Supported by:

Federal Ministry for Economic Affairs and Climate Action

on the basis of a decision by the German Bundestag

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PKSF

TMSS

ADAPTATION AND RESILIENCE BUILDING TO THE CLIMATE CHANGE VULNERABLE HAOR REGION COMMUNITIES OF RADHANAGAR VILLAGE.

BEHELI UNION, JAMALGANJ UPAZILA OF SUNAMGANJ DISTRICT

May,2025

A project under
Climate Resilient Infrastructure for Sustainable Community Life in the Haor Region of Bangladesh

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ACKNOWLEDGEMENTS

This report would not have been possible without the invaluable contributions of numerous dedicated individuals and the unwavering support of the project management team. Since the project's inception, the TMSS-partner organization of PKSF, and the project staff have played a pivotal role in its successful implementation. I extend my sincere gratitude to all those who contributed to the completion of this report, titled "Adaptation and Resilience Building for Climate Change Vulnerable Haor Region Communities of Radhanagar Village, Beheli Union, Jamalganj Upazila, Sunamganj District."

I would like to express my heartfelt appreciation to the project staff in Sunamganj for their tireless commitment and passion in advancing the project's objectives. The Project Manager and his team were instrumental in ensuring the secure and ethical management of project information, thereby bringing the project's goals to the forefront.

Special thanks are due to Mr. Mohammed Khairul Islam, Executive Consultant of the IES sector, and Program Coordinator Mr. Belal for their unwavering support in making this report a reality.

I am also grateful to PKSF for their valuable input, guidance, and constructive feedback on the draft report.

Finally, I extend my sincere thanks to all whose generosity and support made this report possible.

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Project Completion Report

Climate Resilient Infrastructure for Sustainable Community Life in Radhanagar Haati of Beheli Union, Jamalganj Upazila, Sunamganj District, Haor Region of Bangladesh

EXECUTIVE SUMMARY

This report summarizes the completion of the **"Climate Resilient Infrastructure for Sustainable Community Life in the Haor Region of Bangladesh"** project, implemented from 7th Nov 2023 to 30th April 2025, in Radhanagar Haati, Beheli Union, Jamalganj Upazila, Sunamganj District. The project was funded by IKI Small Grants Programme, commissioned by three ministries of the Federal Government of Germany. The project was being implemented by PKSF through the partner organization, TMSS in Radhanagar of Jamalganj upazila of Sunamganj. On behalf of the German government GIZ Bangladesh is monitoring the implementation and providing technical support to the implementers.

Project Context and Rationale

Bangladesh's Haor region is exceptionally vulnerable to climate-induced hazards, particularly flash floods and wave erosion, due to its low-lying topography and proximity to upstream catchments. Communities in this area face recurring challenges that threaten their livelihoods, infrastructure, and well-being. The convergence of climate change impacts and socio-economic vulnerabilities in Sunamganj district necessitated urgent, targeted interventions to build resilience and protect local populations.

Project Goal and Objectives

The primary goal of the project was to enhance the climate resilience of selected communities in the Haor region. The specific objectives included:

- Developing climate-adaptive infrastructure to mitigate the impacts of flooding and erosion
- Raising community awareness and capacity for climate adaptation,
- Promoting sustainable management of natural resources and biodiversity conservation,
- Improving the livelihoods and safety of vulnerable households, particularly women and marginalized groups.

Key Interventions and Achievements

- **Infrastructure Development:** Construction of flood protection walls and the elevation of community common spaces significantly reduced risks from wave erosion and flooding, directly benefiting 98 households (approximately 300 people) and indirectly supporting around 600 community members.
- **Capacity Building:** The project delivered targeted training and awareness programs, empowering local residents—especially women—to participate in decision-making and infrastructure maintenance.
- **Sustainable Resource Management:** The integration of native tree plantations and biodiversity conservation measures promoted ecological balance and long-term sustainability.

- **Community Engagement:** TMSS, as the local implementing partner, fostered strong community ownership through participatory approaches, ensuring the sustainability and effectiveness of project outcomes.

Stakeholder Collaboration

The project was a collaborative effort involving:

- **IKI:** Provided primary funding and strategic direction.
- **GIZ:** Offered technical supervision, grant management, and capacity building.
- **PKSF:** Led national project management, beneficiary selection, and coordination.
- **TMSS:** implemented on-the-ground activities and facilitated community engagement.

Challenges and Impact

Despite significant challenges such as seasonal flooding, logistical constraints, and socio-economic vulnerabilities, the project successfully enhanced community resilience, improved infrastructure, and promoted adaptive capacity in one of Bangladesh's most climate-sensitive regions.

Conclusion

The Haor project stands as a model for integrated, community-based climate adaptation. Through multi-stakeholder collaboration, gender-sensitive approaches, and sustainable infrastructure development, the project has made a lasting contribution to climate resilience and improved quality of life for vulnerable communities in the Haor region. The lessons learned and best practices established provide a foundation for scaling similar interventions in other climate-vulnerable areas of Bangladesh.

CHAPTER 1: INTRODUCTION

1.1. Introduction

As one of the most climate-vulnerable nations, Bangladesh faces a multitude of threats exacerbated by its unique geography, high population density, and reliance on natural resources. Ranked among the top countries for climate disaster risk, Bangladesh is already experiencing the harsh realities of a changing climate, with projections indicating a grim future of increased risks. Among these threats, flash floods pose a particularly devastating risk to the Haor region of Sunamganj district, an area characterized by its unique wetland ecosystem.

The Haor region, a vast network of wetlands in northeastern Bangladesh, is exceptionally vulnerable to flash floods due to its low-lying topography and proximity to the Meghalaya hills, which generate rapid runoff during the monsoon season. These sudden inundations destroy crops, damage infrastructure, and disrupt livelihoods, pushing already vulnerable communities further into poverty. The convergence of climate change impacts and socio-economic vulnerabilities in the Sunamganj district demands urgent attention and targeted interventions to build resilience and protect the well-being of its inhabitants.

1.2. Background:

The Haor region is highly vulnerable to seasonal flooding and climate-induced hazards, impacting livelihoods and community well-being. Climate change increases flash flood risks in Sunamganj's Haor region primarily through changes in rainfall patterns and upstream hydrological dynamics.

Radhanagar Haati, located in the flood-prone Haor region, faces recurrent challenges from seasonal flooding, wave erosion, and waterlogging, which severely affect the socio-economic well-being of its residents. The key factors include:

- **Increased and Erratic Rainfall:** intense and unpredictable rainfall events, excessive rainfall in the Meghalaya hills upstream causes sudden surges in water flow triggering flash floods.
- **Earlier and More Frequent Flash Floods:** early flash floods before the main harvest season, are becoming more frequent due to shifting rainfall patterns.
- **Riverbed Siltation and Reduced Drainage Capacity:** Sedimentation and reduction of wetlands water-carrying capacity, causing water to overflow rapidly during heavy rains.
- **Infrastructure and Land Use Changes:** Construction of embankments, roads, and buildings in the Haor region diminishes the landscape's ability to absorb and manage floodwaters flow.
- **Temperature Fluctuations and Extreme Weather Events:** Rising temperatures and increased frequency of storms and hailstorms contribute to unstable weather patterns, intensifying the severity of flash floods.

Together, these climate change-induced factors lead to more severe, unpredictable, and damaging flash floods in Sunamganj's Haor region, threatening lives, livelihoods, and the fragile wetland ecosystem.

1.3. Main Stakeholders:

1) IKI (International Climate Initiative):

- IKI, through its Small Grants Program, is the ***primary funder of the project***. The initiative is funded by the German Federal Ministry for the Environment, under the IKI Small Grants Funding Scheme.
- IKI's financial support enables the implementation of climate-resilient infrastructure interventions, such as the construction of protection walls and tree plantations, and is envisioned as a pilot that could be upscaled to a larger Green Climate Fund (GCF) project in the future.

2) GIZ (Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ):

- GIZ, the German development agency, is responsible for grant management and s***upervising & overseeing the implementation*** of the project for the IKI Small Grants Program on behalf of the German government.
- GIZ manages the grant agreement with PKSF and provides technical support, ensuring adherence to quality standards, project monitoring, and capacity building for local partners.
- GIZ also supported PKSF in developing the project proposal, facilitating coordination with international climate finance mechanisms.
- Oversees project implementation, ensures compliance with international standards, and provides technical support and capacity building to PKSF and local partners.
- Facilitates coordination between the donor (IKI) and the implementing agencies in Bangladesh.

3) PKSF (Palli Karma-Sahayak Foundation):

The **Palli Karma-Sahayak Foundation (PKSF)**, established by the Government of Bangladesh in 1990, is a nonprofit organization registered under the Companies Act. PKSF's vision is to achieve a poverty-free Bangladesh through inclusive, equitable, and sustainable development, ensuring all citizens lead healthy, empowered, and dignified lives. The organization adopts a holistic approach to poverty alleviation, integrating climate change adaptation and mitigation into its diverse programs and projects.

Operating with legal autonomy, PKSF independently implements nationwide initiatives and collaborates with a wide range of partners, including NGOs (Partner Organizations), government and semi-government agencies, voluntary groups, and local institutions. PKSF employs various financial instruments—such as grants, credit, savings, and insurance—and focuses on strengthening the institutional capacities of its partners. Its comprehensive services now extend beyond microcredit to encompass training, education, health, nutrition, employment, climate resilience, environmental conservation, and value chain development.

PKSF was accredited by the Green Climate Fund (GCF) in 2017, enabling it to access international climate finance for projects targeting vulnerable communities. In 2024, PKSF received a GCF grant to implement this project and is currently managing the "Extended Community Climate Change Project Drought (ECCCP-Drought)" to address climate impacts in at-risk areas. For the project;

- PKSF is the main ***Executing Entity*** in Bangladesh, responsible for overall project management, coordination, and execution of activities on the ground.
- PKSF identifies target communities (hatis), manages beneficiary selection, and oversees the construction of protection walls, tree plantation, and raising of community spaces.
- PKSF works closely with local partner organizations e.g. TMSS to deliver project activities and ensures that interventions are inclusive, targeting vulnerable groups such as women, disadvantaged households, and the ultra-poor.
- PKSF is also tasked with documenting lessons learned and exploring opportunities for scaling up the project.

In the two Haor flash flood prone Upazila of the "Climate-resilient Infrastructure for Sustainable Community Life in the Haor Region of Bangladesh" Project areas, PKSF has implemented the Climate-resilient Infrastructure for Sustainable Community Life in the Haor Region of Bangladesh Project through 03 (three) Implementing Entities (IEs).

Sl	Name of IE	Working Area	
		Haati	Upazila
01	TMSS	Radhanagar	Jamalganj
02	Padakhep Manabik Unnayan Kendra (PMUK)	Lombabag	Jamalganj
03	Friends In Village Development Bangladesh (FIVDB)	Jaruliya	Derai

4) TMSS:

TMSS has been working in multiple disciplines to solve community challenges including environmental and disaster response. It engaged with PKSF's earlier project called CCCP, which was also a community resilience project and completed successfully in Mymensingh and Extended Community Climate Change Flood Project (ECCCP-Flood) has been completed Gaibandha. Another ECCCP Drought Project is underway in Porsha Upazila of Noagoan district

The project "Climate-resilient Infrastructure for Sustainable Community Life in The Haor Region of Bangladesh project TMSS has successfully completed at Sunamganj District. For the Haor region Promote climate adaptive infrastructural measures, livelihoods, and to improve the biodiversity conservation through sustainable resource management for reducing the adverse impacts of climate change in the haor region of Bangladesh. For the haor project;

- TMSS acts as one of the ***key Implementing Entities / local partner organizations*** (Partner Organization/PO) selected by PKSF to implement project activities at the community level in Sunamganj district.
- TMSS is directly involved in the on-the-ground execution, including constructing the Hati protection walls, planting native trees, and raising the plinths of common community spaces for crop drying and post-harvest management.
- TMSS works with local communities to form groups responsible for maintaining the new infrastructure and ensuring its sustainability.

CHAPTER 2: PROJECT OVERVIEW:

Taking into consideration the vulnerability of the haor residents, PKSF is implementing a project titled 'Climate-resilient Infrastructure for Sustainable Community Life in the Haor Region of Bangladesh.

The project is being implemented at haor area of Sunamgonj district of Bangladesh with a view to protect the villages (Hati) from wave erosion of Afal. The project addresses these vulnerabilities by developing climate-resilient infrastructure and empowering local communities to adapt to changing environmental conditions.

TMSS has implemented the project in Radhanagar Haati, Beheli Union of Jamalganj Upazila at Sunamganj District. All inhabitants of the selected hati areas of intervention are targeted

2.1. Project Goal and Objectives

Project Goal: To improve the climate resilience of selected communities in the haor region of Bangladesh.

Project Objectives: Promote climate adaptive infrastructural measures, livelihoods, and to improve the biodiversity conservation through sustainable resource management for reducing the adverse impacts of climate change in the haor region of Bangladesh.

2.2. Target of the Project:

- Construct flood protection walls to prevent wave erosion and safeguard the Haati.
- Enhance community awareness, resilience; and capacity for climate adaptation
- Raise plinths of community common spaces to protect livelihoods during floods.

- Promote sustainable management of local natural resources and biodiversity Conservation.

2.3. Project Beneficiaries:

Direct: A total of 98 Households (approximately 300 people) and indirectly supporting around 600 community members.

2.4. Project Area

The communities of Radhanagar Haati in Beheli Union, Jamalganj Upazila, Sunamganj District—a prominent part of the Haor region of Bangladesh—face significant socio-economic and climate-related risks and vulnerabilities characterized as follows:

a) Climate Risks and Vulnerabilities

- **Seasonal and Flash Flooding:** The Haor region, including Jamalganj Upazila, is highly prone to flash floods during the monsoon season, largely due to runoff from the Meghalaya hills. These floods cause extensive waterlogging, damaging homes, infrastructure, and agricultural lands.
- **Wave Erosion (Afal):** Villages built on small raised lands (hatis) are vulnerable to wave erosion from rivers and beels, leading to loss of land, damage to houses, and displacement of communities.
- **Waterlogging and Drainage Issues:** Prolonged waterlogging hampers crop production and disrupts daily life, exacerbating food insecurity and economic instability.
- **Climate Variability:** Unpredictable rainfall patterns and extreme weather events such as nor'wester storms (kalhaishakhi) increase vulnerability to crop failure and infrastructure damage.

b) Socio-Economic Risks and Vulnerabilities

- **Dependence on Climate-Sensitive Livelihoods:** Most residents rely heavily on agriculture and fisheries, both highly vulnerable to seasonal flooding, waterlogging, and climate variability, leading to unstable incomes and food insecurity.
- **Limited Economic Diversification:** The lack of alternative income sources increases vulnerability to climate shocks, as crop failures or fishery disruptions directly impact household earnings.
- **Agricultural Dependence with Limited Diversification:** The majority of residents depend on agriculture and fisheries for livelihoods, with 83,668 acres of arable land and significant haor and pond areas for fish production. However, crop production is highly susceptible to flood damage and waterlogging.
- **Poor Rural Connectivity:** Many villages in Jamalganj, including parts of Beheli Union, are disconnected from paved road networks, limiting access to markets, healthcare, education, and emergency services. This isolation increases vulnerability during disasters and restricts economic opportunities.
- **Limited Infrastructure and Services:** Inadequate rural water supply, sanitation, and waste management services compound health risks, especially during floods when waterborne diseases rise.
- **Poverty and Livelihood Insecurity:** Slow socio-economic progress and dependence on climate-sensitive livelihoods make communities vulnerable to shocks. Seasonal floods often

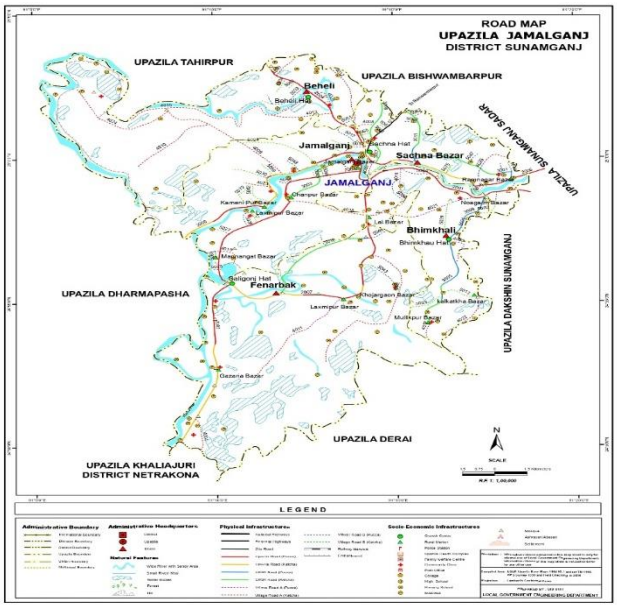
lead to crop losses and reduced income, forcing some migration or distress coping strategies.

- **Disaster Exposure and Impact:** Recurrent flash floods, river erosion, and storms cause damage to housing, infrastructure, and agricultural assets, leading to loss of life, property, and economic setbacks.
- **Social Vulnerabilities and Marginalization:** Marginalized groups, including women, the elderly, and the poor, face greater risks due to limited access to resources, information, and decision-making power in disaster preparedness and recovery.

The communities of Radhanagar Haati in Beheli Union are exposed to complex and interlinked climate hazards—especially flooding and erosion—exacerbated by socio-economic vulnerabilities such as poor infrastructure, livelihood dependence on climate-sensitive sectors, and limited access to services. These factors collectively heighten the risk of disaster impacts and constrain adaptive capacity in this Haor region.

Major Flood Years:

- **1998:** The 1998 flood was a major event across Bangladesh, including Sunamganj, resulting in widespread flooding and damage.
- **2004:** The 2004 flood was another significant event, with Sunamganj being severely affected.
- **2019:** A flash flood in November 2019 also impacted Sunamganj.
- **2022:** 2022 saw a particularly severe flood, with Sunamganj being one of the hardest-hit districts, causing widespread damage and displacement.



- **2024:** the district experienced flooding in June and July, with multiple waves of flooding.
- **Damage:**

  Flooding in Sunamganj has caused damage to infrastructure, roads, bridges, and agricultural lands.
- **Humanitarian Assistance:**

  Floods in the region have led to a need for humanitarian assistance, with many people affected and displaced.

2.5. Project Area Selection process

The total number of direct project participants is 300 people while indirect participating are 300 people in total 600.

Project Participant selection process and criteria:

The "Climate-resilient infrastructure for sustainable community life" project focuses on making communities in Bangladesh's Haor region more resilient to climate change by improving infrastructure and biodiversity conservation. The project selection process involves identifying

areas with high inundation levels and poverty, prioritizing three unions (the lowest administrative units) for small-scale project implementation according to IKI Small Grants. Here's a more detailed breakdown:

1) **Identifying Vulnerable Areas**:
   - The project focuses on the Haor region of Bangladesh, known for its high susceptibility to flooding.
2) **Key factors considered in the selection process include:**
   - **Inundation levels:** Areas experiencing frequent and significant flooding are prioritized.
   - **Poverty situation:** Communities with high poverty rates are also considered, as they are often more vulnerable to climate change impacts.
3) **Selecting Unions:**
   - The project selects three unions for implementing three small-scale projects.
   - A union represents the lowest administrative unit in Bangladesh according to IKI Small Grants.
4) **Project Components:**
   - The selected unions will benefit from projects focused on:
     - **Climate-adaptive infrastructure:** This includes measures like raising plinths (platforms) for drying and harvesting crops and constructing protection walls against flooding **according to PKSF**.
     - **Livelihood improvements:** The project aims to enhance livelihoods by supporting sustainable resource management and promoting climate-smart farming practices.
     - **Biodiversity conservation:** This involves activities like planting native trees and promoting sustainable resource management to protect the region's biodiversity

2.6. Project Outcome: Outputs and Activities

The project activities are based on the following outcomes, outputs and activities.

Outcome	Output/Activity
Outcome 1: Institutions (Implementing Entities) and community groups strengthened their capacity to address climate change	Output: 1.1: **Selection of Hati / Villages** • Activity 1.1.1: Haati Selection • Activity 1.1.2: Prepare Beneficiary's socio-economic profile
	Output 1.2: **Preparation 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 beneficiary's and stakeholders** • Activity 1.3.1: Prepare training plan and organized training sessions for Beneficiaries • Activity 1.3.2: Exchange visit for CCAG members and IEs staff • Activity 1.3.3: Organized 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 Haati from the wave (Afal)	Output 2.1: **Haati Protection Wall** • Activity 2.1: Construction of village protection wall (CC block revetment)
Outcome 3: Erosion induced by strong waves from the Haor is prevented	Output 3.1: **Development of Buffer Zone through Tree Plantation** • Activity 3.1: Tree Plantation
Outcome 4: Drying and harvesting of crops.	Output 4.1: **Community common space plinth raised above flood level** • Activity 4.1: Raised plinths in clusters

CHAPTER 3: IMPLEMENTATION APPROACH

3.1. TMSS Management of the Interventions:

TMSS's ICT and Environment Sector (IES) Chief works as Lead Manager and Focal Person for the project. One Senior program expert is responsible for regular review of the project activities, performance and feedback to the Lead Manager.

Project Implementation Structure and Arrangements:

The project field team is composed of a full time Project Coordinator, a Project Officer (Engineer), two Field Officers and a project officer- Finance. In addition, TMSS established a seven-member *Project Implementation Committee (PIC)* with representatives from Executive Director/ Deputy Executive Director, Finance and Accounts department, Internal Audit and Compliance department, Good Governance Unit, Chief of IES sector, Program Expert and the Coordinator of the project chaired by the Executive Director or Deputy Executive Direct of TMSS. The PIC conducts quarterly meetings and or in regular intervals for reviewing the project progress and advise on management and financial issues if any.

3.2. Overall Approach

This approach combines structural measures with ecological solutions and community participation to build resilience against climate-induced hazards specific to the haor's unique hydro-ecological context.

The overall implementation approach of the project **"Climate-resilient Infrastructure for Sustainable Community Life in the Haor Region of Bangladesh"** is community-focused and infrastructure-driven, aiming to reduce climate vulnerability in the haor area of Sunamganj district. Key elements of the approach include:

- **Targeted Area and Beneficiaries:** The project is implemented in selected vulnerable villages (Haatis) within the haor region, directly benefiting around 98 households (approximately 300 people) and indirectly supporting around 600 community members.

- **Climate-Resilient Infrastructure Development:** The core activities involve constructing approximately 1 km of protection walls around the hatis to prevent wave erosion (afal), planting native tree species alongside these walls to create natural buffer zones, and raising the plinths of three community common spaces to protect crops during floods.
- **Community Engagement and Local Partnerships:** Implementation is carried out through PKSF's selected Partner Organizations (TMSS, FIVDB, and Padakhep Manabik Unnayan Kendra), which work closely with local communities to ensure ownership, sustainability, and maintenance of the infrastructure.
- **Sustainable Resource Management and Biodiversity Conservation:** The project integrates biodiversity conservation by using indigenous tree species for plantation, promoting ecological balance alongside infrastructure development.
- **Duration and Funding:** The project spans two years (March 2023 to February 2025) with a grant funded by the German Federal Ministry for the Environment through the IKI Small Grants Scheme and overseen by GIZ Bangladesh.
- **Goal and Objectives:** The overarching goal is to enhance climate resilience of the selected communities by promoting adaptive infrastructure, sustainable livelihoods, and biodiversity conservation to mitigate adverse climate impacts such as flooding and erosion.

The **project approach** is composed of the following steps;

- **Agreement:** After being selected as an "Implementing Entity", an agreement was signed based on the agreed terms and conditions.
- **Office setup:** TMSS has long-term presence in Jamalganj upazila where serving the community through different projects to support the vulnerable haor people in order to improve the lives and livelihood of the selected working area
- **Staff recruitment:** Through advertisements in local and national-level newspapers, TMSS have recruited individuals who met the specified criteria, particularly those with relevant working experience and a keen interest in working in *haor* areas.
- **Beneficiaries' selection:** TMSS selected project participants based on the approved selection criteria provided by PKSF. It collected lists from Union Parishad, conducted PRA specially FGDs and social mapping, and developed a preliminary list. Afterward, project staff visited individual households assessed the vulnerability and made a final list for project support.
- **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.

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

3.3. Policies and Guidelines

The project strictly followed all guidelines provided by PKSF and of TMSS

1) HR, administrative, and logistics support were planned for project implementation, which included project technical and implementation staff.
2) Conducted project staff training on project implementation approach, monitoring, and result management including climate change, and other social issues.
3) Reporting as scheduled in the project implementation plan, knowledge sharing and learning, case studies etc.

4) External and internal audits were conducted as agreed.
5) All procurements were done strictly following the project procurement manuals.
6) Financial and accounts follows standard manual and acceptable to PKSF and donors.

3.4. Safeguard and Safety Management

The **Safeguard and Safety Management** framework for the Haor project encompasses comprehensive measures to address environmental and social impact assessments, labor and stakeholder engagement, as well as environmental health and safety protocols.

Regarding environmental and social impacts, the project conducts continuous monitoring and documentation of potential effects on the environment, local communities, and stakeholders. This proactive approach enables the early identification of any adverse impacts, followed by the formulation and implementation of appropriate mitigation strategies to minimize negative consequences.

In terms of labor and stakeholder engagement, the project establishes robust communication channels and inclusive consultation processes. This ensures active participation of workers and relevant stakeholders in decision-making, with their concerns and interests duly considered and addressed throughout the project lifecycle.

For environmental health and safety, the project implements stringent measures to identify, assess, and manage risks to human health and the environment. These measures include pollution prevention, adherence to applicable environmental regulations, promotion of sustainable practices, and the provision of a safe and healthy working environment for all project personnel.

Finally, the project ensures full compliance of its Safeguard and Safety Management practices with the project design and guidelines, aligning with the standards set forth by PKSF as well as national laws and conventions.

3.5. Grievance Redress Mechanism

The **Grievance Redress Mechanism (GRM)** tailored for the Haor project was developed to effectively address and resolve grievances, complaints, and concerns raised by individuals or communities affected by the project, ensuring that all issues are managed fairly and in a timely manner. Immediate responses were provided upon receipt of any grievance, followed by a structured consultation process to facilitate resolution. In exceptional cases, actions were taken in strict accordance with established policy guidelines and communicated to PKSF as necessary. The GRM process for the project involved the following key steps:

a. **Submission:** Affected individuals or communities could submit their grievances or complaints to project staff, TMSS management, or PKSF. All submissions were systematically documented.

b. **Assessment:** The project team or designated personnel appointed by TMSS management evaluated the grievances to determine their validity and severity through investigations, site visits, and consultations with relevant stakeholders.

c. **Resolution:** Upon assessment, appropriate measures were implemented to address and resolve the grievances effectively.

d. **Communication:** Throughout the grievance redress process, consistent communication was maintained with the complainants. Regular updates on the status of grievance resolution were provided, and feedback was actively sought to ensure transparency and accountability.

e. **Monitoring and Improvement:** The GRM process was continuously monitored and evaluated to identify any gaps or shortcomings. Lessons learned from grievance management were utilized to enhance the effectiveness of the mechanism and improve future project implementation and stakeholder engagement.

3.6. Monitoring and Evaluation Process

The **Monitoring and Evaluation (M&E)** process of the project involved systematic and regular tracking, assessment, and analysis of project progress, performance, and the effectiveness of field activities. This process ensured that project activities were implemented as planned and that outputs and outcomes were effectively measured and documented.

Monitoring data related to field activities, outputs, and outcomes were collected consistently and submitted into a dedicated software system for reporting and future reference. Evaluation activities were conducted to assess the project's overall performance, efficiency, effectiveness, and the extent to which intended objectives and impacts were achieved. The evaluation also identified areas requiring adjustments or improvements to enhance project outcomes.

The M&E process was structured around the following key steps:

1. **Regular Monitoring:** Timely and systematic monitoring of field activities, with data submitted to the project management software for accurate record-keeping and analysis.
2. **Performance Tracking:** Ongoing monitoring and evaluation against predefined checklists and performance indicators, ensuring timely reporting and accountability throughout the project lifecycle.
3. **Reporting:** Communication of findings and recommendations to all relevant stakeholders, including project managers, donors, and beneficiaries, to inform decision-making and project adjustments.
4. **Assessments and Learning:** Conducting both internal and external evaluations to measure project performance and impact against baseline data, with a focus on identifying good practices, fostering innovation, and promoting continuous learning.

3.7. Gender Consideration

The Haor project adopted a comprehensive gender-sensitive approach that emphasized women's empowerment, gender analysis, gender equality, capacity building, active participation, and climate adaptation. The project integrated gender dimensions to ensure inclusivity, equity, and effectiveness in addressing climate change and disaster impacts.

Gender Dimension and the Role of Women

Recognizing the critical role of gender, the project prioritized female-headed households in flood-prone haor areas, acknowledging women as key agents of climate change adaptation. Women, often primary caregivers and custodians of local knowledge, possess a profound understanding of their environment and natural resources. Their leadership and involvement in decision-making processes enhanced the inclusivity, sustainability, and impact of project interventions.

Key outcomes of this gender-sensitive approach included:

- **Empowerment:** The project fostered women's empowerment by promoting gender equality, increasing their participation in decision-making, and improving their access to resources and services.
- **Resilience:** Leveraging women's intimate knowledge of local ecosystems and their caregiving roles, the project strengthened community resilience to climate change and natural disasters.
- **Effectiveness:** Women's active engagement promoted sustainable practices and effective adaptation strategies, enhancing the overall sustainability of project outcomes.
- **Inclusivity:** The project ensured equitable participation and addressed the specific challenges faced by women, making interventions more inclusive and responsive to community needs.
- **Impact:** By targeting women—who are disproportionately affected by climate change—the project maximized its social and environmental impact.

Climate Change Adaptation Group (CCAG) and Women's Roles

The project established Climate Change Adaptation Groups (CCAGs) through a participatory process involving local communities, with a strong focus on women and other vulnerable groups. These groups operated under a community-led, gender-sensitive framework, prioritizing women's participation in decision-making and implementation of adaptation measures.

This gender-sensitive framework ensured that the Haor project not only addressed environmental challenges but also contributed to social equity and community empowerment, particularly for women.

3.8. Communication and Knowledge Management

The project implemented a comprehensive framework for communication and knowledge management, which included establishing robust reporting mechanisms, developing knowledge products, capturing lessons learned, and formulating a Gender Action Plan. The approach ensures effective communication, continuous learning, and gender-responsive implementation, contributing to the overall success and sustainability of the project.

Communication and knowledge management activities were structured across three key channels: between the Project Management Unit (PMU) and the Implementing Entity (IE), between the IE and project participants, and between the IE and broader stakeholders. The main components of these activities included:

1. **Reporting Mechanisms:** The project established systematic reporting processes to monitor and evaluate the progress of activities. Regular reports were submitted to all relevant stakeholders according to predefined schedules or as required, ensuring transparency and accountability.

2. **Knowledge Products:** A range of knowledge products was developed to enhance the capacity of project participants. These included technical guidelines for constructing protection walls around haatis, raising community common space plinths above flood levels, tree planting protocols, and operational guidelines for Climate Change Adaptation Groups (CCAGs), as well as materials addressing climate change issues.
3. **Lessons Learned:** Throughout the project lifecycle, key lessons were identified, documented, and disseminated. This facilitated adaptive management and ensured the project remained responsive to evolving challenges and opportunities.
4. **Gender Action Plan:** The project operationalized a Gender Action Plan that addressed the constraints and opportunities faced by women and men, thereby ensuring the full integration of gender considerations into all project activities.

3.9. Overall Coordination:

GIZ, PKSF, and TMSS coordinated closely to ensure the success and effective monitoring of the "Climate Resilient Infrastructure for Sustainable Community Life in the Haor Region of Bangladesh" project through a structured and collaborative approach characterized by the following key elements:

1. Clear Roles and Responsibilities

- **GIZ** acted as the financier and overall quality assurance body, applying its internationally recognized quality management system (EFQM-based) and the Capacity WORKS management model to steer the project toward sustainable development outcomes.
- **PKSF** was responsible for monitoring the project's progress on the ground, conducting regular site visits, collecting data, and providing independent oversight to ensure activities aligned with objectives.
- **TMSS** implemented the project activities, managing day-to-day operations, engaging communities, and reporting progress to both PKSF and GIZ.

2. Results-Based Monitoring (RBM) System

- The project adopted GIZ's results-based monitoring framework, which involves systematic data collection and analysis to track progress against defined outcomes and outputs.
- RBM facilitated continuous dialogue among TMSS, PKSF, and GIZ, enabling early detection of deviations and timely corrective actions.
- Monitoring systems were designed collaboratively with partners to ensure relevance and integration into local decision-making processes.

3. Regular Communication and Reporting

- Structured reporting formats and schedules were established, including progress reports from TMSS, monitoring reports from PKSF, and oversight reviews by GIZ.
- Formal and informal meetings, such as coordination workshops and technical group discussions, ensured alignment and addressed operational challenges promptly.

4. Evaluation and Learning

- Mid-term and final evaluations were conducted, often involving external experts, to assess effectiveness, efficiency, and sustainability of project outcomes.
- Findings from evaluations and monitoring were shared among all stakeholders to promote institutional learning and improve ongoing and future interventions.

5. Capacity Building and Joint Problem-Solving

- GIZ provided technical guidance and capacity development support to TMSS and PKSF to strengthen their project management and monitoring capabilities.
- Collaborative problem-solving mechanisms were established to address challenges such as seasonal flooding, logistical constraints, and community engagement issues.

Capacity development workshop

6. Quality Assurance and Accountability

- GIZ's integrated quality management ensured adherence to high standards of service delivery and client satisfaction, with accountability to donors and beneficiaries.
- PKSF's independent monitoring added an additional layer of transparency and verification, reinforcing trust among all parties.

7. Monitoring, Evaluation, and Reporting

- PKSF conducted regular monitoring visits and submitted detailed progress reports.
- TMSS provided timely data and facilitated community feedback mechanisms.
- Final evaluation confirms that project objectives were met with positive impacts on community resilience.
- Regular site visits and progress reviews by PKSF
- Community feedback collected after each major activity
- Final evaluation indicates project objectives met/exceeded

In summary, the coordination among GIZ, PKSF, and TMSS combined GIZ's strategic oversight and quality management, PKSF's rigorous monitoring, and TMSS's effective implementation. This tripartite collaboration, supported by a robust results-based monitoring system and continuous communication, ensured project objectives were met efficiently and sustainably.

CHAPTER 4: PROJECT OUTCOMES AND IMPACT

4.1. Project Outcomes:

(a) Quantitative Outcomes

- Over 300 direct beneficiaries, including women and vulnerable groups.
- Significant reduction in wave erosion and flood damage to homes and agricultural lands.
- Improved water drainage and increased fish availability supporting local livelihoods.
- Five local committees formed for infrastructure maintenance.

(b) Qualitative Outcomes

- Positive feedback from residents on improved safety and mobility.
- Enhanced community confidence in managing climate risks.
- Strengthened local institutions for infrastructure maintenance.

4.2. Case Study

Nazma Begum: Battling the Waves, Building Hope

A Life Shaped by Water and Resilience

Nazma Begum's story begins in 1991, when she and her husband Shafiq Mia settled in the remote village of Radhanagar West Haati, nestled deep within the watery expanse of Shanir Haor in Sunamganj. Their dreams were simple: to build a life through fishing and farming, despite the odds stacked against them.

With little formal education and even fewer job opportunities, Nazma threw herself into the rhythms of rural life. She rented three keyar of land to grow rice, and tended to two cows, a goat, and a handful of chickens. Together, the couple struggled to provide for their three sons and two daughters, their modest income barely enough to cover daily needs, let alone the children's education.

Haor: Land of Beauty and Peril

But in Radhanagar, nature is both a provider and a relentless adversary. Each year, as the month of Baishakh approached, Nazma's heart would fill with dread. The Haor's seasonal floods—fed by torrential downpours from distant hills—threatened to swallow their hard-earned harvest and even their home. Every year, they built makeshift fences from bamboo and chailla grass, hoping to shield their house from the eroding waves, but the protection was always temporary.

To survive, Nazma and her husband borrowed 30,000–35,000 taka annually from local NGOs, repaying the debt with whatever rice they managed to harvest. Yet, when the floods came early or fiercely, the paddy fields disappeared under water, and the family's debts grew heavier.

Enduring Loss, Finding Strength

The monsoon months were particularly cruel. With fields submerged and no work available, the family relied on fishing in the Haor. Some days, the catch was so poor that Nazma had to send her children to bed hungry. Tragedy struck in 2005, when a sudden, violent wave—known locally as afal—claimed the lives of her two daughters. Sometimes, the water surged so high it invaded their home, forcing Nazma and her children to spend sleepless nights, feeling as if they were stranded in the middle of an ocean.

In June 2022, disaster struck again. A prolonged flash flood submerged Nazma's home, washing away her belongings and livestock. Her two cows perished, and the house itself collapsed. Once more, Nazma was left to rebuild from scratch, her spirit tested but unbroken.

A New Dawn: Hope Through Resilience

For years, this cycle of hardship seemed unending. But in 2021, a new chapter began. With support from the German Government's International Climate Initiative (IKI) Small Grants Program, and in partnership with the Rural Working Foundation (PKSF) and TMSS, Nazma's village received a climate-resilient CC Block Revetment wall. For the first time, Nazma could imagine a future free from the annual panic of the monsoon.

No longer forced to take out crippling loans, Nazma could invest in her family's well-being. The sturdy barrier not only protected her home from erosion but also transformed the social and economic landscape of her village. With a clean, safe courtyard, the risk of disease diminished, and the trees planted along the new wall promised fresh air for generations to come.

Today, Nazma Begum's eyes shine with hope. She dreams of peaceful, prosperous days ahead, her family finally able to thrive in harmony with the Haor, rather than in fear of it. Her journey stands as a testament to the resilience of Bangladesh's rural women—unyielding in the face of adversity, and ready to embrace every opportunity for a better life.

4.3. Key Achievements and Outcomes:

The most significant climate resilience improvements achieved in the Haor region of Bangladesh include:

The key achievements and outcomes of the climate-resilient infrastructure project in Radhanagar Haati, Beheli Union, Jamalganj Upazila, Sunamganj District, Haor Region of Bangladesh include:

- **Construction of Flood Protection Walls (Hati Protection Walls):**
  These walls protect villages (haatis) from wave erosion (afal), which is a major threat causing loss of land and damage to homes and crops. The walls reduce erosion and inundation, thereby safeguarding community settlements and agricultural areas.

- **Raising Plinths of Community Common Spaces:** Elevating communal areas used for drying and harvesting crops prevents damage during seasonal floods, ensuring livelihoods and food security are less disrupted by climate variability.

- **Community Capacity Building:** Five workshops were conducted to raise awareness and build local capacity for climate adaptation, strengthening community resilience and empowering local institutions for sustainable infrastructure maintenance.

- **Beneficiary Impact:** The project directly benefited 98 households (approximately 300 people) and indirectly supporting around 600 community members. people in the surrounding areas, improving their safety, mobility, and livelihood security.

- **Environmental and Biodiversity Conservation:** Alongside physical infrastructure, native tree plantations were established beside protection walls, creating buffer zones that reduce erosion and enhance biodiversity in the Haor ecosystem.

- **Plantation of Native Tree Species:** Alongside protection walls, planting indigenous trees creates natural buffer zones that stabilize soil, reduce wave impact, and enhance biodiversity conservation. This nature-based solution contributes to long-term resilience by improving ecosystem health and reducing vulnerability to climate shocks.

- **Enhanced Climate Resilience:** The integrated approach combining structural measures and community engagement significantly reduced vulnerability to flash floods, wave erosion, and waterlogging, contributing to sustainable community life in this highly climate-sensitive region.

- **Promotion of Climate-Smart Agriculture and Livelihood Diversification:** Introduction and adoption of climate-resilient farming practices have helped communities cope with hydro-ecological challenges such as unpredictable rainfall and flooding, improving food security and income stability.

Together, these interventions have reduced vulnerability to flash floods, wave erosion, and other climate hazards, while enhancing biodiversity and sustaining livelihoods in the Haor region

These outcomes align with broader objectives of promoting climate-adaptive infrastructure, improving livelihoods, and conserving biodiversity in the Haor region, as supported by GIZ financing and monitored by PKSF with implementation by TMSS.

Summary Table of Key Activities and Achievements

Activity	Planned Output	Actual Output	Remarks
Construction of flood protection walls (CC block revetement) with thirteen stairs.	505 meters	515 meters	Completed
Raising of community common spaces brick gravity 22.87 meters	1 site (School ground)	1 site (School ground)	Completed

Activity	Planned Output	Actual Output	Remarks
walls with one stair.			
Buffer zones development (Tree plantation)	1400	1400	Completed
Community awareness building workshops	2 workshops	2 workshops	High community participation

4.4. Project Impact:

a) Impact on community resilience and daily life:

The project "Climate Resilient Infrastructure for Sustainable Community Life in Beheli Union's Haor region" significantly enhanced community resilience and daily life in several ways:

- **Protection from Wave Erosion and Flooding:** Construction of flood protection walls around villages (hatis) mitigated the severe erosion caused by afal waves, which previously damaged homes, agricultural lands, and common areas. This infrastructure reduced the vulnerability of compactly built settlements on small raised lands, securing housing and livelihoods.

- **Improved Livelihood Security:** By raising plinths of community common spaces used for drying and harvesting crops, the project minimized crop losses during floods, ensuring food security and stable income for local households.
- **Enhanced Mobility and Access:** The project's infrastructure upgrades improved access to markets, schools, and health services, especially during flood seasons when transportation is otherwise limited. This connectivity fosters economic activities and social inclusion.
- **Community Capacity and Awareness:** Capacity-building initiatives empowered local communities with knowledge and skills to manage climate risks and maintain infrastructure, fostering long-term resilience and self-reliance.
- **Biodiversity Conservation and Environmental Benefits:** Planting indigenous tree species alongside protection walls created buffer zones that stabilize soil, reduce erosion, and enhance biodiversity, contributing to ecosystem health and resilience.
- **Reduction in Disaster Impact:** The integrated approach helped reduce the frequency and severity of flood-related disruptions, enabling communities to maintain daily functions and livelihoods with less interruption.

b) Impact of flood protection walls changing daily life for Beheli Union residents

The construction of flood protection walls in Beheli Union's Haor region brought significant positive changes to daily life for residents:

- **Reduced Flood Damage and Enhanced Safety:** The walls effectively protected villages and agricultural lands from early flash floods and wave erosion, which historically caused extensive crop damage and threatened homes. This protection improved the safety and security of settlements, reducing the risk of loss to life and property.
- **Improved Agricultural Productivity:** With reduced flood risk, farmers were able to cultivate more land and diversify crops, leading to increased agricultural production and income. The cropping intensity and Boro rice production in the area rose substantially compared to pre-project conditions.
- **Enhanced Livelihood Opportunities:** The protection walls contributed to more stable agricultural labor demand and increased wage-based income, supporting local economies and reducing permanent migration by providing safer, more reliable livelihoods.
- **Better Communication and Mobility:** Infrastructure improvements, including embankments and associated roads, enhanced transportation and communication within the Haor region, facilitating access to markets, schools, and health services even during flood periods.
- **Community Preparedness:** The presence of reliable flood protection infrastructure increased community confidence and preparedness for flood events, enabling residents to plan agricultural and daily activities with greater certainty.

In summary, the flood protection walls transformed daily life by safeguarding homes and crops, enhancing agricultural productivity, improving mobility, and strengthening overall community resilience against seasonal floods in Beheli Union's Haor region.

c) Impact of tree planting in strengthening community resilience in Haor

Tree planting to create buffer zone around the haati along with the protection wall plays a vital role in strengthening community resilience in the Haor region of Bangladesh by providing multiple environmental, social, and climate adaptation benefits:

- **Erosion Control and Flood Protection:** Indigenous tree species were planted around vulnerable villages (hatis) to create natural buffer zones that reduce wave erosion (afal) and

protect compact settlements built on small raised lands. These green belts stabilize soil and help prevent the destruction caused by strong river waves, thereby safeguarding homes and agricultural areas.

- **Biodiversity Conservation and Ecosystem Support:** Trees help sustain local ecosystems by providing habitat and food for fauna, supporting biodiversity conservation in the ecologically sensitive Haor wetlands. This contributes to the overall health and resilience of the wetland environment.
- **Climate Change Mitigation and Adaptation:** Tree plantations contribute to carbon sequestration and help moderate local microclimates by providing shade and cooler temperatures, which can reduce heat stress for both people and animals. This enhances the community's capacity to adapt to changing climate conditions.
- **Social and Health Benefits:** Trees improve air quality and create healthier living environments. They also offer social benefits by fostering community engagement in planting and maintenance activities, which build local ownership and awareness of climate resilience.
- **Community-Based Management and Ownership:** The project encouraged formation of community groups responsible for tree planting and care, strengthening local stewardship and ensuring the sustainability of these natural protective measures.

In summary, tree planting in the Haor region acts as a nature-based solution that complements physical infrastructure by reducing erosion, enhancing biodiversity, mitigating climate impacts, and fostering community participation—thereby significantly strengthening the resilience of vulnerable communities against climate hazards.

d) The greatest positive change due to infrastructure upgrades

The infrastructure upgrades under the "Climate Resilient Infrastructure for Sustainable Community Life in the Haor Region of Bangladesh" project led to significant positive changes in several key aspects of community life:

1. Improved Mobility, social connectivity and Access

- Reduced isolation during the monsoon and flood seasons enhanced social connectivity and emergency response capabilities.

2. Enhanced Livelihood Security

- Improved and enhanced livelihood security
- Raised community spaces ensured more crop drying, children sports and playground etc. including schooling of children.

3. Increased Safety and Disaster Resilience

- Flood protection walls and raised community spaces reduced vulnerability to flash floods and wave erosion, safeguarding homes and communal assets.
- Community awareness and capacity building improved preparedness and response to climate-related hazards.

4. Better Health and Sanitation

- Improved infrastructure reduced waterborne diseases often exacerbated by flooding.
- Contributed to better overall community health outcomes.

5. Strengthened Social Cohesion and Governance

- Formation of local maintenance committees and community groups fostered collective responsibility for infrastructure upkeep and climate adaptation initiatives.
- Empowered communities became more engaged in local decision-making and sustainable resource management.

6. Sustained Educational Opportunities

- Reliable access to schools during flood seasons reduced absenteeism among children, supporting continuous education.

In summary, the infrastructure transformed the Haor communities by enhancing connectivity, securing livelihoods, increasing safety, improving health outcomes, and strengthening social structures, all of which contribute to a more resilient and sustainable community life.

CHAPTER 5: CHALLENGES AND LESSONS LEARNED

5.1. Challenges:

- Difficult terrain increased transportation and material costs
- Initial community skepticism about new infrastructure technologies /approaches
- Severe monsoon flooding delayed construction in some areas
- Seasonal floods caused temporary delays in construction.
- Logistical difficulties due to remote location and poor access roads.

Addressing specific challenges face during implementation

The project "Climate Resilient Infrastructure for Sustainable Community Life in the Haor Region of Bangladesh" addressed specific implementation challenges through several targeted strategies:

- **Proper Scheduling and Adaptive Planning:** Seasonal flooding and unpredictable weather caused delays in construction activities. The project responded by adjusting timelines and work plans to accommodate these natural disruptions, ensuring progress continued without compromising quality.
- **Community Engagement and Capacity Building:** Initial skepticism and resistance from local communities toward new infrastructure technologies were mitigated by conducting awareness campaigns and capacity-building workshops. This fostered local ownership and smoother acceptance of project interventions.
- **Resource Mobilization and Coordination:** Difficult terrain and logistical constraints increased transportation and material costs. The project proactively coordinated with local suppliers and optimized resource allocation to manage costs and maintain steady supply chains.
- **Stakeholder Collaboration:** Close coordination between TMSS (implementer), PKSF (monitoring agency), and GIZ (supervion) ensured effective oversight and timely problem-solving, reducing risks related to communication gaps and integration of activities.

- **Risk Management and Contingency Planning:** The project incorporated contingency funds and resource slack to handle unforeseen challenges such as equipment delays or labor shortages, which are common in complex infrastructure projects.
- **Monitoring and Feedback Loops:** Regular monitoring visits by PKSF and feedback sessions with beneficiaries helped identify emerging issues early, allowing the project team to implement corrective actions promptly.
- **Addressing Technical and Environmental Challenges:** Engineering solutions like flood-resistant construction techniques and nature-based interventions (e.g., tree plantations) were tailored to the local ecological context, overcoming technical difficulties posed by the Haor's hydro-ecological conditions.
- **Cultural norms often hindered gender integration** in the project, with male partners sometimes undervaluing women's roles in climate resilience and adaptation.

These approaches align with best practices in project implementation that emphasize adaptive management, stakeholder engagement, resource optimization, and continuous monitoring to overcome common challenges such as delays, resource constraints, resistance to change, and integration difficulties.

5.2. Lessons Learned:

- Early engagement with local leaders accelerates community buy-in
- Early and continuous community engagement fosters ownership and smooth implementation.
- Proper and flexible scheduling is essential to accommodate climatic uncertainties.
- Continuous monitoring ensures timely identification of issues
- Collaboration with local leaders accelerates acceptance and sustainability.

5.3. Lessons learned that can inform future climate-resilient infrastructure projects

Key lessons learned that can inform future climate-resilient infrastructure projects include:

- **Adopt a Development-First Approach:** Integrate climate resilience into broader development goals and planning processes rather than treating it as a separate issue. This ensures infrastructure investments support sustainable development despite climate risks.
- **Build Local Technical Capacity:** Strengthen the knowledge and skills of staff and local institutions, especially related to planning, public works, and emergency management. Empowering local actors through training and peer learning fosters ownership and effective implementation.
- **Engage Stakeholders Early and Continuously:** Tailor engagement strategies to local decision-making processes and priorities, involving government, communities, and the private sector. Private sector engagement requires distinct approaches and can unlock additional resources and innovation.
- **Conduct System-Level Vulnerability Assessments:** Assess climate risks not only at the project level but across entire infrastructure networks to identify critical vulnerabilities and prioritize interventions that enhance system-wide resilience.
- **Develop Practical Tools and Decision-Support Resources:** Equip decision-makers with accessible climate information, risk assessment tools, and frameworks to evaluate adaptation options, enabling informed and transparent choices.
- **Ensure Flexible and Adaptive Implementation:** Design projects with flexibility to adjust to changing climate conditions and unforeseen challenges. This includes flexible scheduling, contingency planning, and iterative learning during implementation.

- **Secure Sustainable Financing and Access to Technical Assistance:** Facilitate access to funding and technical support for adaptation measures through proposal-writing workshops and partnerships, ensuring that promising adaptation options can be realized.
- **Promote Gender Equality and Social Inclusion:** Center gender considerations and vulnerable groups in project design and implementation to ensure equitable benefits and strengthen community resilience.
- **Foster Peer Learning and Knowledge Sharing:** Use peer learning networks to build momentum, share best practices, and create ownership among stakeholders, enhancing the sustainability of resilience efforts.
- **Mainstream Climate Considerations into Policies:** Support the integration of climate resilience into municipal policies, plans, and governance systems to institutionalize adaptation and ensure long-term continuity.

These lessons emphasize that successful climate-resilient infrastructure projects require holistic, inclusive, and flexible approaches that build local capacity, engage diverse stakeholders, and embed resilience into broader development frameworks.

CHAPTER 6: RECOMMENDATIONS AND CONCLUSION:

Suggestions for future actions, improvements, or follow-up projects, drawing from the experience of overcoming challenges and achieving results.

6.1. Sustainability and Exit Strategy

- Measures taken to ensure sustainability of project outcomes: Formation and training of local maintenance committees to ensure ongoing infrastructure upkeep.
- Handover of infrastructure management responsibilities to Beheli Union Parishad and community groups.
- Continued awareness programs to promote sustainable use and climate adaptation practices.
- Local maintenance committees trained and equipped
- Collaboration established with local government for ongoing support
- Community awareness programs to ensure long-term infrastructure use and care

6.2. Scoping of investments in resilient infrastructure projects:

Investments in resilient infrastructure reduce economic losses from climate events by:

- **Minimizing Disruptions to Critical Services:** Resilient infrastructure ensures continuity of essential services like health, education, transportation, and energy during and after climate shocks, preventing costly interruptions that can cripple economies and communities.
- **Reducing Repair and Replacement Costs:** Infrastructure designed to withstand extreme weather—such as floods, storms, and heatwaves—lowers the frequency and severity of damage, cutting immediate expenses for reconstruction and maintenance.
- **Protecting Livelihoods and Economic Activities:** By safeguarding roads, bridges, markets, and utilities, resilient infrastructure supports uninterrupted economic activities, preserving jobs, income, and production levels during disasters.
- **Enhancing Disaster Preparedness and Response:** Investments in resilient infrastructure are often coupled with early warning systems and maintenance programs, enabling faster recovery and reducing long-term economic impacts.

- **Delivering High Benefit-Cost Ratios:** Studies show that every dollar invested in resilience can reduce economic losses by multiple times (e.g., $1 investment yielding $7 in avoided costs), making such investments highly cost-effective.
- **Supporting Sustainable Development and Climate Adaptation Goals:** Resilient infrastructure aligns with global climate commitments, helping countries avoid escalating costs associated with climate change impacts and enabling more stable economic growth.
- **Adding Minimal Incremental Cost:** Building resilience into infrastructure typically adds only a little to total investment costs, a fraction easily recouped through avoided damages and sustained service delivery over the infrastructure's lifetime.

In summary, investing in climate-resilient infrastructure reduces economic losses by preventing damage, maintaining service continuity, protecting livelihoods, enabling rapid recovery, and delivering strong returns on investment, thereby strengthening both community well-being and broader economic stability.

CONCLUSION

The **"Climate Resilient Infrastructure for Sustainable Community Life in the Haor Region of Bangladesh"** project, implemented in Radhanagar Haati, Beheli Union, Jamalganj Upazila, Sunamganj District, has demonstrated significant progress in enhancing community resilience to climate-induced hazards. Financed by IKI, supervised by GIZ, monitored by PKSF, and implemented by TMSS, the project addressed the acute vulnerabilities of the Haor region—one of Bangladesh's most climate-sensitive areas—through targeted, sustainable interventions.

Key Outcomes and Achievements

- **Infrastructure Development:** The construction of flood protection walls and the raising of community common spaces have substantially reduced the risks of wave erosion and flooding, directly safeguarding 98 households (approximately 300 people) and indirectly benefiting around 600 individuals.
- **Capacity Building:** The project invested in building local capacity for climate adaptation, empowering community members—particularly women and marginalized groups—to participate in decision-making and maintenance of new infrastructure.
- **Sustainable Practices:** By integrating tree plantation and biodiversity conservation into infrastructure development, the project promoted sustainable resource management and ecological balance.
- **Community Empowerment:** The participatory approach, with strong involvement of local organizations like TMSS, ensured that interventions were inclusive, responsive to local needs, and sustainable beyond the project's duration.

Addressing Challenges

The project successfully navigated significant challenges, including seasonal flooding, logistical constraints, and the socio-economic vulnerabilities of the Haor region. Its adaptive management and strong stakeholder coordination were critical to overcoming these barriers and ensuring effective implementation.

Broader Impact

The project's achievements go beyond immediate infrastructure improvements. By enhancing climate resilience, promoting sustainable livelihoods, and strengthening institutional capacity, the initiative has laid a foundation for long-term community well-being and adaptation in the face of increasing climate risks. The model established by this project offers valuable lessons for scaling up similar interventions in other vulnerable regions of Bangladesh.

Final Assessment

The Haor project stands as a successful example of integrated, community-based climate adaptation in a highly vulnerable setting. It underscores the importance of multi-stakeholder collaboration, gender-sensitive approaches, and sustainable infrastructure in building resilience and improving the quality of life for at-risk communities.

In summary:
The project has made a measurable and lasting contribution to climate resilience in the Haor region of Bangladesh, offering a replicable model for future adaptation initiatives in similar contexts.

Photo Gallery

	
	Surveying for Infrastructure Desing for PKSF,
	
	
	

	
	
	
	Focus group discussion