies and capacity-building initiatives.

2.3 Project goal

The project's goal is to enhance the resilience of poor, marginalized, and climate-vulnerable communities against the adverse effects of climate change in flood-prone areas of Bangladesh.

2.4 Outcomes, outputs and activities

The following table presents the outcomes, outputs and activities of the ECCCP-Flood project.

Outcome	Output and Activity
Outcome 1: Institutions (Implementing Entities) and community groups strengthened capacity on addressing climate change	Output: 1.1*: Climate change adaptation groups (CCAG) formed and operationalized* • Activity 1.1.1: Beneficiary selection and group formation • Activity 1.1.2: Prepare Beneficiaries' socio-economic profile • Activity 1.1.3: Arrange monthly group meetings on climate change issues of CCAG
	Output 1.2: *Preparation of vulnerability assessment and adaptation action plan* • Activity 1.2.1: Carry out participatory vulnerability assessment • Activity 1.2.2: Prepare local level adaptation action plan using Participatory Rural Appraisal (**PRA**) tools
	Output 1.3: *Trainings and workshops on Climate Change conducted for Beneficiaries and stakeholders* • Activity 1.3.1: Prepare training manuals and guidelines on climate change issues and project management • Activity 1.3.2: Prepare training plan and organize training sessions for Beneficiaries • Activity 1.3.3: Organize training for IEs staff • Activity 1.3.4: Organize exchange visit for CCAG members and IEs staff • Activity 1.3.5: Organize workshops and seminars
	Output 1.4: Preparation and dissemination of knowledge products • Activity 1.4.1: Prepare and disseminate knowledge products
Outcome 2: Protection of homesteads from adverse effect of flood	Output 2.1: Raised homesteads above flood level • Activity 2.1.1: Raise homestead plinths in clusters
	Output 2.2: Reconstruction of climate resilient houses • Activity 2.2.1: Provide financial support to reconstruct climate resilient houses on raised plinth
Outcome 3: Increased access to safe water and sanitation	Output 3.1: Installation of flood resilient tube-wells • Activity 3.1.1: Install tube wells
	Output 3.2: Construction of sanitary latrines • Activity 3.2.1: Construct climate resilient sanitary latrines
Outcome 4: Access to flood resilient livelihood	Output 4.1: Rearing of goat/sheep in slatted houses • Activity 4.1.1: Provide support to rear goat/sheep in slatted houses
	Output 4.2: Cultivation of flood tolerant crops • Activity 4.2.1: Cultivate flood resilient rice variety BRRI dhan 51 & 52 and BINA dhan 11 • Activity 4.2.2: Cultivate early and disease protective wheat variety BARI 26 • Activity 4.2.3: Cultivate vegetables in sand bars

2.5 Working Area

The project has already been implemented in five flood-prone districts: Nilphamari, Lalmonirhat, Kurigram, Gaibandha, and Jamalpur. These districts were chosen based on two key criteria: the intensity and frequency of flooding and the density of poverty.

2.6 Project beneficiaries

The total flood-vulnerable population in the targeted five districts is 1.3 million. However, the project has selected only 90,000 beneficiaries (considering double-counting of benefits, this number is 211,500). The project will directly impact 90,000 vulnerable individuals in these districts, which face high flood risks, extreme poverty, water scarcity, and food insecurity. This group represents 0.01% of the total population of the selected districts and 0.07% of the flood-vulnerable population.

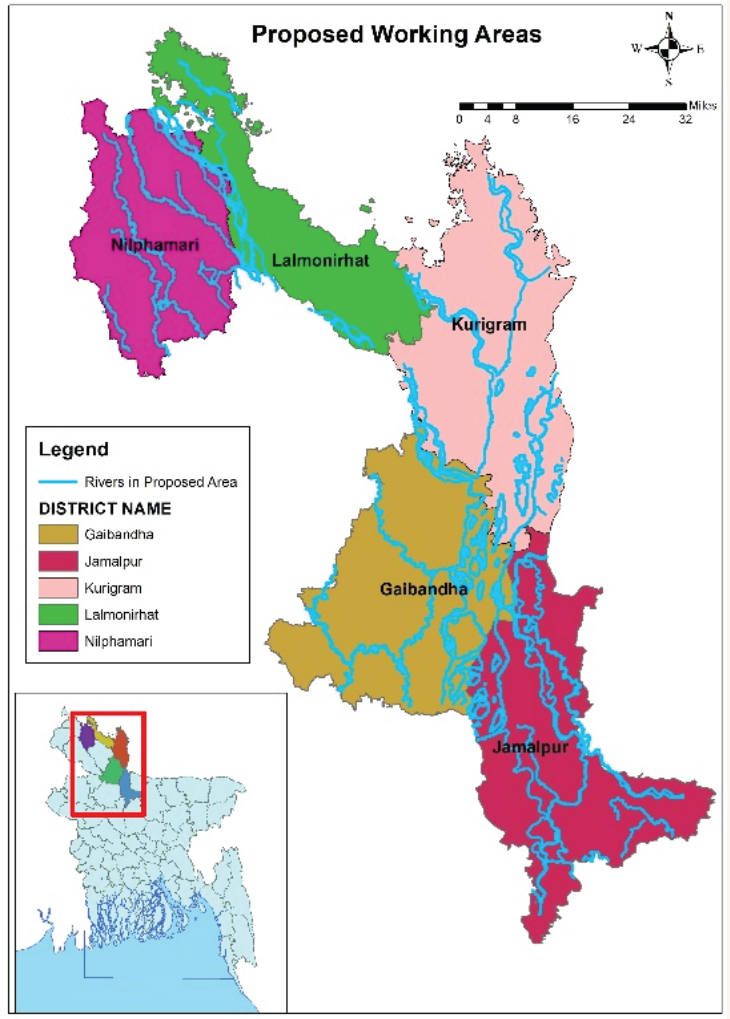


Figure-3: ECCCP-Flood project area

CHAPTER 3
ECCCP-FLOOD-ESDO PROJECT

3.1 Climate Change Context of the Project Area

Madarganj, Sarishabari, and Fulchari Upazilas in Jamalpur and Gaibandha districts are among the most vulnerable areas due to their high susceptibility to floods. Approximately 90% of these upazilas are regularly affected by floods, impacting a predominantly rural and char land-dwelling population.

Every year, heavy rainfall triggers flash floods, causing extensive damage to agriculture, livelihoods, and households—a direct consequence of climate change. These upazilas are experiencing an increasing number of hydro-meteorological disasters exacerbated by climate change, leading to significant loss of lives and property. Residents of this area are exposed to a range of climate-induced disasters, including floods, riverbank erosion, cyclones, summer storms, summer and spring droughts, winter cold waves, and other natural calamities.

The communities in Madarganj, Sarishabari and Fulchari Upazilas of Jamalpur and Gaibandha district are vulnerable to various climate change-related hazards, particularly floods and riverbank erosion. These hazards have significant implications for the livelihoods of the communities living in the area, including loss of land, livestock, and other assets. The specific vulnerabilities of the communities in Madarganj, Sarishabari and Fulchari Upazilas to climate change include:

- Frequent flood disasters: The area is highly susceptible to frequent floods, resulting in substantial damage to property and livelihoods.
- Riverbank erosion: Madarganj, Sarishabari, and Fulchari Upazilas face significant challenges due to riverbank erosion, often leading to community displacement and loss of land and assets.
- Crop loss: Climate change-induced hazards like floods and droughts frequently cause crop failures, posing significant threats to the livelihoods of local communities.
- Displacement: Climate change-related disasters, especially in riverine islands, can force communities to relocate, exacerbating their vulnerability to environmental changes.

3.2 Goal of the ECCCP-Flood-ESDO project

The goal of the project is to increase resilience of the poor, marginalized and climate vulnerable communities towards the adverse effects of climate change in flood prone areas of Bangladesh.

3.3 Project Area

ESDO is implementing the project in 7 unions namely Balijuri, Charpakerdha, Pogaldigha Satpowa, Erendabari, Fazlupur, and Udakhali under the Madarganj, Sarishabari and Fulchari Upazilas of Jamalpur and Gaibandha district.

One of the most vulnerable working areas of ESDO is Madarganj Upazila of Jamalpur district, located in the north-western region of Bangladesh. Its geographical position and the floodplain topography along with unsustainable river system associated with erratic climate make the area extremely vulnerable to various climate-induced extreme events and natural calamities such as flood, riverbank erosion, drought, and cold waves, all of which occur more frequently and intensely than other regions of the country.

Another project area, Sarishabari Upazila of Jamalpur district is located in the north-western region of Bangladesh. Its geographical position and the floodplain topography along with an unsustainable river system associated with erratic climate, makes the area extremely vulnerable to various climate-induced extreme events and natural calamities such as floods, riverbank erosion, drought and cold waves, all of which occur more frequently and intensely than other regions of the country. Especially, the Char dwellers are the worst sufferers of this disaster.

The other project area, Fulchari Upazila of Gaibandha district is located in the north-western region of Bangladesh. Its geographical position and the floodplain topography along with the unsustainable river system associated with erratic climate make the area extremely vulnerable to various climate-induced extreme events and natural calamities such as flood, riverbank erosion, drought and cold waves, all of which occur more frequently and intensely than other regions of the country. Especially the Char dwellers are the worst sufferers of this disaster.

3.4 Geography of the Project Area

Fulchari Upazila is situated in Gaibandha district within the Rangpur division of Bangladesh. Madarganj and Sarishabari Upazilas are located in Jamalpur district, part of the Mymensingh division. Here are some key geographical details about Madarganj, Sarishabari, and Fulchari upazilas:

- **Total Area:** Madarganj: 225.39 square kilometers, Sarishabari: 263.48 square kilometers, and Fulchari: 306.53 square kilometers.
- **Boundaries:** Sarishabari Upazila is bounded by Madarganj and Jamalpur Upazilas to the north, Bhuapur Upazila to the south, Gopalpur and Dhanbari upazilas to the east, and Sariakandi, Kazipur, and Sirajganj Sadar Upazilas to the west. Fulchari Upazila is bounded by Gaibandha Sadar Upazila to the north, Saghhata and Islampur upazilas to the south, Dewanganj Upazila to the east, and Gaibandha Sadar and Saghhata upazilas to the west. A vast area of both upazilas consists of char land.
- **Rivers and Water Bodies:** Madarganj Upazila has notable rivers and water bodies, including the tributaries of Jhinai, Chatal, Chiradhuna Beel, and Kharka Beel. Sarishabari Upazila features significant rivers, river tributaries, and water bodies such as the Jamuna, Jhinai, Balakuria Beel, and Kauamara Beel. Fulchari Upazila is characterized by notable rivers, river tributaries, and water bodies including the Jamuna, Brahmaputra, and Old Brahmaputra River.

3.5 Duration of the Project

The project commenced on 18th November 2020 and was scheduled to conclude on 26th April 2024. This timeframe spans three and a half years, during which various activities and interventions are planned and executed to achieve the project's objectives. The duration encompasses phases of planning, implementation, monitoring, and evaluation aimed at enhancing resilience and mitigating the impact of climate change on vulnerable communities in the targeted districts of Bangladesh.

3.6 Economic Status of the Project areas

Located in the north-western region of Bangladesh, the project areas encompass Madarganj and Sarishabari Upazilas in Jamalpur district, and Fulchari Upazila in Gaibandha district.

These areas face significant vulnerability due to their geographical positioning within floodplains and an unsustainable river system, exacerbated by erratic climate patterns. As a result, they are highly susceptible to frequent and intense climate-induced extreme events and natural calamities such as floods, riverbank erosion, droughts, and cold waves. This region experiences these disasters more frequently and intensely compared to other parts of the country, with char dwellers particularly bearing the brunt of these adversities.

The project areas have been increasingly susceptible to heavy flooding due to climate change and other environmental shifts, with notable occurrences in 2016, 2017, 2019, and 2020. These floods frequently lead to the inundation and destruction of homes. Moreover, essential livelihood assets such as livestock, seeds, and farmland are constantly at risk of being submerged during these flood events.

Food insecurity, extreme poverty, and high unemployment rates are prevalent issues in the project areas. The local climatic conditions are less conducive to agriculture compared to other regions of the country. Despite these challenges, farming has remained the primary source of livelihood in these areas for decades. However, the combination of pervasive poverty, limited social safety nets, livelihoods heavily reliant on climate conditions, and minimal asset bases heightens vulnerability to severe floods, droughts, and extreme weather events. This often forces residents to resort to distress sales of assets such as livestock, exacerbating their already precarious situation.

In the project areas, income opportunities outside of agriculture are scarce, leaving few options for continuous earnings. Employment is often marked by severe exploitation, with Gaibandha having one of the lowest average daily wages in the country. Women face particularly limited access to the local labor market due to restrictive social norms, earning significantly less compared to their male counterparts—national data indicates female day laborers earn just under 60% of what men earn.
The primary sources of income are as follows: agriculture accounts for 75.15%, non-agricultural laborers 3.35%, commerce 8.11%, service sector 3.46%, transport and communication 2.49%, construction 1.23%, industry 0.52%, religious services 0.22%, rent and remittance 0.44%, and other miscellaneous sources make up 5.03%.

Educational attainment in these areas varies with average literacy rates as follows: Madarganj upazila at 24.6% (male 28.2%, female 20.9%), Sharishabari upazila at 39.2% (male 42.9%, female 35.3%), and Fulchari upazila at 27.7% (male 33.2%, female 22.1%).

As of the 1991 census, the population distributions were as follows: Madarganj Upazila with 233,049 inhabitants (male 119,368, female 113,681), Sarishabari Upazila with 316,007 inhabitants (male 161,683, female 154,324), and Fulchari Upazila with 137,795 inhabitants (male 69,816, female 67,979).

3.7 Adaptation Measures in Project Area

3.7.1 Adaptation practices in infrastructures

In flood-prone areas like Erendabari Union, communities have developed appropriate strategies to reduce flood risk and poverty. One example is the construction of cluster villages on high ground, currently housing over 582 families. These elevated settlements minimize flood exposure and allow residents to continue economic activities during floods.

Individual households also employ various techniques. Houses are raised on platforms, often made from flood-resistant materials like bamboo and corrugated metal. Embankments and flood shelters provide additional protection. To further secure their homes, residents cultivate water-resistant plants like banana, cattail, and water spinach around their houses. Interestingly, some families even use detachable building materials that can be easily transported during floods. Finally, when floods occur, people rely on traditional boats ("muchans" and "patatons") to move around and safeguard their lives and belongings. Additionally, whenever possible, houses are built on existing high ground. People in other areas raised their homesteads on their own.

3.7.2 Adaptation practices in water and sanitation

Safe drinking water sources, mainly tube wells are severely affected by floods in the affected areas. Floods usually inundate tube wells, the major source of drinking water in the Sarishabari, Madarganj and Fulchari Upazila. Considering this problem, ECCCP-ESDO-Flood project has installed 365 new tube wells on the raised homestead areas. These tube wells are now fully safe from the flood water. Experiences show that sanitation; particularly latrines are severely affected by the floods. It is mainly because of two reasons i.e., low-cost materials used in the construction of sanitary latrines because of poverty, and their location in low-lying areas. . This creates many sufferings, particularly that of women. It also causes water pollution and contaminates other sources of drinking water. This project promoted flood-resilient sanitation system in the project area to maintain good health. The ECCCP-Flood-ESDO project installed 1892 sanitary latrines on the raised homestead areas so that the latrines are not inundated by flood water. Highlighting the proactive approach communities are taking.

3.7.3 Adaptation practices in agriculture

As Sarishabari, Madarganj and Fulchari Upazila are the flood-affected areas, the agriculture system should be flood-adaptive. The National Agricultural Research System (NARS) of Bangladesh has developed various flood-adaptive crop varieties. The farmers need to select appropriate crop varieties that will not be damaged by flood. For example, BRRI dhan 52, BINA dhan 11 etc. These varieties can withstand flood water for more than two weeks. The floods in Sarishabari, Madarganj and Fulchari upazila usually do not last upto two weeks due to the strip slope landforms of this area. The ECCCP-Flood project took initiative to promote these varieties among the farmers. Consequently, these varieties of rice became very popular among the farmers of Sarishabari, Madarganj and Fulchari Upazila. Farmers also cultivated vegetables like lady's finger, pumpkin, cucumber, water gourd, bitter gourd, tomato, turmeric, potato, and spices on their raised homestead areas.

CHAPTER 4
RESILIENCBUILT IN THE MOST FLOOD VULNERABLE COMMUNITIES

This chapter highlights the outcomes of interventions and discusses their contributions to enhancing the resilience of flood-vulnerable communities. However, it is not a systematic study; rather, it presents intervention outputs and case studies.

4.1 Beneficiary selection and group formation

4.1.1 Project Participants Selection Process and Selection Criteria:

ECCCP-Flood project emphasizes the importance of community-led and gender-sensitive approaches in selecting of project participants, recognizing the need to prioritize vulnerable households in the targeted areas

- **Community-based selection:** Project participants are selected through a community-consultation based selection process, which involves identifying and prioritizing vulnerable households in the targeted areas
- **Vulnerability assessment:** Project participants are selected based on their vulnerability to climate change-related hazards, particularly floods and riverbank erosion
- **Gender-sensitive approach:** The ECCCP-Flood project prioritizes female-led households in the targeted areas, recognizing the importance of gender-sensitive approaches in climate change adaptation
- **Involvement of local institutions:** The project involves the active involvement of local institutions, such as community-based organizations and local government bodies, in the selection of project participants

The ECCCP-Flood-ESDO project has identified 6,984 flood-vulnerable households, encompassing 26,050 individuals. Selection criteria included:

a. Residency in riverine char and low-lying flood-prone areas;
b. Priority given to women-headed households and other disadvantaged groups;
c. Identification of poor and ultra-poor households;
d. Daily income of less than USD 1.75;
e. Exclusion of households not receiving support from other projects or organizations.

Beneficiaries of the project	Female	Male	Total	Remarks
Direct Beneficiaries	4,673	2,727	26050	Female 63%
***Indirect Beneficiaries	7,110	6,688	23830.	Female 52%

*** The indirect beneficiaries of the project will benefit during flood emergencies by utilizing raised plinths for shelter, accessing drinking water from tube wells, using sanitary latrines, and gaining knowledge on climate-resilient crop production. They do not directly participate in project activities but will receive significant support from the project interventions.

ESDO selected 26,050 beneficiaries following a standard selection process. The project conducted 150 consultation meetings at the community level. The consultation meetings focused on the selection criteria as stated above. Based on these consultation meetings, the ESDO prepared a draft list of potential beneficiaries. ESDO's PMU staff visited every house of the draft list to verify whether the listed individuals met the criteria. Based on this exercise, ESDO prepared a second list. The project's focal person at ESDO visited about 50% of the houses on the second list and prepared a third draft. This list was submitted to the PMU at PKSF for approval. The PMU members of PKSF also visited around 20% houses on the list. It was found from the visits that the list was almost complied. Few exceptions were found. These were mainly due to settlement structure in the project area. For example, a few well off families usually permanently resides within the poor communities. Despite being well off, the project had to address those; otherwise, they would be waterlogged due to raise plinth areas of other people. In this case, grant support was less than the poor and ultra-poor beneficiaries. It did not create any conflict because they were motivated in appropriate way by the CCAG members and the project staff. Beneficiary distribution by activities is given below:

Name of activities	Number of benefitted beneficiaries
Homestead plinth raise	4582 households
Flood resilient sanitary latrines	1892 nos.
Flood resilient tube wells	365 nos.
Climate-adaptive goat/sheep rearing	3211 households
Flood resilient crop cultivation	4410 households

4.1.2 Formation of Climate Change Adaptation Group (CCAG)

CCAG is a community-based approach for knowledge dissemination and decision making. It is a platform for the rural flood-vulnerable women where they engage dialogue on climate change impacts on their lives and livelihoods and adaptation to that. The CCAG members also act as a driving force for implementing the project interventions. They conducted monthly meetings on various issues including the concept of climate change, adaptation, mitigation and other social development issues such as dowry, child marriage, etc. The participants also discussed safe drinking water management, sanitary latrine management, personal hygiene, homestead gardening, and various issues in the meeting. They also conveyed the messages to their families and others.

ESDO has formed 150 CCAGs. On an average, each group has consisted of 25 women beneficiaries ranging from 20 to 30 members. The CCAG members also took decisions on the distribution of the project's support among them in the monthly meetings. They prepared their own Adaptation Action Plan (AAP) using PRA tools and methods. The CCAG organized a total of 9,903 meetings including community consultations during selection of beneficiaries and formation of the groups.

INVOLVEMENT OF THE PROJECT PARTICIPANT IN THE EXECUTION OF THE PROJECT

The Extended Community Climate Change Project-Flood (ECCCP-Flood) is a community-led project that aims to increase the resilience of the climate-vulnerable communities in flood-prone areas of Bangladesh. ECCCP-Flood project emphasizes the active participation of project participants in all aspects of the project, recognizing the importance of community-led and gender-sensitive approaches in climate change adaptation.

The project is implemented by ESDO and involves the active participation of project participants in the execution of the project. The project participants are involved mostly as follows:

- Formation of Climate Change Adaptation Groups (CCAGs): The ECCCP-Flood project involves the formation of CCAGs, which are community-based groups that are responsible for identifying and addressing climate change-related challenges in their respective areas
- Vulnerability assessment and action plan preparation: Project participants are involved in conducting vulnerability assessments and preparing action plans to address the challenges identified
- Training and awareness-raising programs: The ECCCP-Flood project involves organizing training and awareness-raising programs for project participants to build their knowledge and skills in climate change adaptation
- Implementation of project activities: Project participants are involved in the implementation of project activities, such as raising homestead plinths, providing climate-resilient shelters, establishing drinking water sources, establishing sanitation systems, and providing livelihood support
- Monitoring and evaluation: Project participants are involved in monitoring and evaluating the project's progress and impact

Snapshot of the ECCCP-Flood (ESDO working areas)

Project Name:	Extended Community Climate Change Project- Flood (ECCCP- Flood)
Project period:	18th November 2020 – 26th April 2024
Project duration:	40 months
Participants:	Total direct participants 6984 Households; and indirect 23830
Project Area:	91 villages of 7 Unions in Madarganj, Sharisabari and Fulchari Upazilas of Jamalpur and Gaibandha Districts.
Project staff:	Eight (18) staff members
Project Budget:	BDT.222,152,844 (PKSF); BDT.4,719,099 Community Contribution

4.2 Raised Homestead Plinths in Clusters

The ECCCP-Flood project has elevated the plinths of 4,317 homesteads in clusters, demonstrating the effectiveness of this adaptation measure in reducing household vulnerability to flood impacts.

- Homestead plinth raising is now recognized as a locally adaptable and effective coping strategy that mitigates the impact of floods on residential dwellings.
- Elevating the homestead and plinth levels provides enhanced protection against floodwaters.
- Participants have reported prolonged reductions in physical vulnerabilities and improved overall living conditions resulting from the raised homestead plinths.
- This initiative has safeguarded livestock, household assets, and homestead gardens, preserving the most valuable assets of the community.
- By protecting agriculture and livestock-dependent livelihoods, this activity plays a crucial role in enhancing household resilience.

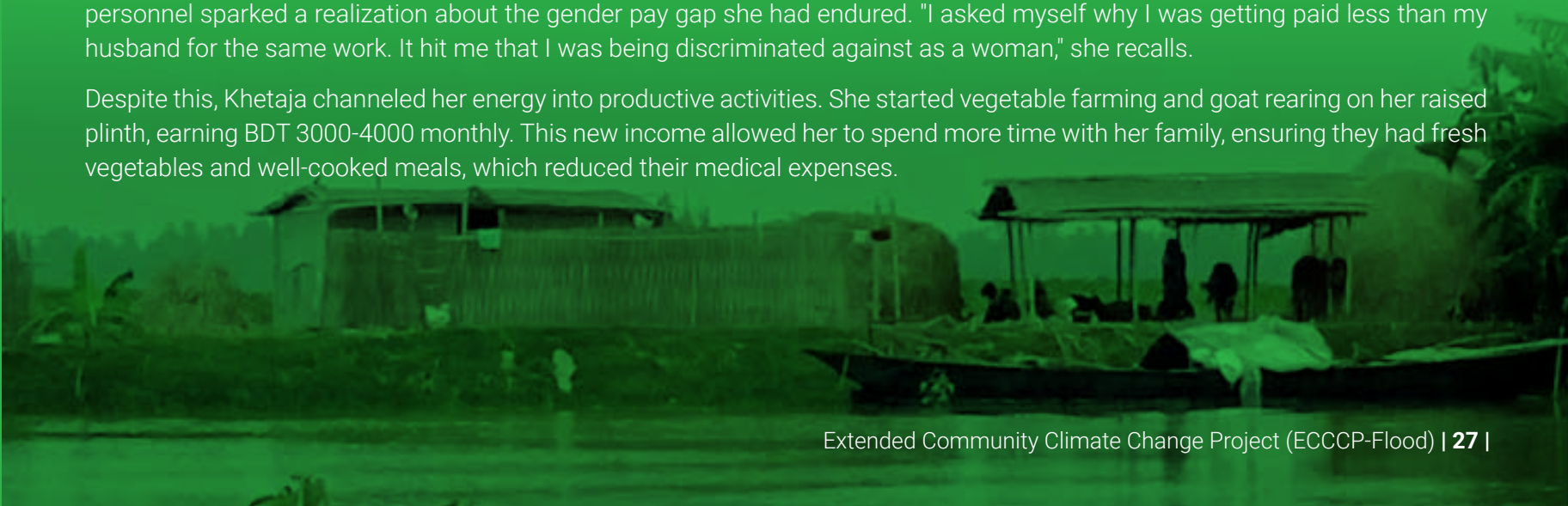
Resilience and Renewal: The Transformative Power of a Home

"I smile all the time," says Khetaja Begum. "I smiled when the monsoon floods destroyed my home and eroded my assets each year. I wasn't afraid because I knew this situation wasn't permanent. I smiled when I heard about the ECCCP-Flood project starting in our village. Life has taught me that crying doesn't bring solutions; smiles do." Khetaja lives with her husband and three children. A few years ago, she and her husband worked as agricultural laborers and seasonal fishermen in their village, struggling to make ends meet. Despite earning only BDT 150 per day as a female laborer compared to her husband's BDT 250, Khetaja accepted this disparity without question, believing she was lucky to earn anything at all.

When Khetaja was selected as a beneficiary of the ECCCP-Flood project, she joined a CCAG group with 27 other women in her community. They held monthly meetings facilitated by project personnel to discuss climate change adaptation, mitigation strategies, and livelihood development. Khetaja's homestead, only 8 decimals in size, was vulnerable to annual floods that damaged their assets and exacerbated their poverty.
The ECCCP-Flood Project raised Khetaja's homestead plinth by about 3 feet, protecting it from future floods. "Now, during the rainy season, my neighbors can take shelter on my homestead without being forced to sell their livestock at low prices," Khetaja explains.

Since joining the ECCCP project, Khetaja has participated in various interventions. Her interactions with ESDO and PKSF personnel sparked a realization about the gender pay gap she had endured. "I asked myself why I was getting paid less than my husband for the same work. It hit me that I was being discriminated against as a woman," she recalls.

Despite this, Khetaja channeled her energy into productive activities. She started vegetable farming and goat rearing on her raised plinth, earning BDT 3000-4000 monthly. This new income allowed her to spend more time with her family, ensuring they had fresh vegetables and well-cooked meals, which reduced their medical expenses.



4.3 Vegetables Gardening on the Raised Plinth

A total of 2,560 households are engaged in vegetable and fruit cultivation on raised homestead areas under the ECCCP-Flood project. The beneficiaries primarily cultivate Papaya, Banana, Sweet gourd, Bottle gourd, and Napier Grass. Homestead gardening and sand-bar cultivation offer numerous benefits:

- **Improved Food Security:** Cultivating a variety of vegetables and fruits like Papaya, Banana, Sweet gourd, Bottle gourd, and Napier Grass enhances food security for participating households. This is crucial in flood-prone areas where floods disrupt food supplies and lead to shortages.
- **Improved Nutrition:** Household gardening and sand-bar cultivation provide opportunities to grow diverse crops, thereby improving nutrition and overall health.
- **Increased Income:** These activities also serve as potential sources of additional income for households.
- Reduced Vulnerability to Floods: By growing crops on raised plinths and homestead areas, households can protect their produce from floodwaters, ensuring continuous access to food during floods.
- **Improved Soil Fertility:** Homestead gardening and sand-bar cultivation contribute to improving soil fertility. Techniques such as using vermicompost and other organic materials enhance soil quality and increase crop yields.
- **Community Building:** These activities foster community resilience and social cohesion. Collaborative efforts in food cultivation strengthen social networks and support systems among households.
- In summary, homestead gardening and sand-bar cultivation provide multiple benefits to households in the ECCCP-Flood project, including enhanced food security, increased income, improved nutrition, reduced vulnerability to floods, improved soil fertility, and strengthened community ties

Build, Collapse, and Rebuild: The Life of Lucky Begum

My name is Lucky Begum, and I live in Char Hidagari village, Charpakerdha union, Madarganj Upazila, under the Jamalpur district. I share my home with five beloved family members. Despite my name, there have been few prosperous moments in my 50 years. I've lost my home four times in the past 40 years due to flooding and riverbank erosion by the Brahmaputra River. Each displacement was a painful reminder of our vulnerability. We rebuilt our lives each time, only to have the river devour our homes again.

Climate change has exacerbated the flooding, leaving char dwellers like us in extreme distress. We endure widespread damage to crops and properties, adapting as best we can to these relentless conditions.

"I know floods will inundate my homestead every year because I live in a flood-prone area," I say. "During floods, we have no choice but to stay on rafts made from banana plants."

My long experience with floods has taught me to build floating platforms with banana plants to keep our cattle safe. Despite repeated requests for support from the local government, we received no assistance. Then, the ECCCP-Flood Project started in our village and listed my household as a potential participant due to our vulnerable status.

As part of this project, I attended various meetings and training sessions on climate change adaptation and mitigation. I gained valuable skills, knowledge, and awareness. With the project's support, my homestead plinth was raised by about 3 feet, protecting us from future floods.

To sustain our livelihoods during floods, I constructed goat-slatted houses on the raised plinth. My family now rears goats and sheep in these houses. "In the past, I had to sell my goats at lower prices before the monsoon season because I had no way to keep them safe," I explain. "Now, we don't have to sell our goats during floods."

Women in our community also cultivate vegetables and fruits on the raised homesteads to minimize flood losses. "I planted various vegetables and fruits," I say. "I've already earned about 1,400 Taka by selling bottle gourd, and I'll earn more from papayas soon."

Forgetting the misery of flood, I find peace when I see the bumper production of vegetables and fruits on my homestead.

4.4 Flood Resilient Tubewells

Access to safe water sources is an important aspect especially during the flood and drought periods. The ECCCP-Flood project aims to increase access to safe water and climate relent sanitation.

Installation of climate-resilient tube-wells will not only ensure safe drinking water but also reduce the prevalence of waterborne diseases, especially during flood and other disasters. Women and children especially babies become victims of unsafe water resulting in diseases including deaths.

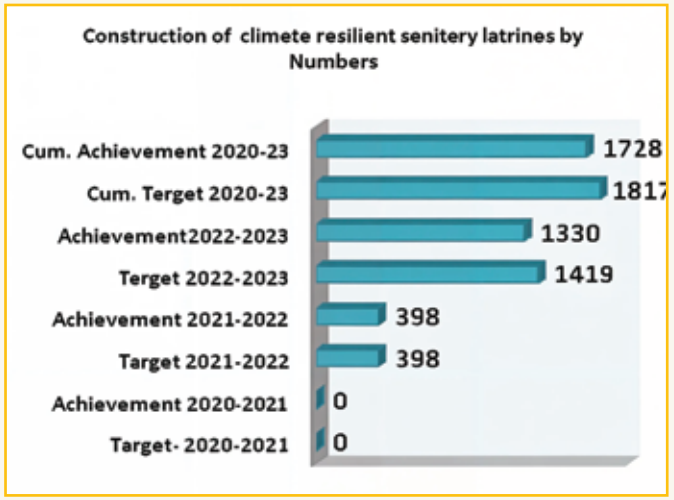
A Total 283 numbers of tube wells installed as a community source of safe water. The table and figure below depict that the installation of Tube wells were done as planned and the project achieved its yearly target without any delays.

4.5 Construct Climate Resilient Sanitary Latrines

Flood-resilient sanitation is designed to withstand flooding and provide numerous benefits for the community. By constructing flood-resilient sanitary latrines, the project ensures that communities have access to proper sanitation facilities, even in the face of climate-related challenges. This contributes to improved health, hygiene, and overall well-being of the community members. A total of 1304 climate-resilient sanitary latrines are constructed for use by the community members. The table and figure below depict that the construction of sanitary latrines was done as planned and the project achieved its yearly target without any delays.

Table & Figure on Construction of climate resilient sanitary latrines by Numbers

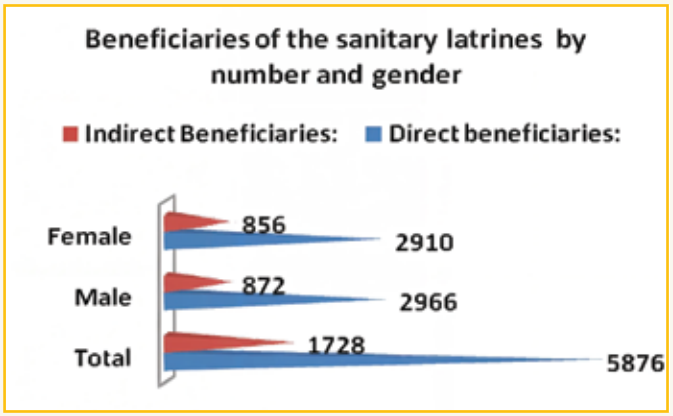
Construction of climate resilient sanitary latrines by Numbers	
Target- 2020-2021	0
Achievement 2020-2021	0
Target 2021-2022	398
Achievement 2021-2022	398
Target 2022-2023	1419
Achievement2022-2023	1330
Cum. Target 2020-23	1817
Cum. Achievement 2020-23	1728



User group of sanitary latrines: There are 5876 direct beneficiaries (2,966 male and 2910 female) users while indirect beneficiaries constitute 1728 beneficiaries (872 male and 856 female) users.

Table on number of Beneficiaries/ users of Sanitary Latrines by Gender:

Beneficiaries of the sanitary latrines by number and gender			
Beneficiaries	Total	Male	Female
Direct beneficiaries	5876	2966	2910
Indirect Beneficiaries	1728	872	856



Latrine Increases Jhumuri's Social Dignity!

Char Suvogacha is a village situated in the Jamuna River basin within the Balijuri union of Madarganj upazila in the Jamalpur district. This village, frequently flooded during the monsoon season, faces significant challenges due to its low-lying position.

Jhumuri's husband works as a fisherman and occasionally as a casual laborer. Living near the Jamuna River, his fishing efforts sometimes yield a good catch, but often, he returns empty-handed. Supporting their family of six, including three boys and one girl, was incredibly difficult. Providing for their children's education seemed almost impossible. Despite these hardships, Jhumuri never lost hope and continually sought ways to improve her family's situation.

The ECCCP-Flood project launched activities in Jhumuri's village, and she was selected as a potential beneficiary during the "Community Consultation Meeting" organized by the ESDO ECCCP-Flood Project, funded by PKSF and the Green Climate Fund (GCF). The village's unsanitary latrines and frequent flooding created severe health and environmental issues. Floodwater often contaminated the latrines, leading to outbreaks of waterborne diseases like diarrhea and dysentery, especially among children. Additionally, women struggled to find private spaces to use the toilet during floods, often waiting until dark out of desperation.

The Eco Social Development Organization (ESDO), with support from PKSF and the Green Climate Fund (GCF), addressed these challenges. The ECCCP-Flood Project raised the plinths of many low-lying dwellings and provided flood-resilient sanitary latrines. "This sanitary latrine has increased our social status and decreased our medical expenses," said Jhumuri Begum.

Jhumuri's story is a testament to the transformative power of community projects in enhancing living conditions and restoring dignity.

CLEANLINESS OF THE LATRINES, AND KNOWLEDGE AND PRACTICE OF HYGIENIC SANITATION

It is important to ensure that community members have access to the necessary information and resources to practice good hygiene and maintain the community latrines properly to prevent the spread of diseases and ensure the longevity and functionality of the facilities. Community groups and members meet once in a month to strengthen the knowledge and practice cleanliness. For the purpose community members need to know:

- How to use and maintain the latrines to prevent damage and ensure that the facilities remain functional which includes use of sufficient water flushing, avoiding throwing non-biodegradable materials into the latrine, and keeping the latrine clean.
- Understand the importance of hand washing using soap and water after using the latrine to prevent the spread of germs and diseases.
- Practice good personal hygiene, such as bathing regularly and wearing clean clothes, to prevent the spread of diseases.

KNOWLEDGE AND PRACTICE OF HYGIENIC SANITATION

The project has emphasized the importance of basic knowledge and practices of hygienic sanitation through meetings with community members and CCAG leaders. These practices are essential for maintaining good health and preventing the spread of diseases. Key discussions have focused on:

- **Hand Washing:** Regular hand washing with soap and water, especially before and after eating, after using the toilet, after blowing the nose, and after touching animals, is crucial to prevent infections and viruses.
- **Regular Bathing:** Bathing with soap and water helps to remove dirt, sweat, and germs from the body, contributing to overall cleanliness and health.
- **Safe Disposal of Waste:** Proper disposal of human waste (feces and urine) is essential for maintaining hygiene. This includes using sanitary latrine facilities and ensuring hygienic conditions.
- **Maintaining Personal Hygiene:** Practices such as daily cleaning of the body, washing hands with soap after using the toilet, brushing teeth twice a day, and wearing clean clothes are important for personal cleanliness and health.

These discussions and practices of hygienic sanitation play a critical role in promoting community health and well-being within the project area.

4.6 Provide support to Rear Goat/Sheep in Slatted Sheds

Rearing goats and sheep in slatted sheds in flood-prone areas benefits of goat rearing has several benefits, which include improved animal hygiene, better ventilation, protection from floods, and ease of cleaning. Thus, these benefits help to ensure the health and well-being of the animals and improve the productivity of the intervention. ESDO ECCCP-Flood project established 2930 no goat slatted sheds in the selected project beneficiaries. Before establishing that goat/sheep slatted sheds the selected beneficiaries received 2 days long training on 'Goat and Sheep rearing management'.

The table & figure below indicate that support for building slatted sheds went well and as per plan.

A total of 2930 shed were built against a target of 2784.

Provide support to rear goat/sheep in slatted sheds	
Target- 2020-2021	0
Achievement 2020-2021	0
Target 2021-2022	1454
Achievement 2021-2022	1454
Target 2022-2023	1330
Achievement2022-2023	1330
Cum. Target 2020-23	1476
Cum. Achievement 2020-23	2930

Livestock vaccination

Livestock vaccination is crucial in flood-vulnerable areas to prevent and control infectious diseases, protect livestock, and to reduce the risk of animal mortality, which can cause significant economic losses and impact food security. The project organized vaccination campaign at the village level. A total of 5092 goats, Sheep and cows were vaccinated under this activity. The campaign and the vaccination program were conducted with the help of Upazila and District Livestock Department.

"Willpower: Path to Success"

Nurani Begum's life took a challenging turn when, at the tender age of ten, she became the caretaker for her younger siblings in Nadagari village, Balijuri union, Madarganj Upazila, Jamalpur district. Despite facing early hardships, her resilience grew stronger as she navigated through marriage to a modest man, facing further economic difficulties. Her determination, however, never faltered; it only fueled her ambition to break free from the grip of poverty.

With a deep-seated passion for livestock farming, particularly goats and sheep, Nurani saw it as her path to a better life, despite living in a flood-prone river basin area that often stripped away her belongings. Her outlook changed when the ECCCP-Flood Project offered her an opportunity. Through this initiative, Nurani received essential training in goat and sheep rearing, along with support to build her homestead and a goat-slatted house.

"My life transformed the day I started tending to my goats," Nurani reflects. "With unwavering support from my family and the training from ECCCP-Flood, I found the strength and skills to pursue my dreams."

Starting with just three goats, Nurani now proudly tends to eleven. Her dedication paid off when she sold two goats, earning 18,000 taka, which she used to support her children's education. "I never imagined I'd have such a chance to prove myself," Nurani shares. "Seeing my dreams come true is beyond words."

Looking forward, Nurani plans to expand her farm and inspire her community to join her cause. As a female entrepreneur, she meticulously plans her farm's growth and serves as a role model for others in her village. Her success has not only improved her family's life but also empowered fellow farmers within the community.

Standing in her garden, Nurani feels a profound sense of security and accomplishment. "There's still a long journey ahead, with many dreams left to fulfill,"

4.7 Cultivation of Flood Resilient Rice and Wheat Crop

i. Flood-resilient and wheat cultivation, increased crop production

Cultivation of flood-resilient rice and wheat cultivation offers farming communities with reduced risk, increased yield potential, improved climate resilience, profitability, household consumption, reduced yield variability, and improved social equity.

By adopting flood-tolerant crop varieties, farmers can enhance their resilience to climate-related challenges and improve their livelihoods. 2580 Farmers were trained on 'Cultivation technique on flood tolerant Rice varieties (BRRI dhan-52. After the completion of the training, beneficiaries were distributed with rice seeds and fertilizers. In addition, 2580 farmers were trained on 'Cultivation technique on heat tolerant varieties (BARI Gom- 32, 33)'. On completion of the training all trainees received Wheat seed and fertilizer. The training was conducted by the Upazila Agriculture Officer and Agriculture Extension Office of Madarganj, Sharisabari and Fulchari Upazila.

ii. Vegetable Cultivation in Sand Bars

Cultivating on sandbars is an innovative low-cost technology for the river-eroded communities in Bangladesh. Sandbar cropping is a pit cultivation approach adapted to the sandbars to grow vegetables like pumpkin, squash, etc. Vegetable cultivation in sandbars has the potential to supplement food security, diversified income, adaptation to climate change, and improved soil fertility; and these cropping techniques help farmers improve their resilience to climate-related challenges. A total 300 farmers were trained on the cultivation technique of vegetable cultivation in sand bars. All trained beneficiaries received sweet gourd seed and fertilizers. The training was conducted by the UAO and AEO of Madarganj, Sharisabari, and Fulchari Upazila.

Brief information on flood-tolerant crop cultivation

Due to temperatures and changing rainfall patterns coupled with increased flooding, droughts in the project implementing areas are likely to reduce crop yields and crop production every year as the project support to the project participants mitigates such types of uncertainties.

So, the potential reduction of wheat production due to climate change in Bangladesh is significant. The project already promoted BARI wheat 30 and 33 which is a short-duration and disease-protective variety cultivated in the Boro season. Due to the short life cycle, this variety can escape the early flood in our working areas.

The project staff has selected the farmers based on predefined criteria in consultation with CCAG members. Each project participant receives day-long training on productive wheat cultivation management by DAE personnel through the project. The average land size per participant is 33-35 decimal for cultivating wheat. Ensure maximum utilization of organic manure for wheat fields and use balanced fertilizer according to prescribed DAE experts. This project supported BADC-certified Seed and quality fertilizers according to field demand. Project participants show gratitude due to back again on wheat cultivation intervention through well trained by project.

BRRI Dhan -52 Cultivation

During the reporting period 1480 (One thousand four hundred eighty) nos. of project beneficiaries have cultivated BRRI Dhan-52 crops on their land. The land size was an average 33 (Thirty-three) decimals per beneficiaries a total 1480*33= 48840 decimals i.e. 197 (One hundred ninety seven) hectares of land covered by BRRI Dhan-52 cultivation in our areas through project beneficiaries. Really this is a great achievement for our project.

In collaboration and active support by DAE personnel our project beneficiaries have harvested a maximum yield that's average per hectare 4500 kg i.e. 197*4500=886500kg / 887 MT from our project beneficiaries land. Each beneficiary will get 590 kg/.590 MT rice yield a market price of about 18000(Eighteen thousand) Taka. Excluding all production costs, each participant gets a net profit of about 11500 (Eleven thousand five hundred) Taka.

The details cost cost-benefit information given below in formative way:

participants coverage	Land size per participants (Decimal)	Total land cultivated (ha.)	Average Yield (MT.)/Parti.	Total Yield (MT.)	Average Net Profit/Parti. (BDT)
1480 nos.	33-35	197	0.590	887	11500

Wheat Cultivation (BARI Gom-30 and 33)

In the course of the reporting period, 2280 (Two thousand two hundred eighty) nos. of project beneficiaries have cultivated wheat crops on their land. The land size was an average 33 (Thirty-three) decimals per beneficiary as total of 2280*33= 75240 decimals i.e. 304 (Three hundred four) hectares of land covered by wheat cultivation in our areas through project beneficiaries. Really this is a great achievement for our project.

We predict that without any natural disaster hampering wheat growing activities then we get a maximum yield that's average per hectare 4000 kg i.e., 304*4000=1216000 kg / 1216 MT from our project beneficiary's land. Each beneficiary will get 528 kg/.528 MT wheat yield that's market price about 15000(Fifteen thousand) Taka.

The details cost benefit information given below through formative way:

participants coverage	Land size per participants (Decimal)	Total land cultivated (ha.)	Average Expected Yield (MT.)/Parti.	Total Expected Yield (MT.)	Average Expected Net Profit/Parti. (BDT)
2280 nos.	33-35	304	0.528	1216	15500

Sweet Gourd Cultivation:

Throughout the reporting period in our project areas 300 (Three hundred) nos. of project beneficiaries cultivated high-yield sweet gourd variety but yet not harvested. The land size was an average 33 (Thirty-three) decimals per beneficiary as total of 300*33= 9900 decimals i.e., 10 (Ten) hectares of land covered by Hybrid Bangkok-A one Plus cultivation in our areas through project beneficiaries. Actually, this is a countless accomplishment for our project.

The prediction of yield details information given below through formative way:

participants coverage	Land size per participants (Decimal)	Total land cultivated (ha.)	Average Expected Yield (MT.)/Parti.	Total Expected Yield (MT.)	Average Expected Net Profit/Parti. (BDT)
300 nos.	33-35	10	5.5	1650	18700

The total Information of High Value Agricultural Crop Cultivation

Sl.	Name of the crops	Variety of the Crops	Total Beneficiaries	Remarks
1.	Rice	BRRI Dhan-52	1480	
2	Wheat	BARI Gom-33	2280	
3	Sweet Gourd	Hybrid Bangkok a One Plus	300	
Total			4060	

Project beneficiary's happiness after receiving quality seed and fertilizer

Kohinoor Begum, from Qualikandi village in Charpakerdha union, Madarganj, Jamalpur, shared her experience with the ECCCP-Flood project:

"For the first time, I received quality, correctly weighted wheat seeds and fertilizers from a project or Union Parishad without any cost. Living in the vulnerable and isolated flood-affected char areas along the Jamuna River, every monsoon season brings uncertainties, especially in losing agricultural production and struggling to obtain quality seeds and modern farming knowledge. Traditionally, we've used outdated methods resulting in low yields. The ECCCP-Flood project introduced us to flood-tolerant crops, a new concept for us. Currently, neighboring farmers are experimenting with high-yield wheat, aiming to enhance food security for both families and nationally. I'm grateful to have maximized the use of my land for crop production and hope for a bountiful harvest. Thanks to the ECCCP-Flood Project for providing such invaluable opportunities."

Despite facing uncertainty, 64-year-old farmer Rahim Badsha took a bold step by sowing wheat seeds on fallow land in a newly formed char along the Jamuna River. He anticipates a bumper harvest, attributing his optimism to timely sowing and the quality seeds provided by the ECCCP-Flood Project.

"Living in the char areas, we endure regular floods every year, and the threat of a devastating flood is always looming. Despite this, I planted wheat seeds on the char, driven by hope. I hope my wheat fields remain unaffected by flooding or other uncertainties this year," he expressed.

"I am amazed by the ECCCP-Flood Project's support in wheat cultivation, imparting modern production knowledge and providing quality inputs," he added enthusiastically.

Rahim Badsha, Nadagari Village, Balijuri Union, Madarganj, Jamalpur

CHAPTER 5: IMPLEMENTATION APPROACH AND ACTIVITIES

ESDO Management of the Interventions

ESDO's Disaster and Environment Unit Chief Works as Head of Unit and Focal Person for the project. District focal person is responsible for regular review of the project activities and performance and feedback to the Head of Unit .
Project Implementation Structure and Arrangements
The project field team is composed of a full time Project Coordinator, Two Technical Officer, 13 Field Facilitators, and an Accountant.

As the Implementing Entity, ESDO has taken all responsibility for the effective implementation and coordination of all Project components through a dedicated team at field level leaded by project coordinator. ESDO has been in charge of ensuring coordination of the planning and implementation of Project activities financed by PKSF and GCF proceeds. On behalf of ESDO Disaster and Climate Change Unit a project focal person will be assigned to handle the coordination and provide active support implementation of the Project at field level team. Beside ESDO HQ based relevant department, ensure monitoring and evaluating compliances and safeguards issues as per organizational polices. The PC will directly report to a project focal person as well as PMU, PKSF

5.1 Overall Approach

The overall approach for the implementation of the Extended Community Climate Change -Flood (ECCCP-Flood) Project includes the following steps, strategies, and methods:

- Increase the resilience of climate-vulnerable communities in flood-prone areas of Bangladesh.
- Focus on community-led and gender-sensitive adaptation, prioritizing female-led households in five flood-prone districts.
- Strengthen the capacity of the implementing organization - ESDO.
- Develop Community-based group – Community Climate Adaptation Group -CCAG to enhance the capacity of the community to cope with climate change events.
- Enhance awareness on flood and drought for early preparation and action at community and household level.
- Collaborate with the local stakeholders.

The main approach is;

1) Selection of vulnerable village from the Madarganj, Sarishabari and Fulchari Upazilas.
2) Selection of project participants in the target project areas.
3) Project staff training.
4) Formation of Climate Change Adaptation Group (CCAG).
5) Identify CCAG leaders and organize leadership training. 6) Selection of beneficiaries for provided support.
7) Implementation of the project activities. 8) Project performance Monitoring and evaluation.
9) Consultation and Reporting. 10) Publication of the project.

The project approach is composed of the following steps;

- **Agreement**: After selection as "Implementing Entity" Agreement was signed based on the agreed terms and condition.
  Office setup: ESDO has long term presence in Madarganj, Sarishabari and Fulchari Upazilas serving to the community through different projects to support the vulnerable riverine Char people to improve the lives and livelihoods of the selected working area .
  Staff recruitment: Through advertisement in the local and national level newspaper we have recruited those who met the criteria especially working experiences/interested to work in char area.
- **Beneficiaries' selection:** Approved selection criteria provided by the PKSF, we have selected project participants through collected list from Union Parishad, conducted PRA especially FGDs and Social mapping and developed a preliminary list. Afterwards, project staff visited individual household, assessed the vulnerability and made a final list for project supports.
- **Group formation:** After selected the project participants, CCGA groups were formed to reduce risks to human and natural assets resulting from climate change vulnerability. We have established 325 Climate Change Adaptation Group (CCAG) in our working area. Here each group consists of 20 to 25 members where majority members are women.
- **Beneficiaries socio-economic profile fill-up:** The socio-economic profile of the selected households has been prepared in detail before providing any support to the project participants. The purpose of the socio-economic profile is to record detailed information on the present status of the program participants. It measures the detail information of participants' demography, education, income & occupation, inequities in access to resources, losses of lives and economic assets due to the impact of extreme climate-related disasters, access to reliable safe water supply, sanitation system, food security, number, value of the asset, nutrition intake, livelihood of the program participants, etc. This valid information will be used to compare short-term progress achieved by project interventions. In total, 6984 numbers socio-economic profiles have been completed. Field level staffs of the ESDO have visited door to door of the selected participants and collected their socio-economic information in the prescribed formats & guidance provided by the PKSF.

- **Community Investment Plan (CIP)**: After completing the socio-economic profile of the selected households subsequently project staff prepared the "Investment Plan" according to the findings of socioeconomic status and discussion with groups. During the selection of the project participants for assistance, project staff prepared investment plan considering the women's involvement in the selected plan, vulnerability of the families, committed to follow the guideline of the project and also supporting attitude to help others to get. In total, 6984 numbers investment plan have been prepared through visiting door to door which are homestead plinth raising, improved goat rearing, climate resilient tube-well, latrine, extension of high value crops like Rice, Wheat, pumpkin etc. and submitted to PKSF. The project raised 4317 homestead plinths out of a target of 4287, 283 climate resilient tube-wells installed against a target of 283, 1140 participants received financial support for reconstruct climate resilient house, 1722 participants received financial support for reconstruct existing sanitary latrines, out of 1817 targeted participants 2930 received support for improved goat/sheep rearing, 1039 participants received loan to purchase goat/sheep, out of targeted participants 2650, 3903 participants received technological support for high-value crop production. Mentioned target and achievement done through conducted 7083 numbers of training sessions by the project staff and invited resource person from Department of Agricultural Extension, Livestock department and local financial institutions including ESDO microfinance department.

  However, the overall approach adopts the project policy guidelines, strategic directions, and follows the ethical behavior and values of the PKSF and ESDO.

5.2 Policies and Guidelines

The Project Management Unit (PMU) developed necessary policies and guidelines to guide the implementation of the activities. These are activity implementation guideline, accounting and financial guidelines, environmental and social management guidelines, GRM system, CCAG Guideline, Procurement Guideline etc.

The project strictly follows all guidelines provided by PKSF and ESDO

1) HR, administrative, and logistics support are planned for project implementation, which includes project technical and implementation staff.
2) Conducting project staff training on project implementation approach, monitoring, and result management including climate change, and other social issues.
3) Skill development training on home gardening, high-value vegetable cultivation; Vermi compost making etc.
4) Skill development trainings are also conducted on flood tolerant crop cultivation, crops cultivation on sand-bars and river beds.
5) Training on the rearing of goats/ sheep in the slatted shades is done to develop skills and knowledge.

6) Reporting as scheduled in the project implementation plan, knowledge sharing and learning, case studies etc.
7) External and internal audits are conducted as agreed.
8) All procurement is done strictly following the ECCCP-Flood project procurement manuals.
9) Financial and accounting follow the financial and accounts manual of ECCCP-Flood project.

5.3 Safeguard and Safety Management

The Safeguard and Safety Management for the ECCCP-Flood project involves specific measures to address environmental and social impact assessment, as well as labor and stakeholder engagement, and environmental health and safety.
For environmental and social impact, the project continuously monitors and records the potential effects on the environment, local communities and stakeholders due to the project or activity. This surveillance monitoring identifies any potential negative impacts and proposes appropriate mitigation measures to minimize them. For labor and stakeholder engagement, the project establishes effective communication channels and consultation processes. This involves actively involving workers and relevant stakeholders in decision-making processes, ensuring their concerns and interests are considered and addressed.

Regarding environmental health and safety measures, the project implements measures to identify and manage risks to human health and the environment. This includes measures to prevent or minimize pollution, ensure compliance with environmental regulations, promote sustainable practices, and provide a safe working environment for employees involved in the project.

Finally, the project ensures compliance of Safeguard and Safety Management with project design & guidelines; and in accordance with PKSF and national convention and rules

5.4 Grievance Redress Mechanism

The Grievance Redress Mechanism (GRM) of ECCCP-Flood project is designed to address and resolve grievances or complaints and concerns raised by individuals or communities affected by the project and to ensuring that their grievances are addressed in a fair and timely manner. Immediate response is made to any grievance noticed; a consultation process is carried out to redress such grievances or concerns. In any extreme cases, actions are taken in accordance with policy guideline and are informed to PKSF (if any). However, the GRM in the ECCCP-Flood project involves the following simple steps:

1) Affected individuals or communities can submit their grievances or complaints to project staff, ESDO management and or PKSF, and are documented.
2) The project team or any assigned person by the ESDO management assesses the grievances to determine their validity and severity through conducting investigations, site visits, or consultations with relevant stakeholders.

3) Once the grievances are assessed, appropriate actions are taken to address and resolve them.
4) Throughout the process, regular communication is maintained with the individuals or communities who raised the grievances. Updates on the progress of grievance resolution are provided, and feedback is sought to ensure transparency and accountability.
5) The GRM process is continuously monitored and evaluated to identify any shortcomings and improve its effectiveness. Lessons learned from addressing grievances are used to enhance future project implementation and stakeholder engagement.

5.5 Monitoring and Evaluation Process

The Monitoring and Evaluation (M&E) process of the project involves systematical and regular tracking and assessing the project progress & performance; and the effectiveness of field activities and evaluating the activities of the project.

Monitoring data and information on field activities, outputs, and outcomes are carried out as planned and are entered into the software for reporting and future references, Evaluation is conducted to assess project performance, effectiveness, efficiency, and achievement of intended objectives and impact of the project and the need for adjustments or improvements. The M&E process mainly relies on the following steps:

1) Monitoring of field activities on a timely and regular basis and are entered into the software.
2) Project Monitoring and Evaluation are conducted on regular basis on progress against set checklist, and performance indicators are reported on a timely basis, and to ensure accountability.
3) Reporting findings and recommendations to stakeholders, including project managers, donors, and beneficiaries.
4) Internal and external assessments and evaluation of the project performance and impact against baseline with a focus on good practices, innovation and learning.

5.6 Gender Perspective

The ECCCP-Flood project has an integrated gender-sensitive approach that prioritizes women's empowerment, gender analysis, gender equality, capacity building, participation, and adaptation. The following are some gender considerations based on the gender dimension:

• Gender Dimension and Role of Women

By considering the gender dimension, the project ensures that its activities are more inclusive, equitable, and effective in addressing the impacts of climate change and natural disasters. The project has considered its gender dimension by prioritizing female-led households in flood-prone districts, and their ability to also play a critical role as climate change adaptation agents. The role of women as leaders is important because they are often the primary caregivers in their households and communities, and they have a deep understanding of the local environment and natural resources. Women can also play a key role in promoting sustainable practices and adapting to the impacts of climate change. By empowering women and involving them in decision-making processes, the project ensures that its activities are more inclusive, effective and sustainable. Prioritizing female-led households in the project help to promote empowerment, resilience, effectiveness, inclusivity, and impact, and accrue several benefits.

Empowerment: Help to empower women and promote gender equality, increased participation in decision-making processes and improved access to resources and services

Resilience: Women being the primary caregivers in their households and communities, and with a deep understanding of the local environment and natural resources; help build resilience to the impacts of climate change and natural disasters.

Effectiveness: Women play a key role in promoting sustainable practices and adapting to the impacts of climate change. Women's engagement in the project's activities ensures more effectiveness and sustainability.

Inclusivity: ensure that the project's activities are more inclusive and equitable, and help to address the specific needs and challenges faced by women in the community.

Impact: Women are often disproportionately affected by climate change and natural disasters. Project integrates activities to address these impacts and improve the overall impact of the project.

CCAG Groups and Women Roles

The Community Climate Action Groups (CCAGs) are formed through a participatory process that involves local communities, including women and other vulnerable groups. The CCAGs operate through a community-led and gender-sensitive approach, which prioritize the participation of women and other vulnerable groups in decision-making processes. The CCAGs are responsible for identifying and implementing climate change adaptation measures in their communities, with a focus on homestead plinth raising, access to safe water and sanitation, flood-resilient livelihoods, and social changes. The CCAGs are supported by the project through training, technical assistance, and access to resources and services. The CCAGs play an important role towards achieving homestead plinth rising, access to safe water and sanitation, flood-resilient livelihoods, and social changes through the following activities.

Homestead Plinth Raising: The CCAGs identify households that are vulnerable to floods and encourage them in raising their homestead plinths to reduce the risk of flooding.

Access to Safe Water and Sanitation: The CCAGs identify and implement measures to improve access to safe water and sanitation in their communities, which can help reduce the risk of waterborne diseases and improve overall health.

Flood-Resilient Livelihoods: The CCAGs identify and implement measures to promote flood-resilient livelihoods, such as promoting sustainable agriculture practices and diversifying income sources.

Social Changes: The CCAGs promote social changes by raising awareness about climate change and its impacts, promoting gender equality, and empowering women and other vulnerable groups.

5.7 Communication and Knowledge Management

Communication and Knowledge Management are important for ensuring transparency, accountability, and effectiveness. The project has established reporting mechanisms, developed knowledge products, identified lessons learnt, and developed a Gender Action Plan to ensure that the project is adaptive, responsive, and gender-sensitive

Communication and Knowledge Management are done through various mechanisms, including communication between the Project Management Unit (PMU) and Implementing Entity (IE), communication between the IE and project participants, and communication between the IE and stakeholders. The following are some key aspects of Communication and Knowledge Management in the project:

(1) Reporting Mechanisms: The project has established reporting mechanisms to track and assess the progress of the project's activities. This includes regular reporting to all stakeholders as scheduled and or as required.

(2) Knowledge Products: The project has developed knowledge products, such as training manuals, guidelines for raising homestead plinths level, construction of climate resilient tube-wells & sanitary latrines, flood-resistant crop and vegetable cultivation etc.; and guidelines on climate change issues and CCAGs operation and management, to build the capacity of project participants

(3) Lessons Learnt: The project has identified and documented lessons learnt throughout the project's implementation to ensure that the project is adaptive and responsive to changing circumstances

(4) Gender Action Plan: to operationalize the constraints and opportunities for women and men to fully integrating gender considerations

5.8 How the Project Played Roles in Building Resilience

The program components include options and practices for flood-resilient homesteads, water& Sanitation systems; food and livelihoods securities that generate clear co-benefits for better managing climate risks and adapting to climate change. An assessment of project activities using four dimensions of resilience indicates that the project has been able to contribute towards building resilience of the target households and communities.

i) Social Resilience: Since its very inception, the project adopted a participatory approach and was able to engage communities from the identification and selection of the most vulnerable households and cluster to final interventions. being the activities mostly cluster-based, it alone has a greater impact in enhancing social bindings, coherence & solidarity and understanding of the consequences of climate change on their life & livelihood, food & Nutrition, Health, security of life, livestock and other valuable assets etc. The project successfully mobilized, organized the communities into CCAG groups and motivated them to get involved in other social and professional group e.g.; MFI. CCAG became a viable tool to engage the community members for a common purpose and is an effective way for their aspiration of becoming resilient to climate change uncertainties and extreme events. It is expected that in longer term, the project modalities will enhance and strengthen other aspects like women empowerment and decision making, food and nutrition security, valuable household asset protection, being able to contribute to create a sense of personally feel more secured- specially the women and younger girls. Safe water and sanitary latrines; and remain healthy.

i) Physical Resilience:

Experience of CCCP has shown that these types of community-level small infrastructure activities have minimum or no environmental impacts. Because construction of different small structures like slatted sheds, sanitary latrines etc. mostly carried out by the project beneficiaries and maintained safe and healthy working condition because there was no hazardous material used or risky task. These activities did not pollute air, water or soil. The project did not require any acquisition any kinds land and or any issues of dislocation and resettlement of any residents. And there are no activities that could affect biodiversity or ecosystem.

Raising homestead plinths above the flood level in clusters has shown a way to become adaptive to flood hazards. During any flood safe drinking water become extremely scarce resulting in spread of waterborne diseases including deaths. Installation of two hundred eighty-three (283) Tube wells at the community level has ensured safe drinking water to 2810 direct beneficiaries and 10112 indirect beneficiaries who meet one of the most important needs for their resilience and adaptation to climate-induced and natural calamities. 2830 households benefited from this component. The Sanitary Latrines, accounts for 1722 installations, deals with one of the pressing needs and health safety measures. Installation of sanitary latrines also has provided an elevated security especially for the women and girls. Another important benefit of these latrines is that they restrict disease spread and help secured and better environment for the communities. Sanitary latrines benefit directly 5166 Households and indirectly 7523 neighboring community members. Installation of Tube well for safe drinking water, and Sanitary Latrines ensured easier access to the group as well as non-group community members. This has immense impact of the heath.

ii) Institutional Resilience: The project was able to mobilize and organize the communities to form CCAG as a Community-Based organization to promote awareness of climate change impacts and extreme events, adaptation and coping abilities and opportunities to enhance their homestead, asset, and health (safe water & sanitary latrines); and diversification of income. The intervention has established links between the project participants / CCAG and with the public service departments (DAE, DoL, DoF etc.) this in turn has encouraged them to access public and private institution services; and social & community groups.

iii) Economic Resilience: On the household economics, the project transferred appropriate technology for raising goats and sheep in the slatted sheds, cultivation of flood & drought-resistant and or early-maturing crop varieties, homestead gardening, sand bar vegetable, growing vegetables on riverbeds during winter, production and use of Vermi compost production, poultry rearing, etc. are a unique example of diversifying and strengthening income sources and using available resources and opportunities. The project provided technical and financial support.


মাঁচা পদ্ধতিতে ছাগল/ভেড়া পালন

CHAPTER 6: MOVING FORWARD

During the inception period and throughout implementation, the project encountered several challenges. However, intensive engagement by project staff members and community members was crucial in addressing queries and concerns raised by intended project participants. This collaborative effort was essential for overcoming obstacles and ensuring the successful implementation of the project.

6.1 Challenges

The ECCCP-Flood project encountered several significant challenges during its implementation:

1. Ensuring the sustainability of project activities beyond the short-term project period is a critical concern, given the multi-dimensional nature of the project.
2. The challenging terrain and landscape of the project area escalate the vulnerability of communities to climate change-induced extreme events such as frequent floods, flash floods, long dry spells, and cold spells. These conditions make communication and contact with program proponents extremely difficult.
3. Communities in the project area suffer significantly from disruptions in employment, loss of wage labor opportunities, broken supply chains, and limited livelihood options, exacerbating their vulnerability.
4. The project's emphasis on community leadership and gender sensitivity, particularly prioritizing female-led households, requires knowledgeable and skilled project staff who can respect cultural norms, faith, and community values.
5. Building CCAGs as sustainable community-based organizations is a long-term challenge. Capacity building for future leaders and new members, including leadership, succession planning, operational and management skills, and institutionalizing electoral processes, is crucial. CCAGs need to diversify their activities, such as building networks for accessing social security allowances, scholarships, and agricultural weather information, to strengthen community support networks and resilience.
6. Ongoing challenges include the repair and maintenance of raised plinths, tube-wells, and sanitary latrines to keep them operational and effective.

More Challenges:

- ***Social-Cultural Challenges:*** Embedded cultural norms and traditional beliefs, especially regarding gender integration into the project, pose challenges to the active participation of women. Male partners may not fully recognize the role of women in resilience and climate adaptation.
- ***Environmental Challenges:*** The project operates in an environmentally vulnerable area prone to climate extremes. However, it has had no negative environmental impacts.
- ***Financial Challenges:*** Delays in community contributions due to poor financial capabilities have been minor, with no issues of insufficient funds or delays in disbursement noted.
- ***Political Environment:*** The project has not faced political challenges; local authorities and government departments have been cooperative. The project aligns with government priorities on climate change adaptation.
- ***Access to Services:*** Accessing public and private service institutions, particularly during seasonal climatic variations, remains challenging due to the remote nature of the project areas. Engagement with public service institutions like the Department of Agriculture Extension (DAE) and Department of Livestock and Fisheries (DoF) is hindered by these conditions.

Despite these challenges, the project successfully engaged communities, building awareness of its objectives and benefits. The project's reputation and staff members' rapport with communities, facilitated by ESDO's credibility in the area, helped overcome challenges. Effective communication and gender-sensitive approaches fostered community ownership and resilience-building through project activities tailored to flood adaptation.

6.2 Moving Forward

Moving forward, several strategies can enhance the effectiveness and sustainability of the ECCCP-Flood project.

- The project should continue to educate CCAG members about the benefits of raising plinths in their localities.
- Facilitate negotiations with private landowners for the collection of sand from their lands to support project activities.
- Maintain strict adherence to monthly implementation plans to ensure timely and effective project execution.
- Continue motivating community members to adopt and practice effective adaptation techniques introduced by the project.
- Enhance engagement with local government representatives to foster support and collaboration for project initiatives.
- Maintain regular communication with social leaders and influential individuals within the community to garner ongoing support and address emerging issues effectively.
- These strategies will strengthen community involvement, improve project coordination, and foster resilience against flood-related challenges in the project area.

6.3 Learning's from the ECCCP-Flood Project

The ECCCP-Flood project has provided significant insights and lessons learned for future resilience-building efforts:

- Local Adaptability and Sustainability: Utilizing local resources and environmentally friendly practices proved effective. However, sustaining Community Climate Action Groups (CCAGs) requires extended support and capacity building across resilience and adaptation practices. Integration of community-driven activities like accessing social benefits and scholarships is crucial.
- Implementation Challenges: Adequate time for learning and action with community participation is essential for enhancing local adaptive capacities and resilience. Short project periods hindered the full development and graduation of CCAGs.
- Gender Considerations: Women and children are disproportionately affected by climate impacts, requiring targeted awareness and sensitization across communities to overcome social and cultural barriers to gender equality.
- Weather Information: Farmers benefit from climate information but require improved access to user-driven seasonal forecasts and policy support to enhance adaptation strategies.
- Participation and Partnerships: Project success hinges on strong collaboration among project teams and community stakeholders. Ongoing stakeholder engagement remains vital for sustained project impact.
- Institutional and Policy Engagement: Overcoming institutional barriers is critical for effective adaptation efforts. Involving local authorities and public agencies strengthens community resilience, with early engagement of policymakers securing resources for sustainable practices.
- Plinth Raising for Flood Resilience: Elevating homestead plinths above flood levels proved cost-effective and environmentally sound, attracting interest from neighboring communities. This intervention facilitated additional resilience practices such as homestead gardening and livestock rearing in protected environments.
- Innovative Livestock Rearing: Introducing slatted shed technology for livestock during floods enhanced food security and asset protection among vulnerable households, particularly benefiting women.
- Safe Water and Sanitation: Improved access to safe water and sanitation significantly reduced disease risks, meeting critical community needs.
- Homestead Gardening and Food Security: Utilizing raised homestead areas enabled year-round cultivation of diverse crops, contributing to household economies and food security.
- Climate-Resilient Farming: Introducing flood-tolerant and early maturing crop varieties enhanced climate-resilient farming practices. Value-chain development for high-value crops like sweet gourds offers market opportunities.

- Risk Management and Insurance Mechanisms: Designing sustainable insurance or support price mechanisms is crucial for mitigating natural disaster impacts and encouraging new livelihood opportunities among farmers.
- Integration of Local Knowledge: Integrating local knowledge with scientific insights enhances rural smallholders' adaptive capacity and technology adoption.

These lessons underscore the importance of community-centered approaches, gender sensitivity, and sustainable practices in building resilience against climate change impacts. Future initiatives should build on these insights to achieve lasting positive impacts in vulnerable communities.

6.4 Key Factors behind the Successful Activities Implementation

The successful implementation of the ECCCP-Flood project can be attributed to several key factors:

- Relevance and Design: The project is well-designed to address the impacts of climate change-induced extreme events, enhancing community resilience.
- Climate Change Adaptation Groups (CCAGs): Formed to empower communities in decision-making and implementation processes, CCAGs ensure sustained community participation and ownership of project activities.
- Community Understanding and Benefits: Effective communication has ensured community understanding of project objectives and benefits, including flood-resilient crops and disease-resistant wheat.
- Alignment with National Policies: The project aligns with Bangladesh's national policies and strategic frameworks, leveraging resources efficiently for vulnerable communities.
- Community Ownership and Sustainability: Active community contributions have fostered ownership and sustainability of project interventions.
- Effective Project Management: The Project Management Unit (PMU) has developed policies and guidelines, ensuring smooth implementation and active monitoring throughout.
- Gender Sensitivity: Project staff's awareness and sensitivity to gender issues have facilitated rapport with community members, ensuring inclusive participation.
- Government and Local Authority Cooperation: Active participation and cooperation from local authorities and government departments have facilitated smooth implementation.
- Senior Management Support: Senior management support within the PMU has been instrumental in project implementation and decision-making.

- Monitoring and Oversight: The Independent Evaluation (IE) closely followed project guidelines, ensuring adherence and effectiveness in field-level activities.
- Logistical Support: PMU and IE management provided necessary logistics and budget allocations, supporting monthly CCAG meetings and field activities beyond initial provisions.
- Community Engagement: Intense engagement between project staff and communities addressed queries and ensured community support for successful project outcomes.
- Integration of Local Knowledge: Integrating local knowledge with research and technology has enhanced rural smallholders' adaptive capacity and project effectiveness.

These factors collectively contributed to the successful implementation and positive impact of the ECCCP-Flood project in building community resilience against climate change impacts.

6.5 Recommendations

a) Train and empower local entrepreneurs to maintain and repair raised plinths, charging service fees. This approach can ensure sustainable upkeep of infrastructure vital for flood resilience.

b) Foster women-led initiatives to enhance access to agricultural inputs such as suitable seeds, vermi compost, and livestock vaccinations tailored to local needs.

c) Facilitate access to intra-seasonal climate information for farmers through CCAGs. Improve their capacity to acquire and disseminate accurate seasonal weather forecasts crucial for optimizing crop management decisions.

d) Strengthen community-based organizations like CCAGs through prolonged training and mentoring. Focus on enhancing operational and management capacities, identifying community-driven activities, and ensuring long-term sustainability.

CONCLUSION

Communities in Madarganj, Sarishabari, and Fulchari face severe vulnerability to climate change due to complex social, economic, and environmental factors, impacting their livelihoods and assets. Limited access to technology, credit, markets, and infrastructure hampers their ability to adapt effectively.

The project operates at two levels: at the household level, enhancing resilience through activities like homestead gardening, livestock rearing in slatted sheds, and improved crop cultivation. At the community level, it installs safe water and climate-resilient latrines.

Climate Change Adaptation Groups (CCAGs) empower communities to actively participate in project activities, crucial for building resilience against extreme climate events. The project aligns with national policies, utilizing resources from the Green Climate Fund (GCF) and Palli Karma-Sahayak Foundation (PKSF) to benefit vulnerable communities.

These efforts aim to reduce risks to infrastructure, livelihoods, and promote economic diversification, reinforcing food security, energy, and water resources. They pave the way for inclusive green growth, fostering resilience amidst climate change impacts.

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PHOTO GALLERY

Flood Resilient Corp Cultivation


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Homestead Plinth Raised

Flood Resilient Tubwel & Community Latrine Installation

Goat Rearing & Vaccination Campaign

Workshop & CCAG Meetings

ECO-SOCIAL DEVELOPMENT ORGANIZATION (ESDO)

Head Office :
Collegepara (Gobindanagar),
Thakurgaon-5100, Thakurgaon, Bangladesh
+88-0561-52149, +88-0561-61614
+88-01714-063360, +88-01713-149350
esdobangladesh@gmail.com

Dhaka Office:
ESDO House
House # 748, Road No: 08
Baitul Aman Housing Society, Adabar
Dhaka-1207, Bangladesh
+88-02-58154857
+88-01713149259

www.esdo.net.bd