Final Evaluation Report of

CHT Climate Resilience (CCRP) Project of SID-CHT

August 2022

D M WATCH

UNDP

Acknowledgments

The final evaluation team would like to thank the many individuals who contributed their time, expertise, observations, and experiences in support of this evaluation and who provided valuable feedback. Numerous contributors at the national, district, Upazila, and union levels enriched the evaluation with their insightful contributions. The team would like to express its sincere appreciation to the United Nations Development Programme (UNDP), CHT Climate Resilience Project (CCRP) team, and officials at the Local Government Institutions who helped obtain a clear understanding of the national perspective. In addition, the project team would like to thank the representatives of three Hill District Councils (HDC) for their assistance throughout the research.

At the Upazila Parishad level, elected functionaries of Upazila Parishad (UzP) such as the Upazila Parishad Chairman, Vice Chairman, and Vice Chairman (Woman), as well as government officials of the UzP level such as Upazila Nirbahi Officers (UNO), and representatives of the extension departments, provided tremendous support to the evaluation team.

The Union Parishad (UP) Chairman, the UP Members, and the UP Secretary made the survey team and evaluation process run smoothly through their generous contributions. With their assistance, the field team could readily identify project locations and examine the project intervention in detail.

Last but not least, the research team extends its deepest appreciation to every respondent who generously contributed their time to ensure the evaluation's success.

Project and evaluation information details

Project/outcome Information		
Project/outcome title	CHT Climate Resilience Project (CCRP)	
Atlas ID	00110466	
Corporate outcome and output	**Outcome:** Improved community livelihoods and watersheds that are resilient to climate change **Output 1:** Community Climate Vulnerability Assessments and Climate Responsive Local Resilience Plan developed in identified project locations. **Output 2:** Resilient livelihoods are implemented for vulnerable communities for climate change adaptation **Output 3:** CHT institutions and leaders are able to promote resilience building actions	
Country	Bangladesh	
Region	Chittagong Hill Tracts (CHT)	
Date project document signed	09/04/2018	
Project dates	**Start**	**Planned end**
	March 2018	September 2021
Total committed budget	**DKK 20 million**	
Project expenditure at the time of evaluation	**DKK 20 million**	
Funding source	**DANIDA**	
Implementing party[1]	**Ministry of Chittagong Hill tract Affairs (MoCHTA)**	

[1] This is the entity that has overall responsibility for implementation of the project (award), effective use of resources and delivery of outputs in the signed project document and workplan.

Evaluation information		
Evaluation type (project/ outcome/thematic/country programme, etc.)	CHT Climate Resilience Project	
Final/midterm review/ other	Final Evaluation	
Period under evaluation	**Start**	**End**
	2018	2022
Evaluators	DM WATCH	
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Evaluation dates	**Start**	**Completion**
	January 2022	August 2022

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Published by

Disaster Management Watch (DM WATCH)

Shatabdi Haque Tower (3rd Floor), 586/3, Begum Rokeya Sharoni, Dhaka 1216

Email: info@dmwatch.com or disastermanagementwatch@gmail.com

Website: www.dmwatch.com

Suggested Citation

Rahman, Md. A.,Salman MHR., Sayeed, F. M., Jeris, S. S. & Hassan, M.T. (2022). *Final Evaluation of CHT Climate Resilience (CCRP) Project of SID-CHT*, Dhaka: DM WATCH.

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List of acronyms and abbreviations

AFSP I	Agriculture and Food Security Project Phase I
AFSP II	Agriculture and Food Security Project Phase II
BARI	Bangladesh Agricultural Research Institute
BDT	Bangladeshi Taka
BHDC	Bandarban Hill District Council
BTOR	Back to Office Report
CCRP	CHT Climate Resilience Project
CCVA	Community Climate Vulnerability Assessment
CHT	Chittagong Hill Tracts
CHTDF	Chittagong Hill Tracts Development Facility
DAE	Department of Agricultural Extension
DLS	Department of Livestock Services
DoF	Department of Fisheries
DANIDA	Danish International Development Agency
DO-CCRP	District Officer-CCRP
DKK	Danish Kroner
DQA	Data Quality Assessment
FGD	Focus Group Discussion
FF	Farmer Facilitator
FFS	Farmer Field School
GoB	Government of Bangladesh
GPS	Global Positioning System
HDC	Hill District Council
HH	Household
IFM	Integrated Farm Management
IFM-FFS	Integrated Farm Management-Farmer Field School
KHDC	Khagrachari Hill District Council
LRP	Local Resilience Plan
M&E	Monitoring & Evaluation
MoA	Ministry of Agriculture
MoCHTA	Ministry of Chittagong Hill Tracts Affairs
MT	Master Trainer
NGO	Non-Government Organization

RHDC	Rangamati Hill District Council
SID-CHT	Strengthening Inclusive Development in Chittagong Hill Tract
SRDI	Soil Resources Development Institute
ToT	Training of Trainers
ToR	Terms of Reference
USD	United States Dollar
UNDP	United Nations Development Programme

Executive summary

Evaluation Background and Objectives

CHT Climate Resilience Project (CCRP) has been implemented in ten Upazilas across the three hill districts of Rangamati, Khagrachari, and Bandarban. The project ran from March 2018 to June 2021. The project aimed to make a tangible contribution to consolidating the gains of the Peace Accord by promoting socio-economic opportunities for men and women (at least 50 %) among the target communities and by contributing to the strengthening of the CHT decentralized governance — a key feature of the CHT Peace Accord.

The overall objective of the evaluation was to document achievements, analyse the outcomes and impact of the CCRP project since 2018. Based on this, the evaluation prepared recommendations for future programs.

This evaluation followed a mixed-method approach to combine both qualitative and quantitative methods. A multi-stage sampling technique was followed to collect the quantitative data. The evaluation covered all the ten Upazilas where the project had intervened under the three districts.

The data collection of this endline study was conducted from 16 March to 29 March 2022. For quantitative information, a total of 1648 household surveys were carried out with community people. To collect qualitative data, the evaluation team carried out focus group discussions with Climate Resilient Committees (CRC) in the communities and interviewed government and project officials.

The report is divided into four sections. Section one discussed the detail of the background, objectives, and overview of the project activities. Section two elaborated on the methodology of the study. Section three contains the findings of the qualitative and quantitative surveys. Section four consists of the conclusion and recommendations as per the findings.

Key Findings from the Evaluation

Relevance

The Bangladesh government's vision is to end poverty and ensure economic and social security for all. To achieve this, Bangladesh's Climate Change Strategy and Action Plan call for an inclusive Climate Change Management Strategy that prioritizes adaptation and disaster risk reduction while addressing low-carbon development, mitigation, technology transfer, and global finance mobilization. This evaluation found that the project design for the CCRP is largely aligned with the targets set in the action plan following the SDG goals. CCRP's interventions directly align with SDG target 1.5, 12.2, 13.b, 15.1, 15.2, 15.4, 15.9, and 17.7.

The CCRP project was also aligned with the UNDP’s Bangladesh Country Programme 2016-2021 and the Denmark-Bangladesh Country Policy (DBCP). The CCRP project closely followed the country program in terms of intervention selection, output and outcome design, and so on. The development of local-level climate change resilience plans, in addition to existing village planning, was supported by climate resilience engagements, as well as general capacity building for Union Parishads (UPs). The UPs were chosen for their unique challenges, including flood protection, climate-proofing water and sanitation, and livelihood resilience in the Chittagong Hill Tracts.

The theory of change assumes that the project beneficiary would begin implementing climate-resilient schemes and adaptations through Local Resilience Plans (LRPs) after conducting a climate change vulnerability assessment and developing climate-responsive LRPs in identified watersheds with critical

assistance from Hill District Councils, partner non-governmental organizations, and UNDP. Taking this proactive theory into account, this project's activities align with the Country Program's long-term change theory.

The CCRP project adopted lessons learned from other relevant projects in the area. For example, it had adopted the rural participatory approach from Climate Change Adaptation Pilot Project (CCAPP) (July 2013–June 2014) which had maintained the participatory approach but shifted the focus to rural infrastructure adaptation in response to climate change. Another Climate Change Adaptation Project (July 2014–June 2016) took a similar approach, but focused more on upgrading, constructing, and maintaining climate resilient and sustainable rural roads. In addition to that, this project utilized Para Development Committees which were mobilized through other development projects by UNDP in this region to raise awareness. Through the PDCs this project conducted Community Climate Vulnerability Assessments (CCVAs), and developed and implemented Local Resilience Plans (LRPs).

Effectiveness

Outcome: Improved community livelihoods and watersheds that are resilient to climate change

The results indicated a positive gain in all the components of livelihood including human, social, natural, physical, and financial assets. Through the LRP schemes, 99.81 percent of households in targeted communities were able to improve their livelihoods. Comparison between the treatment and control group households revealed that the beneficiary households had a better hold of the livelihood assets. Although positive trends were observed, no differentiated livelihood analyses were carried out to concretely measure the outcomes due to the lack of baseline information.

Output 1: Community Climate Vulnerability Assessments and Climate Responsive Local Resilience Plan developed in identified project locations

Through inception meetings with community people, the project team formed a Climate Resilient Committee (CRC) for each site or watershed. Each committee had a minimum of 11 to a maximum of 13 members (45% women participation ensured) with representatives from 5 to 6 nearby villages. The project carried out several training sessions (31 batches, 472 participants- male 209; female 263) for CRC members on Community Climate Vulnerability Assessment (CCVA) and Local Resilience Plans (LRPs), and, project formulation. All the communities under this study had confirmed that their community participated in the CCVA process. Furthermore, women were particularly very active due to their leadership role in the CRC committee and the implementation process. Out of the CRC members who were surveyed, 71 percent were male, and 29 percent were female. Among them, 98 percent (N=97) reported that they had participated actively in the implementation of the LRP schemes. The committees had a fixed criterion of female members to serve as president and as treasury officer, according to their accounts. Serving as presidents in the CRC committees, female members had greater influence in the decision-making process.

Through the CCVA process, Local Resilience Plans (LRPs) were developed in the project areas. These plans included a land-use plan of the selected area, climate change adaptation activities, and soil and water conservation. Within 2020, the project team has conducted all 20 community vulnerability assessments. The respondents of the evaluation had also confirmed this, with around 98% (N=614) of the respondents could recall that their communities developed the LRP following the CCVA process.

Output 2: Resilient livelihoods are implemented for vulnerable communities for climate change adaptation

Both the qualitative and quantitative findings illustrate that the project was able to build resilient livelihoods around the targeted communities. The project interventions have raised awareness among the community people and were able to put a halt to the local practices that were harmful to the environment. The project had also built linkages with the government line departments which supported the community in improving their livelihoods. The water supply facilities and the solar-powered irrigation pumps established by the project under the LRPs were able to address the issue of water shortage to some extent. Local resilience plans (LRPs) were prioritized and implemented in the communities. The Climate Resilient Committee (CRC) members were involved in the implementation process of the LRP schemes. Out of the 97 CRC members surveyed, 98 percent reported that they had actively participated in the LPP schemes. Additionally, all of the female CRC members (N= 29) who were surveyed shared that they had actively participated in the implementation of the LRP schemes.

Among the watersheds covered by this study, 100 percent of the communities have shared that prioritized and selective risk reduction actions were implemented in their community. These risk reduction actions included dam construction for irrigation, mixed fruit gardening, afforestation, setting up water supply facilities, rainwater harvesting, repair roads, setting up solar lamp posts, and use of agri-machineries. The results showed that the project was able to meet the target (80%) for this indicator.

Moreover, the community people were now more capable of identifying climate change-related hazards and associated risks in their communities. Around 84 percent (N=1045) of the beneficiaries were able to perceive different levels of risk their community faces. Whereas nearly 55 percent (N=1045) reported feeling “moderate risks”, nearly 21 percent (N=1045) informed feeling “high risks” and around 18 percent mentioned feeling “Low risks”, while 16 percent (N=1045) reported being unable to determine the level of risks. To gain a better understanding of respondents’ risk perception capacity, respondents were asked to rank risks under three risk categories (High, Medium, and Low), and approximately 8% of the respondents were unable to classify the risks.

Output 3: CHT institutions and leaders can promote resilience-building actions

The strengthening of the institutional capacity led to increasing support for the community people. The Hill District Councils (HDC), Upazila Parishad, Union Parishad along with other local CHT institutions provided technical or financial assistance to all the beneficiary communities of the project. A transparent and smooth relationship between the community and local government is expected to continue to secure livelihood.

According to the assessment, around 47 percent (N=1045) of beneficiaries reported that their community received technical assistance from Hill District Council (HDC). Out of the surveyed communities, at least one respondent out of the community reported having received at least one type of assistance from the CHT institutions. The findings from the end line study indicate that 100 percent of the communities have been supported by the CHT institutions in the targeted communities. The end line target for this indicator was 50 percent.

Efficiency

This study used the DFID-developed 4E framework to evaluate the projects' value for money. DFID defines Value for Money as a balance of economy, efficiency, effectiveness, and equity. The project achieved very good “Value for Money” in terms of effectiveness, with a VfM value of 2.7 (out of 3). The VfM value for "Equity" was 2.6 (out of 3) and the project appears to have excellent VfM value in the “Economy” component with a perfect score of 3 (3 out of 3). Lastly, the project scored 2.8 (out of 3) for “Efficiency”.

The evaluation examined whether the project's implementation strategy was well-executed and found that the project planned and executed activities according to the above strategies. The project was completed on time and on budget, according to the completion report. It was difficult to transport materials in these areas, which increased the cost of day laborers, requiring them to spend more than budgeted. In addition, due to the Covid-19 situation the funding for project activities were relocated for pandemic measures. According to the completion report, the project received 2261598 USD in total, with only 316261 USD allocated to COVID 19 measures. Concerning the project's timeliness, the study found that most of the activities were completed on time, with some exceptions. For example, a Bandarban project official explained that the covid-19 pandemic hampered the project's progress as some of the planned activities had to be paused for a while.

Sustainability

The project as a whole involved a diverse range of stakeholders in a variety of activities and interventions. Apart from involving them, a critical component of fostering sustainability among stakeholders is instilling a sense of ownership. This evaluation found that the CCRP project has succeeded in instilling a sense of ownership in many project beneficiaries and institutions.

The evaluation held focus groups with CRC members in three CHT districts. Participants in Focus Group Discussions expressed high confidence in the project's outcome's sustainability. With the help of the paddy farmers, they formed a subcommittee to save money and repair any problems with future schemes (like solar panels, machines, or irrigation pumps).

In the Chittagong Hill Tracts, intensive agriculture, illegal logging, road construction, and unsustainable slash and burn practices are stressing the remote hills. However, CCRP successfully mitigated the above risks. Mitigation measures included hiring locally, aligning with both local and national structures (where they differ), and using local focal points to manage community contacts. Concerned about political unrest, the UNDP has developed emergency procedures and risk mitigation. The CHT Climate Change Resilience Project also involved communities and traditional leaders in identifying advocacy inputs and coordinating resource management.

Coherence

The project was managed by UNDP through the Chittagong Hill Tracts Development Facility (CHTDF), which also manages SID-CHT. DANIDA / Embassy of Denmark participate in NSC meetings to review the progress of the SID-CHT project signed between the Government of Bangladesh and UNDP. The NSC is chaired by the State Minister of CHT Affairs and meets twice a year to discuss project progress, provide guidance, and approve reports. Aside from the NSC, DANIDA holds progress reviews every six months. DANIDA also monitors the project's results on the ground.

The project was managed by a project manager. The Country Office Senior Management Team (SMT) was in charge of implementation and assurance. The SID-CHT Livelihood and Natural Resource Unit coordinates and manages all DANIDA-funded actions. The LRPs were developed in collaboration with NGOs and Union Parishads. Hill District Councils, Upazilas, and Union Parishads endorsed the LRPs' plans.

The project's Climate Resilient Committees (CRC) acted as a bridge between the community, local government, and the project team. They were vital in maintaining synergies among the various development actors. The CRC members shared that they were able to lead overall project implementation, management, coordination, monitoring, and community follow-up. They had been consulted before the project began. This project has developed a concrete system for developing and implementing LRPs. This system is built from the ground up with community input.

In the CHT region, few NGOs were directly involved in climate change and community-based resilience-building programs. The process of developing participatory local resilience plans (LRP) is new here. The long-term effects of such a strategy are unknown. To create these plans, the project team worked with local NGOs. Success requires the combined efforts of donors, NGOs, and other organizations. However, the project lacked concrete coordination mechanisms to focus development partners' efforts on climate resilience. The project planned regional and national seminars/workshops/policy dialogues on environmental change (with an emphasis on CHT), but was postponed due to the Covid-19 situation.

The evaluation found strong synergies among UNDP's regional projects. The CCRP project is part of the UNDP-funded Strengthening Inclusive Development in Chittagong Hill Tracts (SID-CHT) initiative. A number of other components of the SID-CHT project are being implemented concurrently throughout the CHT Region. This project coordinated with the ongoing Agriculture and Food Security Project III (AFSP III), particularly in terms of Farmers' Field Schools and identifying and responding to climate risks. Similarly, appropriate links were formed with the CHTWCA, through which training in climate change and integrated watershed management was provided to community stakeholders as well as Forest Department field workers

Impact

The project leveraged institutional, agency, and donor support and introduced new technologies and products that improved the community's livelihoods. The participatory local resilience plans (LRPs) will be very useful to communities in the coming years. The project team worked with Bangladesh's Union Parishads, the smallest rural administrative and local government units. They also worked with the community through the CCVA process to identify climate vulnerabilities and prioritize risk reduction plans. These plans were approved by the Union Development Coordination Committee (UDCC) under Union Parishad Chairman. The Union Parishads are expected to adopt the other LRPs for the Bangladeshi government's Annual Development Programme (ADP). The Upazila Parishads and Hill District Councils will help implement the LRPs. The HDCs will receive grants to implement LRP. So, even after the project, local government divisions can continue to develop LRPs for communities. This will affect the entire CHT region.

The output results indicated that the project had improved the lives of the people and their communities. In some cases, the program's impact went beyond the immediate project participants. Some of these impacts were captured through the detail case studies depicted in this report. Nevertheless, the constraints in each district were distinct, which explains some of the differences. Also, policy reforms require a longer time horizon to germinate.

The project intervention has largely solved the acute water crisis in the targeted communities, according to the study's qualitative findings. The installation of water supply facilities and solar-powered irrigation pumps has benefited the community.

1 Introduction

1.1 Background of the assignment

The Chittagong Hill Tract (CHT) is a place where a number of ethnic groups reside. The Chakma, Marma, Pankho, Khumi, Lusai, Murong, Bonojog, Tanchanya, Khyang, Tripura, and Mro these ethnic groups have more in common with other Sino-Tibetan people living in Myanmar and the Indian states of Tripura and Mizoram than with Bangalis (Bengalis), who make up the majority of Bangladesh's population[2]. The CHT covers an area of about 13,344 sq km, approximately one-tenth of the total area of Bangladesh covering a population of 1.58 million. Throughout the early eighties as part of the countrywide administrative reforms the Chittagong Hill Tracts were divided into three individual districts. These are Rangamati, Khagrachhari and Bandarban districts[2]. For decades, ethnic conflict has raged in Bangladesh's Chittagong Hill Tracts, on the country's south eastern border. The conflict arose in response to Pahari's demands for recognition and protection of their traditional territories and autonomy, as well as their opposition to government attempts to assimilate them into the Bengali dominant culture on the mainland[3].

To elevate the political, social, cultural, educational and financial rights and to accelerate the socio-economic development processes of all citizens in CHT, the National Committee on CHT and the Parbattya Chattagram Jana Samhati agreed on 2 December 1997, which is called the Chittagong Hill Tracts Peace Accord, 1997[2]. More than two decades of violence, which ended in a Peace Accord in 1997, have left the majority of its residents in extreme poverty. Furthermore, populations in the region are increasingly experiencing the effects of environmental and climate change on their livelihoods, including deforestation, landslides, seasonal water scarcity, soil erosion, and monsoon flash floods.

Throughout the previous decade, the Ministry of Chittagong Hill Tracts Affairs (MoCHTA) has implemented many projects in three Hill Districts in conjunction with UNDP and other Development Partners. These initiatives' principal interventions focused on improving community stability and assisting communities in developing resilience and collective action. This joint development effort has officially been accelerated by implementation the Strengthening Inclusive Development in CHT (SID-CHT) project. This project's primary outcome is “Citizen Expectations for voice, development, and accountability are met by strengthened institutions to deliver universal access to basic services”.

This outcome of this program has been achieved through some distinct outputs those are Strengthened community land, resource, and livelihood management, Increased participation and influence to shape decision-making, and Democratic governance strengthened with responsive institutions and effective services. Agriculture and Food Security Project (AFSP III) and CHT Climate Resilience (CCRP) are the major two projects has been implemented to meet the outcomes of the SID-CHT project.

[2] *Hossain, D. M. (2013). Socio-Economic Situation of the Indigenous People in the Chittagong Hill Tracts (CHT) of Bangladesh.Middle East Journal of Business, 8(2), 22–30. https://doi.org/10.5742/MEJN.2013.82231*

[3] *Amena Mohsin, The Politics of Nationalism: The Case of the Chittagong Hill Tracts, Bangladesh, Dhaka: University Press Limited, 1997 (Amena Mohsin, The Politics of Nationalism). See also Amena Mohsen the Chittagong Hill Tracts, Bangladesh: On the Difficult Road to Peace, International Peace Academy Occasional Paper Series, Lynne Rienner Publishers, 2003 (Mohsin, On the Difficult Road to Peace).*

1.1 The purpose of the evaluation

The main purpose of this evaluation was to collect the endline data/ information of the CHT Climate Resilience Project (CCRP) to measure the most significant changes and results at the output/outcome level for beneficiaries, institutions, and communities with a focus on the overall implementation process and progress towards project targets. The key findings of this evaluation will be used for future project design and policy implications at UNDP and the Government of Bangladesh.

1.2 Primary audience or users of the evaluation

The primary users of the evaluation results will be UNDP, but the evaluation results will equally be useful to relevant GoB ministries, development partners, and donors. In addition, UNDP will consider all useful findings, conclusions, and recommendations from the evaluation, prepare a systematic management response for each recommendation, and implement follow-up actions as per UNDP Evaluation Resource Center guidance/policies.

1.3 Project interventions under the evaluation

The evaluation assessed the progress of the CCRP project to date and it has evaluated the performance and accomplishments of the project, and looked at the validity of its overall approach and quality; and provided recommendations for adjustments and lessons learned to inform the development of the next phase. The evaluation also placed special emphasis on determining the project's contribution to gender equality, environmental protection, and governance strengthening.

The objective of the final evaluation was to critically assess and identify what has worked well in the project, what obstacles have been encountered, and what lessons have been learned to improve future programming. In addition to generating knowledge for broader application, assessing the feasibility of scaling up the current project, and serving as a quality assurance tool for both upward and downward accountability, the evaluation will generate knowledge for broader use.

This evaluation will provide credible, useful, evidence-based information that will allow UNDP and other key stakeholders to incorporate its findings, recommendations, and lessons into their decision-making processes in a timely manner.

1.4 Description of the intervention

CHT Climate Resilience Project (CCRP) has been implemented in ten Upazilas across the three hill districts of Rangamati, Khagrachari, and Bandarban. The project ran from March 2018 to June 2021[4]. This project had collaborated with local and traditional government organizations to develop skills to support the implementation of community-level resilience initiatives, ensuring long-term sustainability and replication of resilience measures. The Union Parishad, Hill Districts Councils, and CHT traditional institutions (Circle Chief office, Headmen, and Karbaris) are the local bodies The project targeted to support a total of 10,000 people from 100 communities (from 20 specific sites/locations) where communities are relatively exposed to the impact of climate change and facing challenges in improving their livelihoods. 10 out of 26 Upazilas in the CHT were planned to be covered under this pilot initiative[6].

The main objective of this project was to improve the climate resiliency of the community livelihoods and watersheds in the Chittagong Hill Tracts. The project objective has been achieved by a specified outcome: improved community livelihoods and watersheds that are resilient to climate change. The

[4] *CHT Climate Resilience Project (CCRP), Bangladesh.* (n.d.). 27.

major outputs of the project are supporting rural communities and institutions in the CHT to conduct site-specific Community Climate Vulnerability Assessments (CCVAs) and prepare Local Resilience Plans (LRPs), helping communities and institutions to undertake priority actions in identified micro-and small-watersheds emphasizing community resource management of forests, conserving the watersheds including forests and their associated watersheds, and diversifying resilient livelihoods with a focus on improved natural resources-based income-generating opportunities and developing the CHT institutions, leaders, and community's capacity to enable them to fully discharge the expected planning, field implementation, and other responsibilities.

Table 1: Strategy of the project under each outcome

Project outcome and output	Strategy
Outcome 1: Improved community livelihoods and watersheds that are resilient to climate change	✓ The project worked with selected Union and Upazila Parishads to prioritise and mainstream Local Resilience Plans (LRPs) by closely working with Union Development Coordination Committees (UDCCs). ✓ The project supported some of planned activities of LRPs whereas the Union Parishads was approached to include remainder activities under Annual Development Programme (ADP) of the Government of Bangladesh. During the implementation, the Para Development Committees (PDCs), Para Nari Development Groups (PNDCs), and different networks was engaged, wherever existing. The Hill District Councils (HDCs), was engaged to implement the LRPs by supporting the Union Parishads. ✓ Optimization of the project results including benefits to local community and improved management of natural resources for climate resilience was achieved by developing strong linkages and synergies amongst DE2, DE4 and the USAID supported CHT Watershed Co-Management Activity (CHTWCA).
Output 1: Community Climate Vulnerability Assessments and Climate Responsive Local Resilience Plan Developed in identified project locations	✓ Climate change vulerability assessment and resilience analyses was done by local communities who was imparted capacity development under the project and the communities looked at impacts made to their livelihoods by climate and environmental risks. ✓ Based on the findings of the assessments, vulnerable communities: a. identifed and prioritized actions that address the challenges to their livelihoods posed by climate change, particularly the systemic risks threatening the communities' natural resource base and livelihoods (including food security, cash income, social and physical capital); and b. provided communities with skills to develop LRPs allowing them to prioritize, budget and develop a timeline for implementing the communities' climate resilient actions'. ✓ Based on climate vulnerability assessments and risk analyses, resilience/adaptation plans was developed by the community and their leaders who were imparted training of trainers on climate change under the project. Special focus was given to women stakeholders including women karbaries (village head) and other female leaders.

	✓ Lessons learned under Danida supported AFSP (II) and; the USAID supported CHTWCA were taken on board while designing and implementing the training program. Simple but effective environmental and social safeguards were developed as part of climate risk assessment, resilience analyses and planning.
Output 2: Resilient livelihoods are implemented for vulnerable communities for climate change adaptation	✓ The Local Resilient Plan (LRP) covered multiple communities in a selected area and all community leaders/representatives will formed a 'Climate Resilient Committee' (CRC), which lead the LRP development process engaging the community members. ✓ The Union Parishads wer ensaged during development of LRPs and prioritised plans were approved by the Union Development Coordination Committee (UDCC) chaired by the Union Parishad Chairman. ✓ Some of thc LRPs was supported by the project and it is expected that other LRPs will be taken by the Union Parishads to include in regular Annual Development Programme (ADP) of the government of Bangladesh. The Upazila Parishads and Hill District Councils (HDCs) will provide necessary technical supports for implementing the LRPS. ✓ Through labour-intensive but low- capital technology of water and soil conservation. and rainwater harvesting (both on-surface and sub- stirface), the project assisted farmers in small-scale irrigation. ✓ The project helped disseminate relevant weather and climate information by making appropriate connections and communication. Agricultural practices as promoted under CCRP were be linked with such climate efforts. ✓ The grants for LRP implementation were channelled through the HDCs. The HDCs will sign agreement with respective CRCs to receive the grants in their bank accounts through different instalments. The project provided capacity building training to the CRC members in implementing the LRPs and managing fund. The Union and Upazila Parishads will monitor the progress of the LRP implementation.
Output 3: CHT institutions and leaders are able to promote resilience building actions	✓ The project worked with the local and traditional governance structures to build capacities to support the implementation of resilience actions at the community level, thereby reinforcing sustainability and replicating resilience measures at community level. These local bodies are the Union Parishad, Upazila Parishads, Hill District Councils and the CHT traditional institutions (Circle Chief Office, Headmen and Karbaries). ✓ Union Development Coordination Committee that served as a development coordination platform at Union level. More importantly, the priority actions within the communities will be reflected in annual development plans of Union Parishads through the local planning process. ✓ Members of the local bodies with special focus on women and youth received training on risk assessment and planning, watershed management, climate change, etc. enabling them

	to assess and support resilience actions through the local development plans. ✓ Some of the actions identified by the communities through the LRPs were supported through local financing mechanisms in selected UPs in order to institutionalise the climate resilient development planning. As the actions are piloted in selected geographical areas, the lessons learned will be compiled, analysed and made available for dissemination to a wider audience. ✓ The planned actions will be scaled up over time through the forest and resilience components of UNDP-CHTDF, by using funds mobilised from other sources including Government of Bangladesh, bilateral donors and international climate financing facilities. This project was synchronised with the ongoing Agriculture and Food Security Project III, particularly with respect to Farmers Field Schools and climate risk identification and relevant response. Similarly suitable linkages was established with the CI-lTWCA under which training on climate change and integrated watershed management was imparted to community stakeholders and field staff of Forest Department.

2 Evaluation scope and objectives

2.1 Evaluation scope

This evaluation covers the project implementation of this project from May 2018 to June 2021. The evaluation was conducted from January 2022 to March 2022. The evaluation assessed the project's relevance, effectiveness, efficiency, impact, sustainability and coherence in line with the OECD evaluation criteria. The key findings of this evaluation can be used for future project design and policy implications at UNDP and the Government of Bangladesh.

2.1.1 Geographical Areas under the consideration for evaluation

This evaluation focused on the CCRP project implementation areas. The CCRP project covered 10 Upazilas (3 Upazilas in Bandarban, 3 Upazilas in Khagrachari and 4 Upazilas in Rangamati District) in CHT. The evaluation covered all the project areas (3 Upazilas from Bandarban, 3 Upazilas from Khagrachari, and 4 Upazilas from Rangamati). The following table illustrates the study area under consideration for this final evaluation.

Table 2: Geographical coverage of CCRP project evaluation

District	Name of Upazillas
Bandarban district	Bandarban Sadar
	Ruma
	Lama
Khagrachari district	Khagrachari Sadar
	Mahalchhari
	Guimara
Rangamati district	Rangamati Sadar
	Bilaichhari
	Juraichhari
	Barkal

2.2 Evaluation objectives

The specific objectives of the study were:

- ✓ To assess to what extent CCRP has contributed to addressing the needs and problems identified during program design.
- ✓ To measure Impact level changes of the projects.
- ✓ To measure the intended outcomes of the projects.
- ✓ To assess the efficiency and effectiveness of various project interventions and to identify causes of success and/or failure with recommendations.
- ✓ To examine how the initiatives of the projects are mainstreamed in the government process.

- ✓ To measure the value of money.
- ✓ To provide forward-looking programmatic recommendations (for any course correction) to achieve the intended results/outcome.

2.3 Evaluation criteria

The evaluation combined qualitative and quantitative approaches which also included an analysis of context (including conflict assessment). In addition to a desk-based review of documents, the team used participatory tools for qualitative data collection (i.e. field visits, key informant interviews, focus group discussions etc.). This study evaluated the projects based on the OECD framework. Relevance, effectiveness, efficiency, sustainability, impact, and coherence served as the evaluation's criteria. The study addressed all six criteria included in its scope. Each criterion serves a distinct purpose and examines various facets of the project. The following is a summary of the OECD framework. On the basis of the framework's overview, we propose a detailed framework that includes a method of data collection to evaluate the project.

2.4 Evaluation questions

2.4.1 OECD framework

The evaluation focused on six key evaluation criteria: relevance, efficiency, effectiveness, sustainability, impact, coherence of the OECD evaluation criteria and standard methodology utilized by the UNDP Independent Evaluation Office (IEO) Evaluation Guideline.

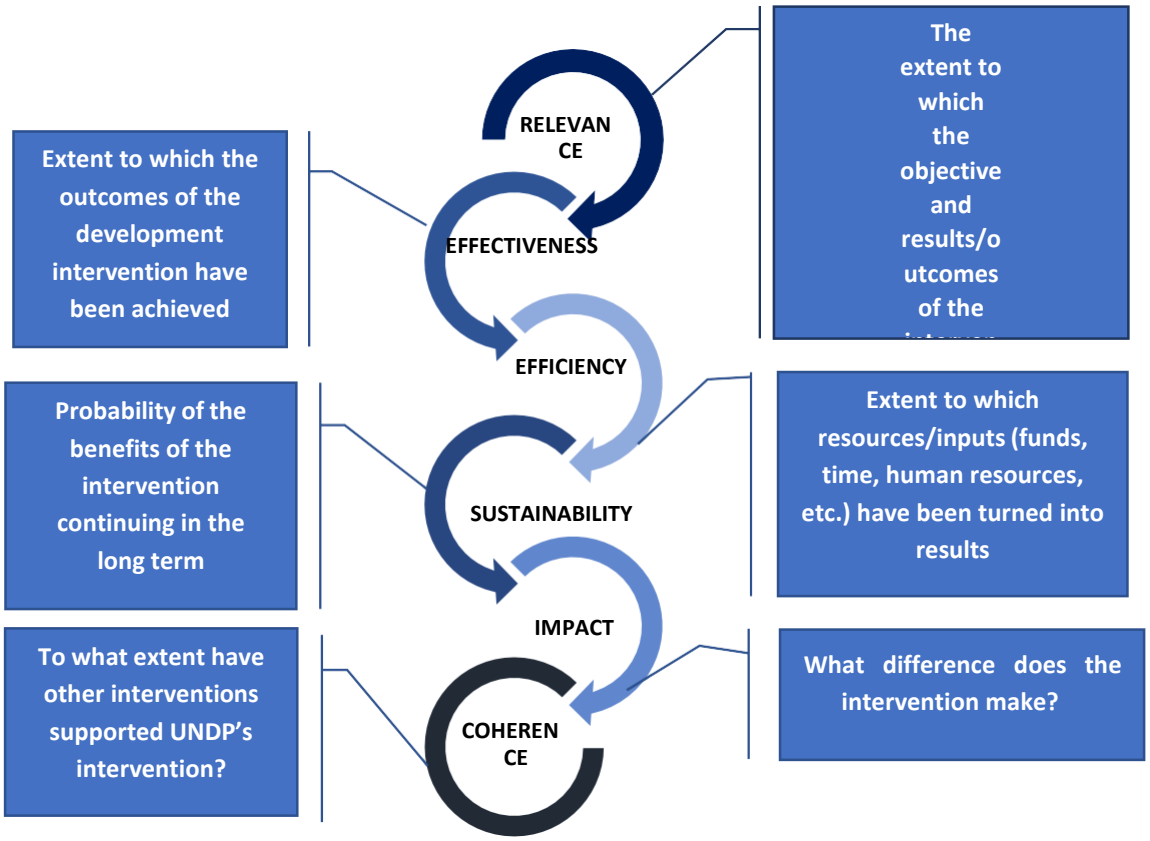

Figure 1: Thematic diagram of the OECD evaluation criteria

2.4.2 Cross-Cutting Issues

Leave no one behind

Through this final evaluation, it was assessed to what extent have the projects' response and recovery initiative(s) been inclusive in supporting the most vulnerable and marginalized group in the implementing area.

Lessons learned

For final evaluation it is significant to consider the lessons learned from the previous terms of the projects so this evaluation focused on the following key questions:

- ✓ What are the lessons that the projects have learned so far?
- ✓ What are the challenges that the projects have faced during their implementation?
- ✓ What measures have already been taken to mitigate those challenges?

Way forward

Based on the achievements to date, this evaluation provided forward-looking programmatic recommendations to the UNDP for its course correction and future programming.

Overall, the final evaluation assessed the results achieved in terms of policy support and institutionalization through interventions over the years. It identified value additions in terms of knowledge /skill enhancement and sharing towards facilitating national resilience focusing on climate change. It also explored the gaps and areas of focus, which need further attention for promoting national resilience. Additionally, this evaluation had a strategic approach to identify potential sectoral collaboration and areas of scaling up that should be taken forward to build a resilient Bangladesh.

Gender and Human Rights-based Approach

The evaluation approaches and methodology considered different groups in the SID-CHT project intervention – women, youth, minorities, and vulnerable groups, Persons with Disabilities (PwD) following the new UNDP evaluation report checklist.

Gender equality

- ✓ To what extent have gender equality and women's empowerment been addressed in the design, implementation, and monitoring of the project?
- ✓ Is the gender marker data assigned to this project representative of reality?
- ✓ To what extent has the project promoted positive changes in gender equality and the empowerment of women? Were there any unintended effects?

Human Rights

- ✓ To what extent have poor, indigenous, and physically challenged women and other disadvantaged and marginalized groups benefited from the work of UNDP in the country?

3 Evaluation approach and methods

To achieve the objectives of the evaluation, the research team adopted a comprehensive methodology in each of the activities, e.g., document review, strong team mobilization, data collection and analysis. A mixed- method design was employed, where both qualitative and quantitative data (both primary and secondary) were collected from the respondents. The following steps were undertaken to conduct the study.

Step 1

- A meeting with the stakeholders of the UNDP team took place in order to discuss and gain an in- depth understanding of the background and objectives of the assignment. Baseline data and relevant information related to the programme were collected which aided the working team in having a deeper understanding on how to carry out the evaluation. A selection of sites to pre-test the tools were decided in consultation with the team.

Step 2

- An in-depth desk review was conducted using programme documents, relevant strategies and guidance from the UNDP, relevant documents from UN organizations and Ministries, and scholarly works.Based on the understanding, the inception report was produced and finalized. In the process of finalizing the documents and deliverable, the feedback from the assignment-commissioning parties was incorporated.

Step 3

- The team designed a detailed set of tools to collect data from different stakeholders. The tools are structured household survey questionnaire, Key Informant Interview (KII) checklist, Focus Group Discussion (FGD) checklist, and Case study guidelines.

Step 4

- After developing the primary quantitative and qualitative tools, a pre-test survey was conducted. The feedbacks from the pre-test were used in the final adjustment of the structured survey questionnaire andqualitative checklists.

Step 5

- A field research team was recruited based on their knowledge of collecting information on a similar study. Also, their prior experience of collecting data on livelihood was given higher consideration.

Step 6

- The primary quantitative data were collected using the household survey. Demographic variables of interest were included, but not limited to gender, age, ethnicity, and differently abled persons. The collected data were disaggregated as much as possible so as to unfold the real picture of the situation.

Step 7

- For qualitative data collection, KIIs, FGDs, and case studies were conducted. The findings from qualitative data were triangulated with the quantitative findings.

Step 8

- Triangulated data were used for in-depth analysis, following a pre-determined analysis plan. The report answered the evaluation questions and objectives in the light of the evaluation criteria.

Therefore, instead of taking the traditional approach, the assignment undertook a holistic approach based on the principles of compliance. The survey design focused on mobilization of inputs in time, completion of planned activities and deliverance of expected outputs and outcomes.

1.1 Workflow

After the inception meeting with the UNDP team, a desk review was conducted with the refined objectives and indicators. The evaluation design matrix was finalized accordingly. Afterward, quantitative and qualitative tools

were prepared, which were fine-tuned using the feedback from the UNDP team and the experience of the pre-test. The fine-tuned quantitative household questionnaire was transferred to a digital data-collection platform, which was pre-tested, debugged, and finalized. Enumerators (preferably local) were employed in the field for collecting primary data. A rigorous quality management approach was followed by field supervisors in the field and field coordinators at the office. Along with that, qualitative data were analysed and triangulated with other secondary data to write the draft report. With the feedback from the UNDP team, the final report is being submitted along with all the cleaned datasets and codes of statistical analysis. The methodological workflow is shown in the following figure:

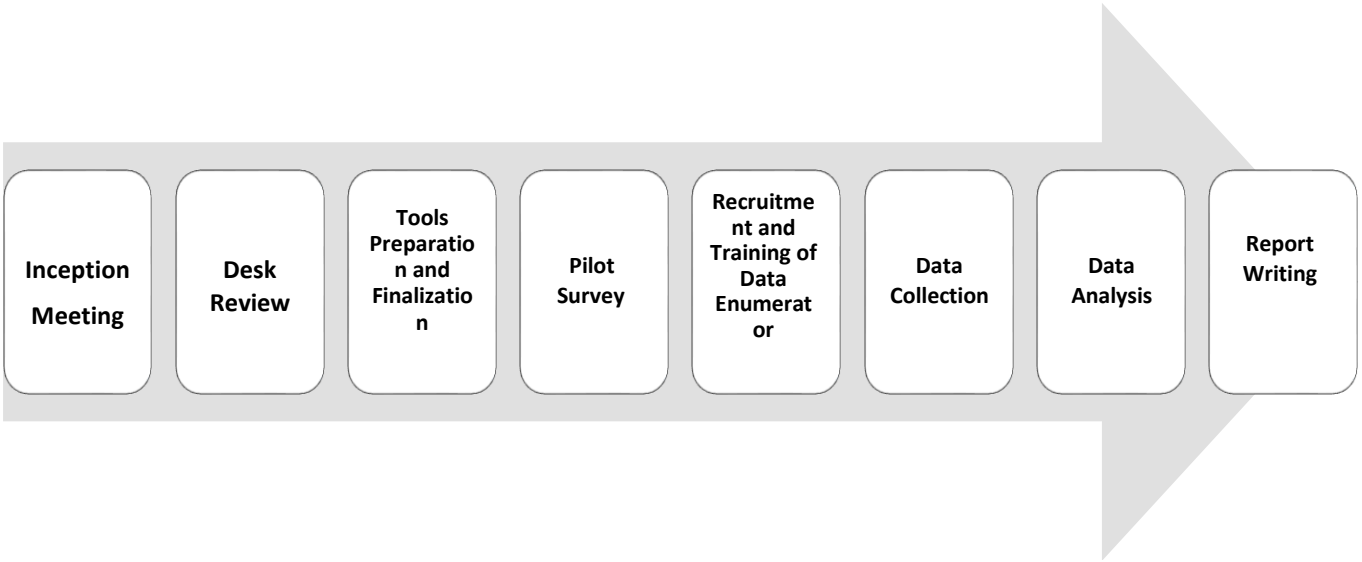

Figure 2: Diagram showing the planned workflow for the evaluation.

3.1 Data sources

For this study, the evaluation team collected relevant information from the Project Document, Annual Work Plans, Financial reports, Event database, M&E plan, periodic progress reports, donor reports, policy documents, produced IEC/BCC materials, facts sheets, case studies, meeting minutes, study reports, baseline report, and any other relevant documents.

For primary data collection, the following sources were included:

- **At the national level:** National Project Director (SID-CHT), Deputy National Project Directors (SIDS-CHT), Staff of Project, Donors, other relevant government as stated in the stakeholder list in *Data collection procedures and instruments* section

- **At the field level:** HDCs, District and Upazila Administration including Deputy Commissioner (DC), Deputy Director (DD-LG), UNO, Upazila Parishads (UZP) Representatives of Upazila Parishads and Union Parishads (UPs), Steering Committee Members, Ward Committee Members, Representative from Department of Agricultural Extension (DAE), CRC members, and project beneficiaries.

3.2 Sample and sampling frame

Quantitative Sampling Strategies for the Combined Study

Quantitative data were collected from two groups, (i) Treatment group (beneficiaries of the project) and (ii) Control group (individuals from non-project areas).

Probability sampling strategy ("Stratified Random Sampling") was used for selecting the respondents from the study area. To get a statistically significant sample size, we used the Cochran's formula.

$$n = \frac{p(1-p)(Z95\%)^2}{(P-p)^2} \ldots\ldots\ldots\ldots\ldots \text{Equation (1)}$$

Where,

P = Proportion to be estimated = 50%, which gives statistically significant sample size

P – p = Margin of error

Z95% = Z-value at the 95% confidence level

n = Sample size

Treatment Group

The treatment groups in a research study are the groups of people who are subjected to some kind of manipulation or deliberate modification in the independent variable of interest. They are an important aspect of experimental study design because they aid in the measurement of effects and the determination of causality (Allen, 2017). In this study, participants for the treatment group were selected from the project areas. The criteria for being selected under the treatment group includes:

- Individuals who have received at least one intervention under the project.

The criteria for the selection of treatment group are illustrated in the following chart: -

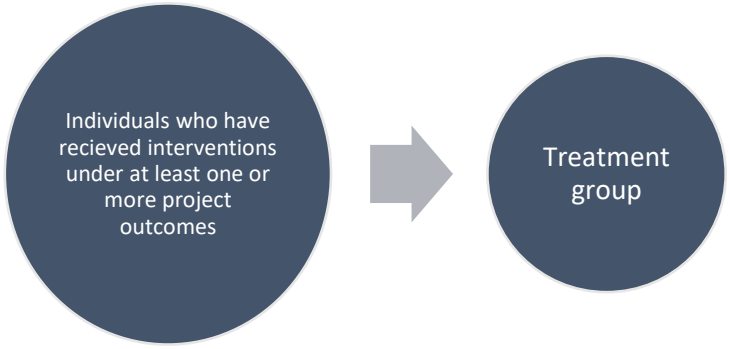

Figure 3: Criteria for Treatment Group

Control Group

The introduction of control groups enables researchers to validate that the study outcomes are the consequence of manipulating independent variables (IVs) rather than extraneous variables (Allen, 2017). For this study, the control group was selected from the same Upazilas and Union Parishads where treatment groups were selected. The control group participants were selected based on some specific criteria:

1. Respondents from the same Upazilas and adjacent to paras/communities where treatment groups were selected.
2. Individuals are not direct beneficiaries of the project.
3. Individual households are not located in the same paras/villages as the treatment groups.

Based on these criteria individual households will be selected for the Control Group.

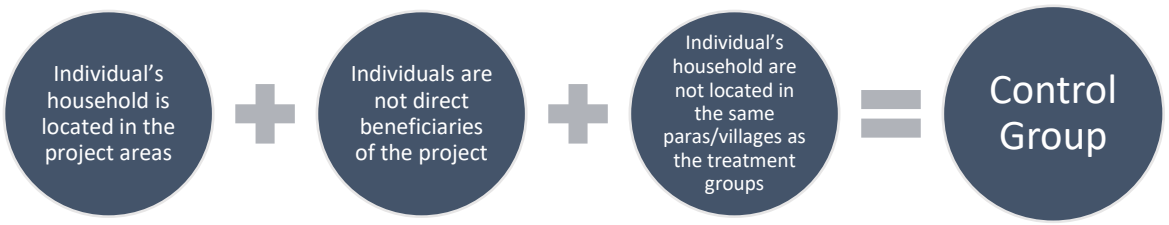

Figure 4: Criteria for Control Group

3.3 Data collection procedures and instruments

Quantitative sample distribution

The total beneficiary number of the CCRP project is 24,892. For the treatment group, substituting the values in Equation 1 with a 95% level of confidence, 3% margin of error and 50% expected prevalence (which will result in estimating the largest sample size for proportion), we get a sample size of around 1024. This number was divided among the respondents of the quantitative study using proportionate distribution among the categories. After proportionately distributing among the categories the total sample size for the treatment group stands at 1040. For the control group, substituting the values in Equation 1 with 95% level of confidence, 4% margin of error and 50% expected prevalence (which will result in estimating the largest sample size for proportion), we get a sample size of around 583. After proportionately distributing the total sample size for the control group stands at 600.

Table 3: Quantitative sampling distribution for the CCRP project

District	Treatment				Control			
	Per Upazila		Total		Per Upazila		Total	
	Male	Female	Male	Female	Male	Female	Male	Female
Bandarban	52	52	156	156	30	30	90	90
Khagrachari	52	52	156	156	30	30	90	90
Rangamati	52	52	208	208	30	30	120	120
Sub-total			**520**	**520**	**Sub-total**		**300**	**300**
Total			**1040**		**Total**		**600**	

Qualitative sample distribution

For qualitative data collection, KIIs, FGDs, case studies, and field observations were conducted with different stakeholders and beneficiaries. The evaluation looked into the positive or negative impacts created on the lives of the communities as well as other relevant stakeholders. The study looked into the policy level implications of the project as well. While conducting the qualitative survey, a maximum saturation of information/data was ensured. The sample was selected purposively to ensure a representative sample for each district. The key stakeholders were mapped after reviewing the project documents including progress reports, annual reports, baseline reports, and so on. A total of 45 KIIs, 3 FGDs, and 3 Case Studies were conducted as the representative qualitative sample for the study. The following table shows the tentative size and distribution of the qualitative surveys.

Table 4: Qualitative sampling distribution

Tools	Level	Stakeholders	Total
KII	District	Department of Agricultural Extension	1×3
		Department of Livestock Services	1×3
		Deputy Commissioner (DC)	1×3
		Deputy Director (DD-LG)	1×3
	Upazila	Upazila Nirbahi Officer	1×3
		Upazila Parishad Chairman	1×3
		Upazila Agricultural Officer	1×3
		Sub-assistant Agriculture Officer (SAAO)	1×3
		Hill District Councils (HDC)	1×3
		Upazila Development Coordination Committee (UzDCC)	1×3
		Implementing Partner Staffs	1×3
	Union	Union Development Co-Ordination Committee (Female UP Ward Member)	1×3
	Para	Headman/karbari/Village Common Forest committee members	1×3
		Master Trainer	1×3
	Project	UNDP CCRP Project Officials	1×3
Focus Group Discussion	District	Climate Resilience Committee (CRC) Representatives	1×3
Case Studies			3

3.3.1 Primary data collection tool

In realization of the project objectives and deliverables of the assignment, a secondary document review, questionnaire survey, focused group discussion, key informant interview and case study were used in this study. Here is a quick glimpse of the strategies-

Table 5: Data collections tools for final evaluation

Tools	Approach	Purpose of the tools	Targeted people
Structured Household Survey	A one-to-one interview with the household members understudy	To understand their resilience capacity, and how the project addressed the issues related to gender equality and the need of the most vulnerable population.	Community People (Women, men, youth, minorities, and vulnerable groups, Persons with Disability -PWD)
FGD	Participatory group activity that includes close interactions with the respondents. FGDs will be conducted with groups consisting of Upazila and Union-level local stakeholders, FFS members, and CRC representatives. Open-ended FGD guidelines will be used for conducting FGD sessions.	To understand the existing gaps in service delivery, implementation mechanisms, and challenges.	Women beneficiaries, local representative Women-led CSOs, Volunteer Group, NGO representatives working at the local level

Tools	Approach	Purpose of the tools	Targeted people
KII	Key Informant Interviews involve interviewing people who have particularly informed perspectives on an aspect of the study. Semi-structured checklists will be used to conduct KIIs.	To better understand the existing gaps, way forwards and recommendations	Government officials, National Programme Coordinator, Programme Coordinator, Project Directors of each sub-project, Project Managers & Technical Specialist, Staff of Programme Coordination, Management Team (PCMT), Donors, and other relevant government stakeholders at the District, Upazila, and Union level.
Case study	A case study generates an in-depth, multi-faceted understanding of a complex issue in its real-life context. Different sorts of tools can be used to identify cases.	To better understand the outstanding success or failure in learning lessons	Community people/program beneficiaries/any outstanding phenomenon.
Physical Observation	LRP sites will be physically observed and activities will be recorded	To find out if the resilience process and measures are in place in the LRP sites. Also, to assess if the resilience of the community has been improved through project intervention in the selected areas.	LRP sites

3.3.2 Pre-test of the tools

After the approval of the quantitative and qualitative tools, the checklist/guidelines were finalized by incorporating the feedback from the UNDP project team. A pre-test of the tools was conducted to discover any challenge to optimize the tools. Based on the mock test and all the incorporated feedback, the tools were fine-tuned for use in the real scenario. Finally, the tools were shared with the project team to get the final approval and updated according to feedback.

3.3.3 Recruitment and training of study team

A field research team was recruited based on their knowledge of collecting information on a similar study. Also, their prior experience in collecting data on livelihood was given higher consideration.

Because the language of the respondents is an important factor in conducting a successful survey, we hired local enumerators who are already well-trained in conducting social surveys. The study team adopted standard training materials used for community surveys for data collector training.

3.3.4 Preparation of field plan and field mobilization

After finalizing the checklists and questionnaires, a comprehensive guideline was developed for the Data Enumerators, Research Associate and Supervisor for conducting (one-to-one) survey questionnaire, FGD, and KII, which specifically described important definitions, and terminology, question objective, data input instructions, skipping, etc. This guideline was easy to use and helpful in the data collection process. As a process of field mobilization, the consultant familiarized themselves with the local authority and project officials. A detailed schedule with date, time and venue was prepared.

3.3.5 Preparing and Finalizing Study Tools

In realization of the project objectives and deliverables of the evaluation, the following data collection instruments were used for qualitative data collection.

a) Secondary document review
b) Structured questionnaire for household Survey
c) FGD checklist
d) KII checklist
e) Physical observation

3.3.6 Selection of the Participants

After getting the beneficiary list, the team leader used simple random sampling to choose the respondents for the treatment group from the beneficiary list according to the groups of respondents. For the control group, individuals were selected based on the criteria (see 2.3.1 for details) and simple random sampling was used. The selected respondents participated in the household survey.

For qualitative sampling, purposive sampling was used to select respondents with whom and FGDKIIs, FGDs were conducted.

3.3.7 Data Collection Process (Digital)

For questionnaire surveys of this study, advanced digital forms were developed in the KoboToolbox for Android using the pre-developed questionnaire. The survey was carried out using a modern tablet-based survey instrument. The system also recorded the geographical location of the beneficiaries (GPS coordinates), which ensured the transparency in data collection method. The GPS coordinate location can be tracked in the web application in real-time. The study team was with the data collection team so that the progress of the data collection team can be tracked in real-time.

Moreover, KoBoToolbox is committed to protecting the data of its users. It employs industry standard best practices (both technical and administrative) to protect against unauthorized access to users' data. To protect from loss of data, it does frequent system and incremental backups which are stored encrypted in various locations.

Although a general practice for building digital forms is to use the defined web-form builders, this approach has many disadvantages. However, unlike others, DM WATCH used the advanced approach using “XLSForm”. XLS Form is a form standard in MS EXCEL that can be converted to an "ODK XLSForm", a popular open form standard, that allows the form developers to author a form with complex functionality like skip logic in a consistent way across a number of web and mobile data collection platforms. Importantly, users can use multiple languages in the same form, which the users/enumerators can switch anytime depending on their needs. This facility reduced the chances of mistakes because of the language barrier. Because a clean dataset can be obtained either in English or in Bangla, it will reduce the amount of time needed for data cleaning significantly. Each Excel workbook usually has two worksheets: "survey" and "choices". A third optional worksheet called "settings" can add additional specifications to the form.

3.3.8 Data Quality Control and Assurance

The study team placed a high priority on the quality of the data. Different quality control mechanisms, illustrated below, will be in place for this study.

3.3.8.1 Quantitative Data Management

Accompany check: In the case of quantitative data collection, Research Associates reviewed the process of the one-to-one interview by accompanying the Research Associates. The schedule for the check was randomly designed and executed.

Daily check: The Research Associates checked the data every day to make sure that the data is entered correctly. Research Associates ran a logical check of the database.

3.3.8.2 Qualitative Data Management

Note keeping: During interviews with the key informants and other stakeholders, Research Associates kept the notes during the discussion.

Feedback: Research Associates discussed with the lead researcher and other members of the research team the findings of the qualitative tools at the end of the day.

3.3.8.3 Data processing

After collecting data from the field, corrupt or inaccurate records were identified from the recordset, table, or database. Consequently, these identified data were referred to as incomplete, incorrect, or irrelevant which will be finally replaced, modified, or deleted.

After cleaning and editing the collected data, a final screening was performed to ensure the usability, reliability, and validity of the testing. Besides, on a need basis, data were transformed into suitable code for computer-aided analysis.

3.4 Stakeholder participation

First, the stakeholders was identified according to their area of benefits from the programme, involvement with the programme and significance of their views about this study. The stakeholders were selected upon their consent, direct or indirect interest. The stakeholders were selected so as to be useful in programme improvements and providing recommendation. Representatives from all the stakeholder groups as mentioned in the ToR such as implementing partners, government stakeholders, community groups, and beneficiaries, were selected without any preconceived bias. Data collection methods will be age and gender appropriate.

UNDP provided DM WATCH the profile and contact info of the stakeholders. DM WATCH planned schedule according to the convenience of the participants by prior communication with them. The tentative schedule were planned and shared with UNDP.

Overall:

- ✓ The study was guided by the principals outlined in the UNEG "Ethical Guidelines for Evaluation"
- ✓ Informed Consent: All participants were informed to provide their consent following standard and pre-agreed upon consent protocols. The surveyor carried consent form and read it out to the respondents. They took permission from the respondents before proceeding with the survey.
- ✓ Systematic inquiry: Researchers conducted systematic inquiries throughout the study.
- ✓ Integrity/honesty: Researchers displayed honesty and integrity in their own behavior, and attempted to ensure the honesty and integrity of the entire survey process.
- ✓ Respect for people: Enumerators respected the security, dignity and self-worth of respondents, program participants, clients, and other survey stakeholders. The Enumerators will obtain the informed consent of participants to ensure that they can decide in a conscious, deliberate way whether they want to participate.
- ✓ Survey respondents did not receive any monetary benefits. Facilitation process will be monitored and equal participation from the respondents will be ensured.
- ✓ All evidence collected from the interviews were held by DM WATCH in the strictest confidence and will not be shared with any other individual or organization. Responses included for the study will be fully anonymized so that the individual concerned cannot be identified.

3.5 Ethical consideration

DM WATCH followed several ethical guidelines-

Participatory: Participatory approach was followed to involve all the key stakeholders of the project.

Inclusive: The study team ensured that people with disabilities and people who may be excluded or discriminated against in their community are included as participants.

Ethical: The evaluation was guided by the principals outlined in the UNEG "Ethical Guidelines for Evaluation" (UNEG, 2020). The evaluation was guided by the following ethical considerations:

- ✓ Sensitive— to human rights, gender, inclusion and cultural contexts

- ✓ Integrity— honest and truthful in communication and actions. Professional, credible and trustworthy behaviour, alongside competence, commitment and ongoing reflective practice. Independent, impartial and incorruptible.
- ✓ Accountability— transparent regarding evaluation, responsive, responsible.
- ✓ Respect— access to the evaluation process and products by all relevant stakeholders, meaningful participation and equitable treatment, fair representation of different voices and perspectives in evaluation products (reports, webinar, etc.)
- ✓ Beneficence— explicit and ongoing consideration of risks and benefits from evaluation processes. Maximum benefits at systematic (including environmental), organizational and programmatic levels. Principal of no harm and evaluation makes an overall positive contribution to human and natural systems and the mission of the United Nations
- ✓ Confidentiality and data protection – measures were put in place to protect the identity of all participants and any other information that may put them or others at risk

3.6 Major limitations of the methodology

Due to the lack of baseline data, no robust analysis such as Difference-in-Differences (diff-in-diff) estimation could be carried out between the respondent groups. Other factors may have been working behind, such as the intervention by other organizations. The casual impact of other factors cannot be established without an in-depth systematic study of the communities. For this reason, the change over time could not be evaluated.

Also, the main outcome of this project was to improve community livelihoods and watersheds that are resilient to climate change. No differentiated analysis could be carried out to measure this outcome level indicator. A differentiated livelihood analysis needs time, financial and human resources. As this study had limited time, DFID's Sustainable Livelihood Framework was used to capture the livelihood improvements among the community people. Development projects often lack these conditions. The claim of being holistic inevitably delivers a flood of information hardly possible to cope with. Additionally, by improving the livelihoods of a specific group a negative effect may occur on the livelihoods of others. This may lead to a normative dilemma on the decision about what to consider with priority. Reducing the livelihood perspective to a methodological tool contains the risk to look at the two things interchangeably.

4 Data analysis

4.1 Triangulation and data analysis

Transcripts were prepared for all the qualitative data. A summary of the transcripts was prepared, to optimize time for report writing and reviewing. The study used data from both secondary and primary sources. Qualitative tools provided the basis for both content and impact analysis. Nevertheless, primary and secondary data (e.g. project related documents) were investigated based on the indicators. To check the overall progress and impact of the project on the beneficiaries, the consultant analyzed both the qualitative and quantitative data to align with the OECD framework. Each of the criteria of the OECD framework have a specific purpose and looks into different dimensions of the project.

Quantitative data acquired through questionnaire interviews were analysed through STATA, SPSS and MS Excel software for cleaning and editing, a final screening was performed which ensured the usability, reliability and validity of data analysis. Besides, data were transformed into suitable code for computer-aided analysis. Both raw data and processed quantitative and qualitative data were saved in CSV and excel (also other formats such as SPSS or STATA) formats respectively to share with the UNDP team. For the final-term evaluation, some descriptive statistical values including frequency counts, contingency tables/crosstabs, percentage, min value, max value, and average were calculated in orderto explain indicators set by the study. The student's t-test was carried out to find out any potential difference between the treatment group and the control group. Also, regression and correlation analysis were shown to figure out the relation among the variables. Quantitative and qualitative findings were triangulated under each indicator, along with the graphical and tabular representation of data. This was helpful in understanding the outcome of each indicator easily.

4.2 Content analysis

To check the consistency of specific and factual data items, the quantitative data collected from questionnaire surveys were triangulated within themselves, and with the qualitative data collected from KIIs, and FGDs. The collected qualitative data/ information was entered into a database and organized by category and informant group under each output for the respective commune. Qualitative data analysis was organized into four steps:

- Preliminary analysis of the findings with a Research Associate who was involved in qualitative data collection in a separate session.
- Thematic coding of data according to content and specific categories.
- Compiling data by themes to systematically analyze qualitative data; and
- Compiling qualitative observations by themes and selecting issues and appropriate quotations.

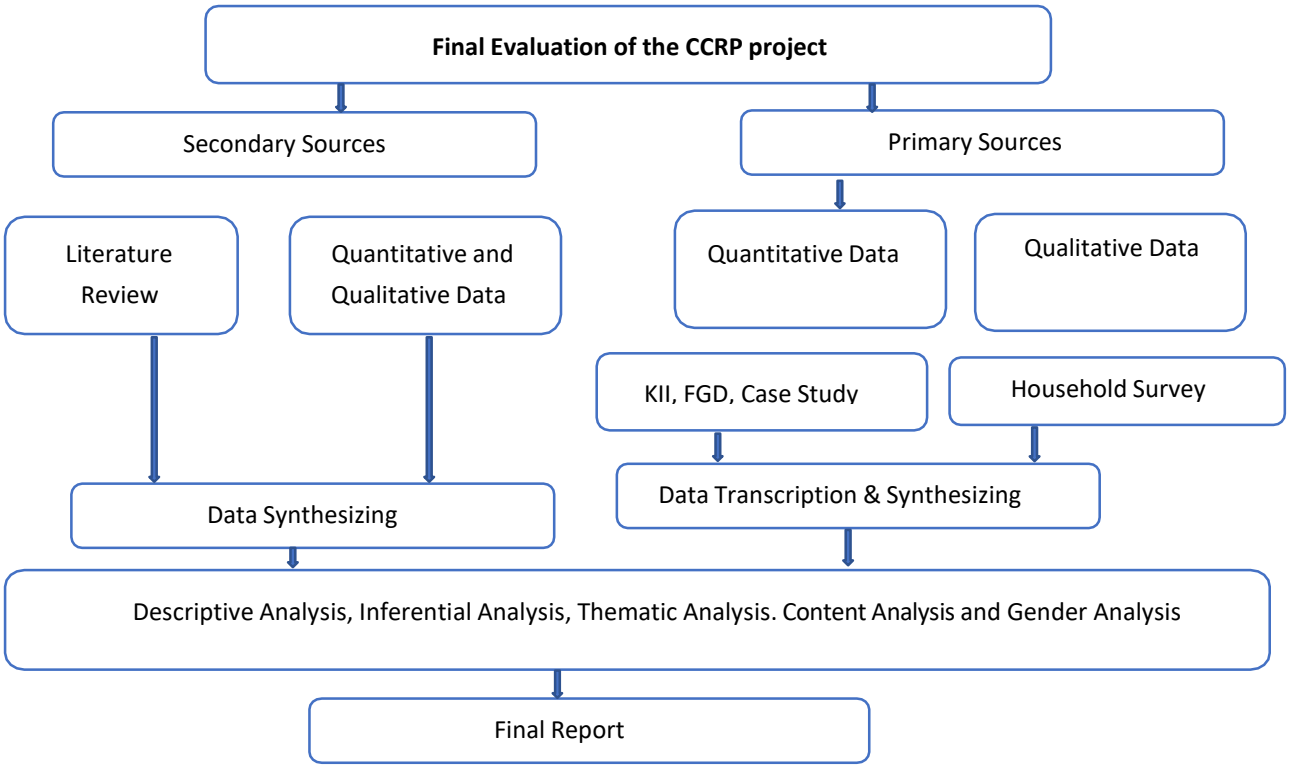

Figure 5: Thematic Diagram of Data Analysis Plan

4.3 Gender Assessment Plan

Gender analysis is a subset of socio-economic analysis to identify, understand, and explain gaps between men and women in households, communities, and countries, the relevance of gender norms and power relations in a specific context. As part of the requirement, the evaluation included an assessment of the extent to which the design, implementation, and results of the project have incorporated a gender equality perspective and rights-based approach. Ignoring gender dynamics undermines the accomplishment of core human rights and fails to recognize the harm done to women and other vulnerable groups. To assess to what extent, have gender equality and the empowerment of women been addressed in the design, implementation and monitoring of the program, the evaluation adopted a gender analysis module prepared by USAID. The study team considered the following for the evaluation.

- Combining qualitative and quantitative sampling methods
- Establishing evaluation teams comprised of both males and females appropriate for the cultural context and data being collected
- Ensuring that samples consist of both men and women and/or boys and girls as appropriate to the evaluation questions
- Including relevant evaluation questions

The study team also followed the Harvard Gender Analysis framework (March, Smyth, & Mukhopadhyay, 1999) to carry out a gender analysis.

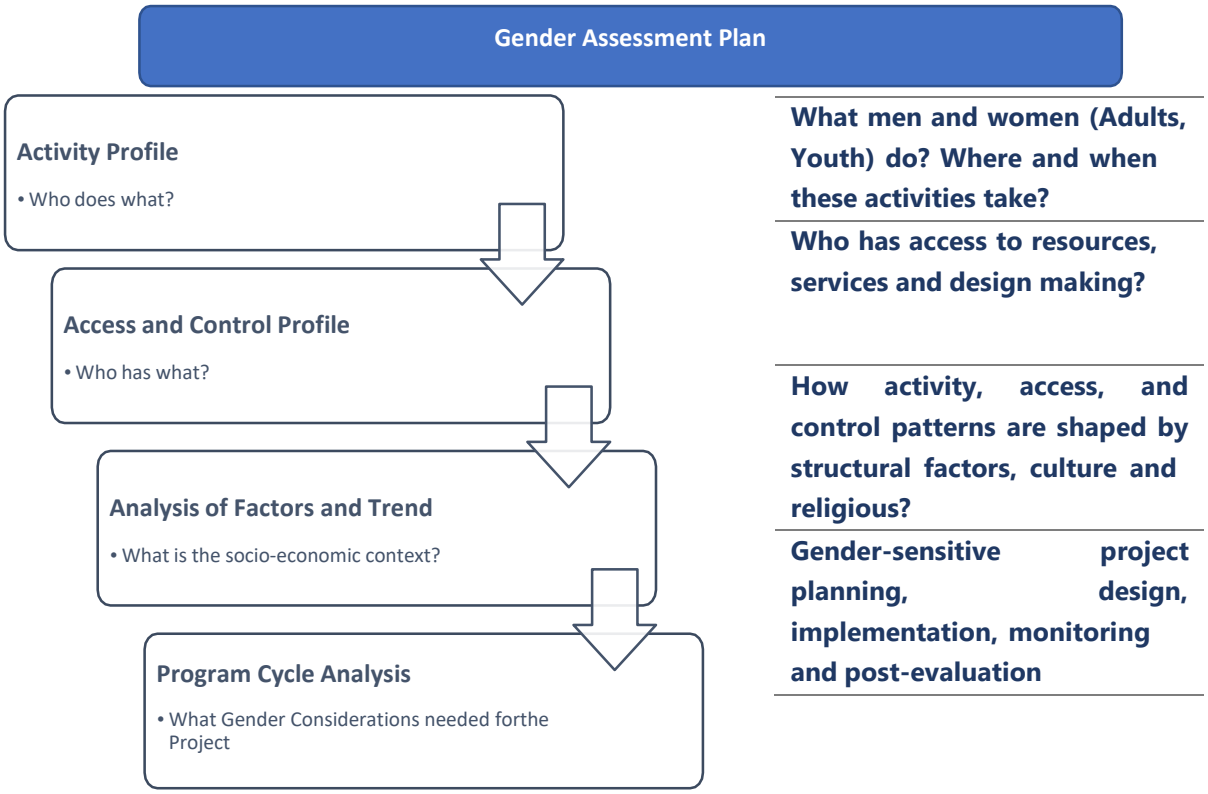

Figure 6: Thematic Diagram showing Gender Assessment Plan

5 Findings

Findings are presented as statements of fact that are based on an analysis of the data. They are structured around the evaluation questions so that report users can readily make the connection between what was intended and what was found. Variances between planned and actual results are explained, as well as factors affecting the achievement of intended results. Assumptions or risks in the project or program design that subsequently affected implementation are discussed. Findings reflected gender equality and women's empowerment, disability and other cross-cutting issues, as well as possible unanticipated effects.

5.1 Relevance

5.1.1 National development priorities, the country program's outputs and outcomes, the UNDP Strategic Plan, and the SDGs

National Development Priorities and SDGs

Bangladesh's Government's Vision is to eradicate poverty and ensure economic and social well-being for all citizens. According to the Bangladesh Climate Change Strategy and Action Plan 2009, this will be accomplished through a pro-poor Climate Change Management Strategy that prioritizes adaptation and disaster risk reduction while also addressing low-carbon development, mitigation, technology transfer, and the mobilization and provision of adequate finance on a global scale. Climate change issues, including adaptation, were addressed in the following national policy documents developed by the Government of Bangladesh (GOB):

The Constitution, through its fifteenth amendment, considered, although implicitly, the issue of climate change. The following article was added to Part II: Fundamental Principles of State Policy: "18A. Protection and improvement of the environment and biodiversity: The State shall endeavour to protect and improve the environment, as well as natural resources, biodiversity, wetlands, forests, and wildlife, for the benefit of present and future citizens."

Vision 2021 states, "All measures will be taken to protect Bangladesh, including planned migration abroad, from the adverse effects of climate change and global warming."

The 'Bangladesh Seventh Five Year Plan FY2016-FY2020' provides strategic directions and a policy framework, as well as sectoral strategies, programs, and policies that take climate change adaptation into account in order to accelerate growth and alleviate poverty in the country. The Bangladesh Climate Change Strategy and Action Plan were developed in 2008 and revised and approved by the Government in 2009 following extensive consultation with the public and private sectors, community-based organizations, development partners, experts, and academia, among others. BCCSAP — 2009 is a seminal document for developing countries. Bangladesh has prioritized its action plans following national development priorities and the United Nations Sustainable Development Goals.

According to the Action Plan of the MoEFCC, there are 25 indicators for which the MoEFCC is the lead ministry in the implementation of SDGs aligned with the 7th Five Year Plan and Beyond (MoEFCC, 2018). Apart from these, the MoEFCC co-leads another nine indicators. This evaluation found that the project design for the CCRP is largely aligned with the targets set in the action plan following the SDG goals. CCRP is directly aligned its interventions to -

Target 1.5: By 2030, build the resilience of the poor and those in vulnerable situations and reduce their exposure and vulnerability to climate-related extreme events and other economic, social and environmental shocks and disasters,

Target: 12.2: By 2030, achieve the sustainable management and efficient use of natural resources, **Target 13.3:** Improve education, awareness-raising and human and institutional capacity on climate change mitigation, adaptation, impact reduction and early warning,

Target 13. b: Promote mechanisms for raising capacity for effective climate change-related planning and management in the least developed countries and Small Island Developing States, including focusing on women, youth, and local and marginalized communities.,

Target 15.1: By 2020, ensure the conservation, restoration and sustainable use of terrestrial and inland freshwater ecosystems and their services, in particular forests, wetlands, mountains and drylands, in line with obligations under international agreements.

Target 15.2: By 2020, promote the implementation of sustainable management of all types of forests, halt deforestation, restore degraded forests and substantially increase afforestation and reforestation globally

Target 15.4: By 2030, ensure the conservation of mountain ecosystems, including their biodiversity, to enhance their capacity to provide benefits that are essential for sustainable development

Target 15.9: By 2020, integrate ecosystem and biodiversity values into national and local planning, development processes, poverty reduction strategies and accounts.

Target 17.7: Promote the development, transfer, dissemination and diffusion of environmentally sound technologies to developing countries on favourable terms, including concessional and preferential terms, as mutually agreed.

Bangladesh Country Programme 2016-2021

CCRP project is designed in accordance with the Bangladesh Country Programme 2016-2021 which was consistent with the Denmark-Bangladesh Country Policy. The country program was developed to contribute to the inclusive, pro-poor, and sustainable implementation of Bangladesh's 7th Five-Year Plan (2016-2021), "Accelerating Growth, Empowering Citizens." The Country Programme was divided into three thematic components. **1.** Agricultural Growth and Employment **2**. Resilience to Climate Change and Sustainable Energy **3.** Government and Rights.

Thematic programs have a high potential for internal synergies and are generally designed to complement the Government's activities as well as those of other development partners. Social mobilization, empowerment, climate resilience, gender equality, and assistance to ethnic minorities, particularly in the Chittagong Hill Tracts, run through all the thematic programs like a thread. For example, engagements focused on climate resilience, as well as engagements focused on general capacity building for Union Parishads (UPs) - the lowest administrative level - was supported the development of local-level climate change resilience plans, in addition to existing village planning. The UPs were supported through the climate resilience engagements and were chosen based on their unique challenges, which included flood protection, climate proofing water and sanitation, and livelihoods resilience in the Chittagong Hill Tracts. The CCRP project closely followed the country program in terms of intervention selection and output and outcome design, for instance, the outcome of the project was “Improved community livelihoods and watersheds that are resilient to climate change”.

5.1.2 The theory of change for the relevant country program outcome

The Thematic Program on Climate Resilience and Sustainable Energy's objective was to increase resilience and adaptive capacity to climate change, as well as to increase access to renewable and efficient energy. The country program, through this TP, supports the GoB's two-fold strategy against climate change. The first and most critical element relates to activities that increase resilience to climate change impacts – which are already affecting the livelihoods of a large proportion of the population and will continue to do so in the future.

At the local level, the dynamics of climate change and environmental change can be difficult to disentangle, and they frequently interact in complex ways.

The project's pivotal theory of change was that after conducting a climate change vulnerability assessment and developing climate responsive LRPs in identified watersheds with critical assistance from Hill District Councils, partner non-governmental organizations, and UNDP, the project beneficiary would begin implementing climate resilient schemes and adaptations through LRPs, thereby contributing to the improvement of climate resilient livelihoods in the project areas. Taking this proactive theory into account, this project has designed its activities in a way that aligns with the Country Program's theory of change in the long run.

5.1.3 Relevance of CCRP to the lessons learned from other relevant projects

UNDP's country program emphasizes rural resilience to climate change and is founded on decades of experience with participatory rural infrastructure construction and rehabilitation. Denmark has supported the rural roads sector in Bangladesh since 1994, initially through a traditional Rural Development Project and then through a project focused on providing farmers with market access. The project was carried out by the Local Government Engineering Department (LGED), a large utility tasked with the responsibility of infrastructure construction. The Rural Roads and Market Access Component supported rural road development, market infrastructure development, and rural road and canal maintenance. The approach has been participative, involving rural women in Labour Contracting Societies (LCS), a network of impoverished women.

A Climate Change Adaptation Pilot Project (CCAPP) (July 2013–June 2014) maintained the participatory approach but shifted the focus to rural infrastructure adaptation in response to climate change. Another Climate Change Adaptation Project (July 2014–June 2016) took a similar approach, but focuses even more on upgrading, constructing, and maintaining climate resilient and sustainable rural roads.

UNDP implemented the Danish-funded Agriculture and Food Security Project (AFSP) Phases I and II (2009-2018) and is currently implementing AFSP III, which is scheduled to conclude in 2021. The primary lessons learned from previous phases were that the Para (Village) Development Committees have grown in capacity and developed into valuable entry points and partners. Para Development Committees mobilize communities, select Farmer Field School (FFS) participants from among community members, recruit Farmer Facilitators, oversee FFS implementation, and implement agricultural development projects with grant funds. The CCRP intended to utilize selected Para Development Committees in DE 4 (Chittagong Hill Tracts (CHT) Climate Change Resilience Project) to raise awareness, conduct a Community Climate Vulnerability Assessment (CCVA), and develop and implement a Local Resilience Plan (LRP).

5.1.4 Stakeholder targeting

Following the first and most critical element of the theory of change stated in the country program, CCRP implemented its activities that increase resilience to climate change impacts – which are already affecting the livelihoods of a large proportion of the population. The project benefited a total of 24,892 people, exceeding the project's target of 10,000 people, from 106 communities (from 20 specific sites/locations/micro-watersheds) where communities are particularly vulnerable to the effects of climate change and face significant challenges in improving their livelihoods.

Apart from selecting appropriate beneficiaries, this project engaged stakeholders at various levels and organizations (both governmental and non - governmental) in a range of activities. This project collaborated with local and traditional governance structures to develop capacities to support the

implementation of resilience actions at the community level, thereby ensuring sustainability and replication of resilience measures. The Union Parishad, Hill District Councils, and the CHT are the local bodies (Circle Chief office, Headmen, and Karbaries). CCRP collaborates closely with Union Development Coordination Committees (UDCCs), which are composed of elected and traditional leaders who oversee and monitor the Union's development plans. The Upazila Parishads and HDCs are assisting in the implementation of the LRPs with technical assistance.

5.1.5 Gender equality, women's empowerment, and the human rights-based approach

Respect for universal human rights continues to be a priority in Bangladesh. In its second five-year strategic plan for 2016–2020, the National Human Rights Commission identified several challenges in the areas of civil, political, social, and cultural rights, including "Women Empowerment and Discrimination Against Women, Gender-based Violence"; "Occupational Safety, Wages, and Welfare, including Trade Union Rights of Garment Workers"; and "Full and Prompt Implementation and Compliance with the CHT Accord Focusing on Land Rights" (NHRC, 2016).

Failure to address basic development needs and rights of the marginalized ethnic groups, for example, in the CHT, has left the region behind the rest of the country. According to the Bangladesh Bureau of Statistics Data of 2011, only 7.8% of people living in CHT complete primary education, and absolute poverty and extreme poverty are prevalent in ethnic communities at rates of 65% and 44%, respectively [5]. The CHT Peace Accord, signed in 1997, brought an end to years of insurgency in the region, but it has not been fully implemented. One area that requires additional attention is resolving land disputes that arise as a result of common-law and traditional land-use patterns. Without clearly defined property rights, this is a delicate issue that requires informed resolution.

While gender inequality has improved in general in Bangladesh, gender-based violence and equal access to health, education, and employment remain unaddressed (UN, 2014). Continued efforts in this area will also contribute to increasing women's economic participation, which is necessary for growth to accelerate.

CCRP places a strong focus on poor and vulnerable people, particularly marginalized women and smallholders, and adheres to the PANT principles (Participation, Accountability, Non-discrimination and Transparency). The use of labour-intensive methods to target impoverished and destitute women, as well as participatory community-based climate resilience assessment and protection, all exemplify a Human Rights-Based Approach. Gender equality is incorporated into the primary deliverables, most notably by requiring women to participate in labour-intensive infrastructure at a rate of 90%.

5.1.6 Responsiveness to political, legal, economic, institutional, etc., changes in the country

Contextual and political issues: In the CHT, risks arise from the post-conflict context, where political negotiations related to the CHT Peace Accord's implementation may result in strikes and unrest on a local level, independent of national politics. Mitigation measures have been introduced to manage relations with local people and institutions including hiring staff locally, alignment with local structures as well as national ones (where these differ); and, using local focal points to manage contacts with

[5] Government of Bangladesh (2015): "7th Five-Year Plan (FY2016-FY2020) – Accelerating Growth, Empowering Citizens", pp. 12 and 680

communities. UNDP has also developed emergency procedures and mitigation measures to deal with political unrest.

Programmatic issues: There are risks associated with a lack of sufficient staff in terms of both quantity and quality. This is especially true for CRC members who work directly with community on the ground. They may leave for a variety of reasons. This can be mitigated through close supervision and prompt replacement recruitment. Additionally, there is a programmatic risk that the quality of work in the field in terms of implementing schemes may deteriorate as the program's scale and institutional support requirements grow. This can be mitigated by consistent supervision, monitoring, and follow-up.

Institutional issues: Partnerships with both government and traditional CHT institutions are one-of-a-kind arrangements that introduce inherent risks associated with developing new administrative arrangements, engaging in policy dialogue, and managing expectations. Traditional institutions within the CHT may be averse to advocacy or collaborative resource management.

There is also an institutional risk that the implementation activities at the local level will be captured by community elites. This can be addressed through supervision and follow-up.

Implementing Partner Staff of the project from Bandarban revealed that the project adapts to changes in the country's political, legal, economic, and institutional landscapes. As the project organizes meetings and works at the grassroots level, officials from Upazila Parishad and Union Parishad attend and are involved in developing the Local Resilience Plans and monitoring the implementation of the schemes. Additionally, they have organized a meeting with UDCC every three months to discuss all of the issues and work diligently to resolve them.

CHT peace accord

The Chittagong Hill Tracts' line departments of different local government institutions are accountable to the Hill District Councils, and they are responsible for the CCRP project's management and implementation. To successfully implement the project, the Hill District Councils transfer the project's overall strategy to the relevant government line departments. Following the CHT peace accord, approximately 33 government departments were transferred to the Hill District Council, and this project is also managed by the HDCs; as a result, this project has been managed strictly in accordance with the National Policy and the CHT peace agreement.

5.2 Effectiveness

5.2.1 Achievement against outcome and output indicators

5.2.1.1 Outcome: Improved community livelihoods and watersheds that are resilient to climate change

Indicator: % of households in targeted communities able to improve their livelihoods in identified watersheds

In 2016, a climate change impact study was done as part of updating the Forestry Master Plan. Based on climate modeling and impact assessment, the study found that climate change will have a negative effect on the CHT hill forests. The structure and composition of the forest and natural regeneration will be affected due to changes in temperature and rainfall frequency and patterns. This will have an effect on the watersheds of the CHT, which will affect the lives and livelihoods of people living there. The project's interventions were designed to tackle this problem. The goal was to achieve results through three outputs that were all linked together.

First, the CCRP project helped rural communities and institutions in the CHT to do site-specific Community Climate Vulnerability Assessments (CCVAs) and prepare Local Resilience Plans (LRPs). This aimed to help them deal with climate change. Second, support was given to communities and institutions to take priority actions in the 20 micro-and small watersheds that were identified. These included community resource management of forests, conserving the watersheds, and diversifying resilient livelihoods with a focus on better natural resources-based income opportunities. Third, the capacity of the CHT institutions, leaders, and community was built up so that they can fully carry out their planning, field implementation, and other responsibilities in the right way.

To measure whether the project interventions had achieved desired results the study team looked into different aspects of people's livelihood in the selected watersheds. Here to add that, the term 'livelihood' can be used in a variety of contexts. The following definition encompasses the wide concept of livelihoods as used in this context:

"A livelihood is comprised of the capabilities, assets (both material and social), and activities necessary to sustain oneself. A livelihood is sustainable if it is capable of withstanding and recovering from stressors and shocks, as well as maintaining or enhancing its capabilities and assets in the present and future, without jeopardizing the natural resource base."

In line with the above interpretation of livelihood, the study used the Sustainable Livelihood Framework (SLF) developed by the British Department for International Development (DFID) to measure this outcome. Because the livelihoods approach is concerned with people first and foremost, the framework attempts to get an authentic and realistic understanding of people's strengths (here referred to as "assets" or "capitals"). It is critical to examine how people attempt to translate their skills into beneficial livelihood results. The concept is based on the assumption that people require a variety of assets to attain positive livelihood outcomes. Therefore, the SLF identifies five types of assets or capitals upon which livelihoods are built, namely human capital, social capital, natural capital, physical capital, and financial capital.

In this study, project beneficiaries were asked whether they saw any changes in their lives due to the support provided by the project. Only the respondents who were aware of the support schemes (n=317) provided by the project were asked about the changes brought to their lives. This was done for establishing a connection between project support and outcome. A similar set of questions were also prepared for the control group respondents. They were asked whether they saw any changes in their lives in the past five years.

The changes identified by the respondents were categorized into human, social, natural, physical, and financial assets or capital. The following understanding of the capital or assets was used for this study context.

Human capital represents the skills, knowledge, ability to labour, and good health that together enable people to pursue different livelihood strategies and achieve their livelihood objectives.

Social capital means the social resources upon which people draw in pursuit of their livelihood objectives. These are developed through networks and connectedness, membership in more formalized groups, relationships of trust, reciprocity, and exchanges that facilitate cooperation, reduce transaction costs, and may provide the basis for informal safety nets amongst the poor.

Natural capital is the term used for the natural resource stocks from which resource flows and services (e.g. nutrient cycling, erosion protection) useful for livelihoods are derived. There is a wide variation in the resources that make up natural capital, from intangible public goods such as the atmosphere and biodiversity to divisible assets used directly for production (trees, land, etc.).

Physical capital comprises the basic infrastructure and producer goods needed to support livelihoods. The infrastructure consists of changes to the physical environment that help people to meet their basic needs and to be more productive. And producer goods are the tools and equipment that people use to function more productively.

Financial capital denotes the financial resources that people use to achieve their livelihood objectives. The definition used here is not economically robust in that it includes flows as well as stocks and it can contribute to consumption as well as production. However, it has been adopted to try to capture an important livelihood building block, namely the availability of cash or equivalent, that enables people to adopt different livelihood strategies.

Based on the responses, changes in human capital included a reduction in waterborne diseases (Treatment 79%, Control 44%), household food security increased and nutritional deficiencies reduced (Treatment 69%, Control 37%), and increased access to safe drinking water (Treatment 63%, Control 33%), creation of entrepreneurs (Treatment 55%, Control 24%), increase in the mobility of female members outside the household (Treatment 50%, Control 37%), increased access to sanitation facilities (Treatment 47.3%, Control 26%), and increase in the skilled labour force (Treatment 38%, Control 25%). (See Annex Table 1)

Similarly, changes in social capital included market linkages established (Treatment 92%, Control 56%), an increase in women's participation in social and family development activities (Treatment 78%, Control 43%), increased social harmony (Treatment 70%, Control 48%), increased access to private services (Treatment 57%, Control 26%) and increased access to government and public services (Treatment 42%, Control 25%).

Changes in physical capital included a reduction in water collection time (Treatment 81%, Control 31%), road communication improved (Treatment 75%, Control 42%), increase in the use of Agri-machineries (Treatment 72%, Control 38%), repair time of Agri-machineries reduced (Treatment 50%, Control 21%)), uninterrupted power is now available (Treatment 50%, Control 27%), and irrigation water is readily available in the dry season (Treatment 31%, Control 5%).

In terms of natural capital, the changes included fallen land being converted to cultivable land (Treatment 87%, Control 44%), the amount of unused land reduced (Treatment 80%, Control 49%), an increase in soil fertility (Treatment 54%, Control 17%), soil erosion prevented (Treatment 38%, Control 14%) and it is now possible to save water flow from the mountain streams (Treatment 34%, Control 12%).

Changes in financial capital included an increase in the selling of agricultural products (Treatment 78%, Control 42%), household income increased (Treatment 58%, Control 31%), and new livelihood professions established (Treatment 53%, Control 30%), household savings increased (Treatment 46%, Control 21%), economic empowerment of female members of the community (Treatment 48%, Control 21%), irrigation cost reduced (Treatment 48%, Control 13%), electricity cost reduced (Treatment 35%, Control 12%), and medical costs reduced (Treatment 27%, Control 9%).

To analyse changes in the livelihood of the respondents, for each change identified, a score was given. The total obtained score under each type of asset or capital was calculated for each of the respondents. An index value was calculated for each type of asset or capital following the below formula:

$$Index\ value\ for\ the\ asset\ or\ capital = \frac{Sum\ of\ obtained\ score\ for\ the\ assest\ or\ capital}{Total\ score\ of\ the\ asset\ or\ capital}$$

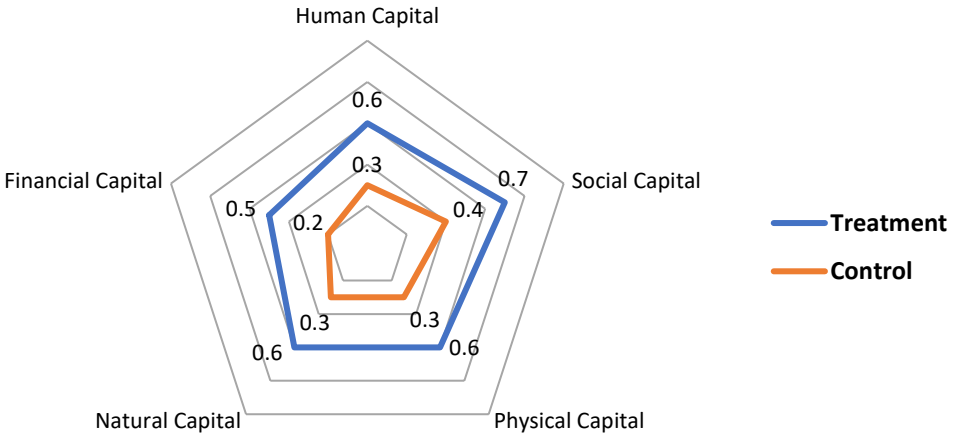

Figure 7: Assessment of improvement of livelihood in treatment and control through sustainable livelihoods framework (SLF) (Treatment N = 317, Control N= 603)

However, there are some limitations within the SLF. A differentiated livelihood analysis needs time, financial and human resources. As this study had limited time, this framework was used for evaluation. Development projects often lack these conditions. The claim of being holistic inevitably delivers a flood of information hardly possible to cope with. Additionally, by improving the livelihoods of a specific group a negative effect may occur on the livelihoods of others. This may lead to a normative dilemma on the decision about what to consider with priority. Reducing the livelihood perspective to a methodological tool contains the risk to look at the two things interchangeably. The SLF still is a simplification of the multidimensional reality of livelihoods.

Keeping this in mind, the results indicated that through the LRP schemes, 99.81 percent of households in targeted communities were able to improve their livelihoods in identified watersheds. Out of the respondents who reported a gain in at least one of the livelihood assets or capital was interpreted as being able to improve their livelihood. The target for this indicator was 50 percent, and the results indicated that the project interventions were able to reach this target through the implementation of the LRP schemes.

However, this outcome level indicator was not assessed on the full implementation of LRP projects and there was no baseline assessment for this outcome level indicator following a similar methodology. Due to the lack of baseline data, no robust analysis such as Difference-in-Differences (diff-in-diff) estimation could be carried out between the respondent groups. Other factors may have been working behind, such as the intervention by other organizations. The casual impact of other factors cannot be established without an in-depth systematic study of the communities. Still, a comparison between the treatment and control group households can be shown.

The overall results indicated that the treatment group had better livelihood assets than the respondents from the control group. The average index score for human capital in the treatment

group was 0.6 and for the control group, it was 0.3. We found that the average index score for human capital varied significantly between the two groups. Comparing the mean index score between the treatment and control group through an independent sample t-test resulted in a significant (2-tailed) difference with a p-value of 0.000 (less than 0.05).

Based on the interpretation of the results, the difference in the index score of human capital between the treatment and control group is statistically significant. Also, the average index score for social capital in the treatment group (0.7) was higher ($p<0.05$) than the control group (0.4) households. Results were similar for the physical (Treatment = 0.6, Control = 0.3, $p<0.05$), natural (Treatment = 0.6, Control = 0.3, $p<0.05$), and financial capital (Treatment = 0.5, Control = 0.2, $p<0.05$) (See annex Table 2)

In sustainable systems, the capital base will increase over time. Unsustainable systems deplete or run-down capital, spending assets as if they were income, and so leaving less for future generations. The base level for the livelihood capitals or assets was not analysed using the Sustainable Livelihood Framework at the baseline. For this reason, the change over time could not be evaluated but the comparison between the treatment and control group respondents shows that the livelihood assets or capital are higher for the beneficiary groups. They have also expressed their satisfaction on the LRP schemes for contributing to improving their livelihoods.

According to the project completion report (2021), a rapid survey among the CRC members was conducted in the 2nd quarter of the 3rd year, which showed, that about 99 percent of respondents expressed their satisfaction that LRP schemes will sustain because their CRC management committee is very effective and supportive with the help of collective consent of the community. The evaluation also found similar results where 99 percent of the respondents shared that the LRP schemes were effective in improving their livelihoods. Additionally, 77 percent of the respondents shared that the benefits of the LRP schemes will sustain in the long run.

5.2.1.1.1 Output 1 Community Climate Vulnerability Assessments and Climate Responsive Local Resilience Plan developed in identified project locations

Indicator 1.1: % of communities that have completed the Community Climate Vulnerable Assessment.

Community Climate Vulnerability Assessment (CCVA) is one of the key outputs of the project. The project supported conducting Community Climate Vulnerability Assessments (CCVA) in the targeted communities. The assessment addressed climate and environmental risks through a participatory approach.

Climate vulnerability is defined as the propensity or predisposition, of a system, to be adversely affected, and includes sensitivity or susceptibility to harm and lack of capacity to cope and adapt (IPCC, 2014). Thus, the climate vulnerability of a community and/or watershed ecosystem in the CHT is the degree to which a community and/or a watershed ecosystem is susceptible to and unable to cope with, adverse effects of climate change, including climate variability and extremes. Climate vulnerability is a function of the character, magnitude, and rate of climate change and variation to which a community is exposed; its sensitivity; and its adaptive capacity.

Climate change vulnerability and resilience analyses were done by local communities who had also been given capacity building as part of the project. The communities looked at how climate and environmental risks impacted their livelihoods. Climate and water-related disasters, such as floods and landslides, were the main focus of the assessments and risk analyses. Through the capacity building sessions and workshops, community people found out what actions they could take to protect

their natural resources and livelihoods, including food security, cash income, and social and physical capital; and also learned how to write long-term plans (LRPs) that help them prioritize, budget, and set a timetable for putting them into action. Based on the climate vulnerability assessments and risk analyses, resilience/adaptation plans were developed by the community and their leaders who were provided training of trainers on climate change under the project.

According to the household survey, respondents from all (100%) communities confirmed that their community participated in the CCVA process. The target for this indicator was 80 percent. The quantitative findings indicate that the project was able to achieve its target for this indicator.

Through inception meetings with community people, the project team formed a Climate Resilient Committee (CRC) for each site or watershed. Each committee had a minimum of 11 to a maximum of 13 members (45% women participation ensured) with representatives from 5 to 6 nearby villages. The project carried out several training sessions (31 batches, 472 participants- male 209; female 263) for CRC members on CCVA and LRPs, and project formulation.

> We drew pictures of our para on a map We were told to circle the areas that had a lot of landslides. We also marked the areas where there are Jhiris.
>
> *-FGD participant, Rangamati*

During the evaluation study, focus group discussions were conducted with the CRC committees. Participants from the focus group discussions commonly shared that at the beginning of the project team mobilized their community to identify natural disasters in there are that affected their community. The project team carried out a mapping exercise with the community people to identify the most vulnerable areas to climate and environmental hazards and they also mapped out the mitigation measures. This method is known as a participatory climate vulnerability assessment or CCVA.

The household survey was conducted in 18 sites out of 20 sites where the project had intervened. Among the study respondents, 85% (N=1045) knew about the CCRP project. The respondents who knew about the project were asked about the CCVA process. Confirmation of participation in the CCVA process from at least one respondent from a community was taken as confirmation for the whole community participating in the process. Out of the surveyed 18 watersheds/sites, all of them had at least one respondent confirming that their community had participated in the CCVA process. Also, out of the total 72 paras covered in this study, at least one respondent from each para community was able to confirm that their community participated in the CCVA process.

Approximately 68.9% of respondents (N=891) could recall their community's involvement in the process. In Rangamati 84.2% (N=411), in Khagrachari 61.0% (N=300) and in Bandarban 47.2% (N=180) respondents could recall the CCVA process. Nearly 87% of respondents mentioned that they were directly involved in identifying local vulnerabilities, and nearly 66% stated that they shared their experience in identifying vulnerabilities in their respective communities during the CCVA process. Among respondents who could recall the process, 72% stated that it assisted them in determining their role and responsibility in the implementation of the Local Resilience Plan (LRP), 64% stated that it assisted them in determining their strength for LRP implementation, and approximately 64% stated

that it assisted the community people in seeing things from different perspectives to reach a sustainable LRP.

Indicator 1.2: % of selected communities with Local Resilience Plan.

Through the CCVA process, Local Resilience Plans (LRPs) were developed in the project areas. The plans included a land-use plan of the selected area, climate change adaptation activities, diversifying livelihood options, soil and water conservation, ensuring water availability during the dry season through rainwater harvesting and watershed conservation for agricultural activities, and protective measures to protect crops from flash flood and heavy rain, etc.

Key informant interview with a Union Parishad chairman (local leader and elected representative) from Rangamati revealed that people were now able to plant crops in the highlands where electricity has not reached yet. This was made possible thanks to the solar-powered irrigation pumps set up by the project. Another benefit of this project was that the amount of water was now steadily growing as a result of forest conservation. As a result, the region's climate resilience was increasing. According to the FGD participants from Bandarban, due to the water shortage, the people of this region previously did not have toilets in their homes. The LRP schemes resolved this issue by building water supply facilities in the highlands. Union Parishad (UP) Chairman from Rangamati has also emphasized the same points.

> Now, there is no water shortage. Everyone has a toilet in their home. As a result, cultural value of the people is changing. One ideal village is being created
>
> *-KII with UP Chairman, Rangamati*

According to the project documents, within 2020, the project team has conducted all 20 community vulnerability assessments. And, in 2021, 100 percent of the selected communities have developed their Local Resilience Plans in a participatory way to deal with local vulnerabilities, while the end line target was 60%. The household survey conducted as part of this end line study reveals a similar scenario, with around 98% (N=614) of the respondents could recall that their communities developed the LRP following the CCVA process. Out of the surveyed 18 watersheds/sites, all of them had at least one respondent confirming that their community had developed LRP following the CCVA process. So, 100 percent of the surveyed communities among the beneficiary group have confirmed that their community had developed local resilience plans. As the community actively participated in the CCVA and LRP development process, their prime needs were addressed. Furthermore, women were particularly very active due to their leadership role in the CRC committee and the implementation process.

Approximately 99% of respondents believe that the CCVA process aided them significantly in developing the local resilience plan. The project conducted awareness-raising sessions on (a) current and future climate and environmental risks in CHT, (b) climate change issues and Community Based Adaptation, and (c) integrated planning and management of common use of water and natural resources actions at each community. During the project period, a total of 218 awareness sessions were conducted in CRC sites. Around 56% (N=891) of the survey respondents shared that they participated in these awareness-raising sessions.

5.2.1.1.2 Output 2 Resilient livelihoods are implemented for vulnerable communities for climate change adaptation

Indicator 2.1: % of communities (with nearly 50% women participation) that implemented prioritized and selective risk reduction actions.

According to project completion reports, a total of 75 LRP schemes were implemented under the 20 LRP sites and around 100 percent of LRP schemes were completed during this reporting period confirmed through key informant interviews with project officials and implementation partners. Only the CRC members were involved in the implementation process of the Local resilience plans (LRPs).

In this study, a total of 97 CRC members were surveyed from 18 sites. Out of the CRC members who were surveyed, 71 percent were male, and 29 percent were female. Among them, 98 percent (N=97) reported that they had participated actively in the implementation of the LRP schemes. Through the LRP schemes selective risk reduction actions were prioritized and implemented in the communities. Of the 18 sites that were covered by this study, 100 percent of the communities have shared that their prioritized and selective risk reduction actions were implemented in their community. The quantitative results show that the project was able to meet the target (80%) for this indicator. Additionally, all of the female CRC members who were surveyed shared that they had actively participated in the implementation of the LRP schemes (figure 2). The result also meets the target (50% women participation) for the end-line evaluation of the project. Due to the lack of baseline data, there were no benchmarks against which the findings could be compared or the implications analysed. This is one of the limitations the study team faced in this study.

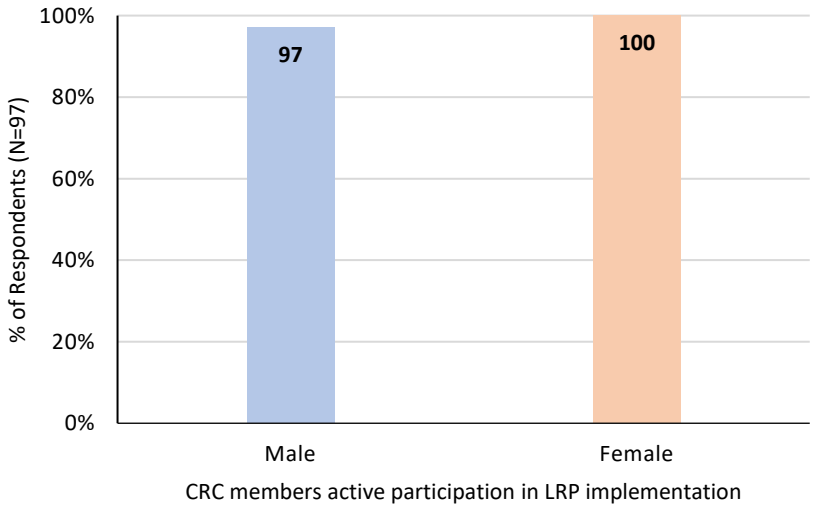

Figure 8: percentage of CRC members who have actively participated in the LRP schemes implementation process

Among the respondents who have actively participated in the LRP schemes, 64 percent (male = 61%, female = 71%) indicated that they were involved in the implementation process through labour, 76 percent (male = 79%, female = 68%) mentioned that they were involved in the management process, and nearly 76 (male = 84%, female = 57%) percent stated that they provided monitoring support. And, around 4 percent of female CRC members have shared that they had served as a cook in the LRP sites during the implementation process of the LRP schemes. Female members played a significant role in the CRC committees. All of the CRC committees involved in this study were led by women. Also, the committee members have shared that, those committees have a fixed criterion of female members

to serve as president and as treasury officer, according to their accounts. Serving as presidents in the CRC committees, female members had greater influence in the decision-making process.

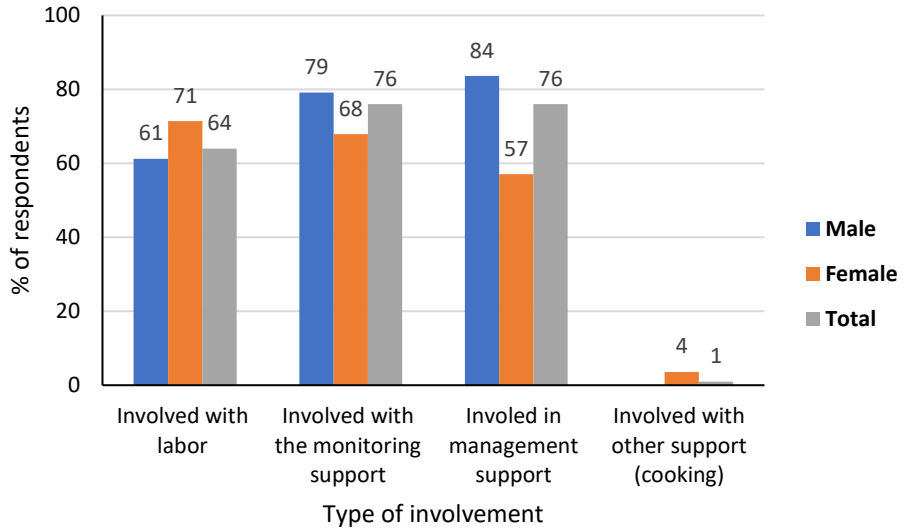

Figure 9: Type of involvement in LRP schemes implementation of the CRC members (gender-disaggregated)

The end line study asked respondents (N=317) to identify which schemes had been used to implement local resilience-building actions in their community. Nearly 65 percent reported "Agri-machineries," 46 percent reported "Dam construction for irrigation," 63 percent reported "Mixed fruit gardening," 54 percent reported "Plantation (afforestation), 52 percent reported “Water supply facilities”, 35 percent reported "Rainwater harvesting," 34% reported “Road repair” and 26 percent reported “Solar lamp post” among others. Only 19 percent of respondents reported that their community has implemented a “Beef Fattening” scheme. Out of the 18 sites or watershed, all of the respondents (100%) identified at least one selective risk reduction action that were implemented in their community.

Table 6: LRP schemes implemented in the communities identified by the respondents (N=317)

LRP Schemes	Rangamati	Khagrachhari	Bandarban	Total
Agri-machineries	62.7%	61.5%	75.0%	64.7%
Dam construction for irrigation	38.5%	54.2%	51.7%	45.7%
Irrigation	24.2%	49.0%	51.7%	36.9%
Plantation (afforestation)	34.8%	78.1%	66.7%	53.9%
Rainwater Harvesting	18.6%	49.0%	58.3%	35.3%
Mixed Fruit Gardening	50.9%	81.3%	63.3%	62.5%
Water supply facilities	49.1%	58.3%	48.3%	51.7%
Solar lamp post	23.6%	20.8%	40.0%	25.9%
Fish cum duck farming	6.8%	51.0%	26.7%	24.0%
Beef fattening	2.5%	42.7%	26.7%	19.2%
Road repair	35.4%	36.5%	25.0%	33.8%

The project officials have shared that one of the biggest achievements of this project was the development of local resilience Local Resilience Plans (LRPs) in the targeted communities. The LRPs that were developed with the participation of the community, have plans to deal with climate vulnerabilities for the next 30 to 50 years.

According to the project completion reports, most of the LRP schemes (49%) were water-related projects.

Project officials shared, that when the project started, they faced major challenges working in this geographically challenging area. The communication infrastructures were not developed. As a result, transportation of building materials, pipes, and water tanks were very costly, and some areas were completely inaccessible. For this reason, the project tried to solve the problems which were given higher priority by the community people. When they talked with the community people, water crisis had been the most commonly identified challenge faced by the community people. For this reason, the project team had undertaken water-related LRP schemes in most of the sites.

The CCRP project ensured access to water for daily use and intensified the production of farmland produce

Jouthokhamar is one of the most impoverished regions in CHT, and its residents depend primarily on agriculture and daily labor. Unlike many other communities, there is no formal road and improved communication. The availability of water, such as drinking water and water for household uses, is the primary concern of the local population. As the water level declines, the three previously installed Tube-wells have also become ineffective. People in the community used to obtain water from a well, but during the dry season, the well dries up, rendering it unsuitable for the rainy season due to contamination with dust particles. During the rainy season, the community spends the day collecting and storing rainwater in pots and pans, which is insufficient. Therefore, it was extremely difficult for community members to collect water by walking 3–4 kilometers each day, which not only wasted their time but also hindered their daily activities. As a result, inadequate and unsanitary water has become a greater health hazard for the community members, and the situation is deteriorating daily.

Community collecting water from the facility

CRC has installed four Infiltration Gallery Systems (IFG), one solar-powered pump, and one electric-powered pump in this area as part of the CCRP LRP project. They could not have foreseen that the water shortage in this region would end so quickly, with the introduction of these technologies. People can now gather water using IFG, solar pumps, and electric pumps. Every household can benefit from water collection, including the CRC and the nearest family. In addition, they can cultivate the majority of the land using solar pumps and electric water pumps. Currently, with sufficient water, communities can cultivate a variety of homestead vegetables and harvest high-quality fruits by properly irrigating fruit trees and implementing better agricultural management practices, as well as resolving their key agricultural issues. This helps families save money and reduces the dangers associated with women fetching water. Since the interventions started, waterborne diseases have been decreasing and there have been no cases of diarrhea. Mr. Dhanayan Tripura, the General Secretary of Juothokamar para-CRC, was excited about the project outcome, He stated -

"It makes sense to describe the daily struggles we endured to obtain water. And the change in the environment has pushed us further and further into disaster. The water level is decreasing daily as a result of climate change. But the CCRP project has increased our awareness of the need to combat climate change. We gained this knowledge through a variety of awareness raising sessions. We have acquired knowledge of adaptation strategies. The remaining villages will hopefully be included in the CCRP project. I hope that the project's duration is extended and that the CCRP project is successful."

1. The water crisis faced by the community people can be linked to several factors like increasing demand, pollution, poor management, lack of infrastructure, and changes in weather patterns due to global warming. A key stressor for the water shortage identified by the project officials was deforestation. Also, unabated stone lifting the upstream is reportedly causing the hill creeks to dry out. Two years back, a news report highlighted that more than three hundred springs and *jhiris*[6] have died due to illegal stone lifting and indiscriminate tree felling in the forests of Bandarban. Also, according to experts, the number of dead *jhiris* will increase day by day (*TBS*, 2020). The project tried to target this particular issue in the community and set up water supply facilities in the remote areas where the communities faced acute water crises in their daily life. However, the illegal lifting of stones from the Jhiris could not be addressed directly. The project team tried to raise awareness on this matter within the community through awareness-raising sessions on climate vulnerability as well as planning and management of common use of water and natural resources. According to the local leaders in the community, the lifting of stones from the Jhiris is still happening. To address this issue, future programming needs to collaborate with the local authorities. A ban on stone lifting was issued by the courts in seven Upazilas of Bandarban in 2019 but the illegal activity continued unabated. The Police and DoE confiscated five million cubic feet of stones that were illegally lifted and found sufficient proof of a total of 1.8 million cubic feet of stones that year (*Dhaka Tribune*, 2019).

Illegal cutting and selling of trees from the village common forests are also contributing to the drying up of the water sources. Although, the project was able to set up water supply facilities in remote locations, without addressing the key stressors for water shortage the results will not sustain in the long run. The project officials have also admitted to their limitations in this matter. They shared that they had solved the problem of water crisis successfully in the intervention areas, but they were not 100 percent successful in providing safe water to all the communities. Because of the remoteness of some communities, there were some locations where water supply facilities could not be established. The locations were geographically challenging. People have to depend on natural sources for water in those remote locations. Thus, conservation of the natural sources of water should be the priority.

In a key informant interview, a sub-assistant agricultural officer from Rangamati shared that the use of solar-powered irrigation pumps has brought uncultivable lands in the area under early cultivation. Focus group participants from Bandarban made similar remarks.

> With the help of solar, we can now cultivate the land three times a year (before, they could only do it once in a year). We can do this because we now have access to water.
>
> *-FGD participant, Bandarban*

[6] A naturally formed small opening or crevice (especially in a rock face or wall) were water flows down

Agriculture gains in reach thanks to the Solar Powered Pump

Jurachari Upazila is located approximately 57 kilometers east of Rangamati Sadar Upazila, which touches the Indian state of Mizoram. The hills of Sitaram Para, Purba Sapchari Para, and Lulangchari Para, which are five kilometers from Jurachari Union, are home to approximately 110 families. The region's agriculturally dependent communities are relatively impoverished.

Over the past fifteen years, droughts, landslides, and flash floods have reduced agricultural production and left the majority of land in the region unirrigated and uncultivated. Consequently, there was an annual food shortage in these regions.

Locals believe that the severity of this issue has steadily increased due to climate change. Kina Dhan Chakma, an 80-year-old resident of Sapchari Para, stated,

"Once upon a time, there was a great deal of water in the Stream as a result of the area's consistent rainfall, and cultivation continued without interruption. Now, however, it is difficult to cultivate for more than one season due to the scarcity of irrigation water. Even though it is cultivated, the yield is low."

Maya Nanda Dewan, a local headman, stated that cultivable lands are no longer cultivated due to the severity of the drought. 92 families out of 110 in the region have more than 40 hectares of diverse crop and paddy lands. Under the Ministry of CHT (MoCHTA) and the Strengthening Inclusive Development (SID-CHT) funded by DANIDA, Rangamati Hill District Council selected five potential project areas, including Tonnyabeechara.

Communities' reaction after installing the solar powered pump for irrigation

The Tonnyabeechara region was later recommended to the district council for project implementation based on the scoring of all these project areas by union development coordination committees. As a result of flash floods, heavy rainfall inundated the agricultural lands, and irregular rainfall patterns render cultivation impossible. Due to the doubling of production costs and the impossibility of irrigating the cultivated land on time, many farmers are deterred from cultivating the land. Additionally, the escalating cost of fuel contributes to the rise in production costs.

In 2017, landslides and flash floods harmed cultivable land, which was reconstructed as part of the LRP project. In the community, four solar-powered irrigation pumps and a seed bank were installed.

Krishna Lal Chakma, a local farmer, stated,

"Every year, due to irrigation water shortages, the timing of cultivation in the Boro Seasons was uncertain, but this year, with the installation of a solar-powered irrigation pump, uncultivable lands have been brought under cultivation early. As a result, the fallow lands have been cultivated, and all the farmers have begun cultivating them in the hopes of producing productive crops."

Farmers are ploughing lands and planting crops in the field

Mrs. Susmita Chakma, Agriculture Officer of Jurachari Upazila, stated that this technology is environmentally friendly and will reduce the cost of crop production for farmers. Under this solar panel, approximately 45 hectares of previously uncultivated land in four paragraphs have been cultivated.

According to the project completion report of 2021, five agri-machineries schemes were established by the project during the reporting period. Argi-machineries scheme supported the farmers to increase their agricultural production and yields. Under this scheme, on-farm equipment and small tools for resilient farming systems were introduced to the farmers in the community. The solar-powered pumps and small pump irrigation systems were introduced under this scheme. Aside from that, stress-tolerant seeds, livestock breeds, and livestock pens were also introduced to the community people.

The project helped create employment opportunities for the community people as well. The project established linkages with the government line departments (DLS and DoF). For example, the Fisheries department supported cage fisheries in Belaichari Upazila. The project beneficiaries have also received technical support in some of the key areas like rainwater harvesting, climate vulnerability analysis, capacity development, etc. The technical support was provided by BRAC which was a technical partner for this project. The training helped the community in improving their livelihoods.

Union Parishad women member from Rangamati shared that, the project was able to increase the knowledge of community people about climate change through organizing training. Staff from the implementing partners shared that as a result of the awareness-raising sessions with the communities, people have stopped cutting down trees and planting teak trees. Teak plantation has negative effects on the biodiversity of a site. A high level of erosion is commonly observed with teak plantations (Healey & Gara, 2003). Partner staff from Rangamati shared that, before the project intervention, people cultivated primarily tobacco, increasing their susceptibility to illness; however, they are now engaged in agriculture and afforestation, which contributed to disease risk reduction and economic development. In this way, their livelihood improved.

Regarding linkage with government line departments, the Sub-Assistant Agricultural Officer shared that his/her knowledge and skills have increased as a result of being involved in this project. Whenever the beneficiaries of this project came to him/her or his/her department with a problem, s/he were able to develop their capicities through these interactions. The government line departments were implementing partners for this project. This has facilitated these interactions.

Both the qualitative and quantitative findings illustrate that project was able to build resilient livelihoods around the targeted communities. The project interventions have raised awareness among the community people and were able to put a halt to the local practices that were harmful to the environment. The project has also built linkages with the government line departments which has supported the community in improving their livelihoods. Also, the water supply facilities and the solar-powered irrigation pumps established by the project under the LRPs were able to address the issue of water shortage to some extent.

The project was also able to build resilient livelihoods for women in the communities. Sub-Assistant Agricultural Officer shared that, s/he has observed that more and more women are now engaging in agricultural activities due to the irrigation facilities established by the project. According to him/her, women were now cultivating seasonal vegetables and raising poultry in the yard. FGD with the CRC committee has also revealed a similar trend.

> Prior to this project, women in the community wasted their time collecting drinking water. They had to dig holes in the jhiri for collecting drinking water. It takes time to collect drinking water from the holes. Now that time is saved because of the availability of water, women are able to weave more clothes than before. In addition, women are now cultivating vegetables in the vicinity of the house. As a result, women are becoming economically independent and influential in family decisions.
>
> *-FGD participant, Rangamati*

Indicator 2.2: % of community members perceive difference in levels of risk.

To determine whether community members were now more capable of identifying climate change-related hazards and associated risks in their communities, this end line study initially asked respondents to household surveys to identify climate change induced hazards in their communities. Whereas nearly 72 percent (Treatment = 74%, Control= 69%, N=1648) of respondents chose Northwester, around 51 percent (Treatment = 54%, Control= 47%, N=1648) chose Landslide. Additionally, respondents discussed potential hazards such as flash flooding, flooding, thunderstorms, cyclones, hailstorms, and heatwaves in their respective communities.

They were then asked to assess the level of risk they perceive in their communities as a result of the threat posed by those hazards. Whereas nearly 55 percent (N=1045) reported feeling "moderate risks", nearly 21 percent (N=1045) informed feeling "high risks" and around 18 percent mentioned feeling "Low risks", while 16 percent (N=1045) reported being unable to determine the level of risks. To gain a better understanding of respondents' risk perception capacity, respondents were asked to rank risks under three risk categories (High, Medium, and Low), where approximately 8% of respondents were unable to classify the risks. Rangamati accounts for only 0.2% of this 8 percent, while Khagrachari accounts for 6% and Bandarban accounts for the remainder.

5.2.1.1.3 Output 3 CHT institutions and leaders can promote resilience building actions

Indicator 3.1 % of communities are supported (technically and /or financially) by CHT institutions.

According to the assessment, around 47 percent (N=1045) of beneficiaries reported that their community received technical assistance from Hill District Council (HDC), while approximately 9.1 percent (N=603) of control group respondents reported having received such assistance from HDC. In terms of financial support from the HDC, around 40 percent (N=1045) of the beneficiaries reported having received financial support from the HDC where else, whereas about 9 percent (N=603) of the respondents in the control group have received such support. Here, the beneficiary group respondents reported to have received financial or technical assistance from the HDC is significantly (financial: $p<0.01$, 2 tailed; technical: $p<0.01$, 2 tailed) higher than the control group respondents. A similar trend can be observed in terms of Upazila Parishad and Union Parishad, where the percentage of beneficiary group respondents receiving technical and financial support was higher than the control group respondents.

Table 7: Percentage of respondents receiving support (technical/financial) by the CHT institutions

	Treatment (N=1045)				Control (N=603)			
	Rangamati	Khagrachari	Bandarban	All	Rangamati	Khagrachari	Bandarban	All
Hill District Council								
Technical support	69.7%	6.5%	54.4%	46.5%	7.4%	1.1%	19.8%	9.1%
Financial support	64.5%	6.2%	40.2%	40.0%	7.4%	1.6%	18.6%	9.0%
Upazila Parishad								
Technical support	10.0%	3.6%	18.0%	10.5%	1.2%	0.0%	5.6%	2.2%
Financial support	10.4%	2.6%	12.7%	8.8%	2.5%	2.7%	0.0%	1.8%
Union Parishad								
Technical support	40.5%	16.3%	38.0%	32.6%	16.1%	6.0%	23.7%	15.3%
Financial support	53.6%	21.5%	37.7%	39.3%	33.5%	10.3%	25.4%	24.0%

Among the beneficiary group, 58 percent (N=1045) reported having received at least one type of assistance from the CHT institutions (HDC, UP, and UZP). And, out of the 20 sites surveyed, at least one respondent out of the community reported having received one type of assistance from the CHT institutions. The findings from the end line study indicate that 100 percent of the communities have been supported by the CHT institutions in the targeted communities. The end line target for this indicator was 50 percent. Due to a lack of baseline data, there were no standards against which to compare the findings or analyse their implications. This is one of the study's drawbacks. For this reason, no robust identification such as Difference-in-Difference (DID) estimation could be made and changes for this output over time between the treatment and control group could not be compared to establish the effect of the intervention. However, in the absence of the baseline data, comparisons between the treatment and control group in the present time could be made to illustrate the differences found in this study.

The project documents indicate that the HDC, Upazila Parishad, Union Parishad along with other local CHT institutions provided technical or financial assistance to all the beneficiary communities of the project. Generally, the successful implementation of different schemes and overall success of the project interventions will be impractical without direct support from the Union and Upazila Parishad and government line departments. A transparent and smooth relationship between the community and local government is expected to continue to secure livelihood.

Government officials from DAE, DoF, and DLS have shared that the government line departments face a lot of budgetary constraints, and for this reason, they have less coverage and are unable to provide follow-support most of the time. But, the CCRP project has supported them in building institutional capacity. The strengthening of their institutional capacity led to increasing support for the people in the region. The project was also able to create a sense of ownership among the government stakeholders.

> Even if these projects are closed, The Upazila Parishad will be responsible for providing follow-up support or to solve any major problem in the community. Because above all the common people are benefiting from it.
>
> *-Upazila Parishad Chairman, Rangamati*

The project conducted monthly coordination meetings at the district level with government stakeholders. As the government line departments were the implementation partners of this project, through these meetings implementation plan, field challenges, and lessons learned were shared and discussed between the departments. Knowledge sharing was critical in overcoming the challenges faced by the government line departments. Also, the Upazila Development Coordination Committee (UzDCC) and the Union Development Coordination Committee (UDCC) played a key role in the project intervention. These committees have carried out monitoring visits to the LRP sites to monitor the implementation of the schemes as part of the project activity. According to the project completion report for 2021, a total of 145 monitoring visits were made by the UDCC and UzDCC at LRP sites in the three hill districts. The Union leaders met with CRCs to learn about the progress of the LRP Project implementation and to examine the effects of the LRP projects on the community and how they are dealing with the issues. These visits assisted local officials in recognizing CCRP efforts and in resolving a variety of challenges.

The project team also planned to organize seminars/workshops/policy dialogue on environmental change issues (CHT focus in particular) at the regional and national levels, but it was postponed due to the Covid-19 situation. According to the project officials, the planned policy dialogue is yet to be carried out. A consultant on CHT Climate policy was set to be onboard and a series of policy dialogues were planned to be carried out in 2021 but it had faced some major setbacks due to government restrictions on public gatherings (*Dhaka Tribune*, 2021). The pandemic situation during the project period has impacted the projected activities which required mass public gatherings. Community awareness-raising sessions, campaigns, day observation at the community level, and similar sessions have taken a hit for the covid-19 situation according to the project officials.

5.3 Efficiency

Efficiency is defined as "The extent to which the intervention delivers, or is likely to deliver, results in an economic and timely way" in the 'Revised Evaluation Criteria Definitions and Principles for Use' by the OECD/DAC Network on Development Evaluation. Following the guideline, the study team looked at inputs relative to the entire results chain (outputs, outcomes and impacts), in line with good evaluative practice. It is recognized that analysing the entire results chain, and in particular, looking at the efficiency of inputs to impacts, is methodologically challenging. The lack of relevant information often makes the process of examining the efficiency of the project challenging in terms of financial analysis. Due to the frequent absence of benchmarking data, the study team often used the reference to effectiveness, impacts and sustainability apart from using information obtained through interviews conducted with key informants. Below sub-section includes a discussion of cost-effectiveness related to project interventions in CCRP. Subsequent sub-sections deal more explicitly with the

implementation strategy and execution, institutional set-up and M&E system, fund availability and timeliness of CCRP.

Value for Money

To assess the projects' efficiency in terms of Value for Money, this study employed **the DFID-developed 4E framework**, which is particularly applicable to adaptive programs. According to DFID, Value for Money (VfM) represents a balance between economy, efficiency, effectiveness, and equity. Each E is given a precise definition, which was typically framed as a question:

- **Economy:** Are we (or our agents) buying inputs of the appropriate quality at the right price?
- **Efficiency:** How well are we (or our agents) converting inputs into outputs? ('Spending well'.)
- **Effectiveness:** How well are the outputs from an intervention achieving the intended effect? ('Spending wisely'.)
- **Equity:** How fairly are the benefits distributed? To what extent will we reach marginalized groups? ('Spending fairly'.)

Cost-effectiveness was added as a fifth dimension in some iterations of the framework and was typically defined in terms of the intervention's ultimate impact on poverty reduction relative to the inputs invested (Laws and Valters, 2021).

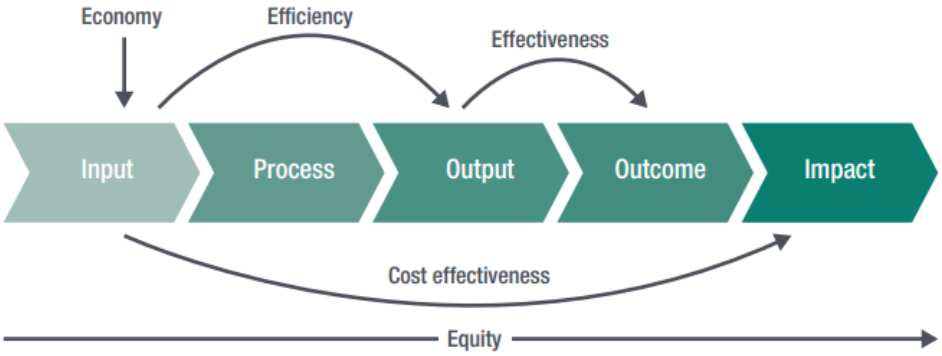

Figure 10: DFID's 4E Value for Money framework

The study used the **"VFM SYSTEM MATRIX",** which is part of the VFM Guide created by People in Need (People in Need, 2021). This process of evaluating the VfM of the project will require the review of the project documents, internal procedures as well as discussions with program and support staff. This qualitative tool presents a method for assessing the Value of Money using the "E" categories: Economy, Efficiency, Effectiveness, and Equity. The analysis of each "E"is divided into sub-categories of the different stages of a project:

- Identification and Planning
- Implementation and Monitoring
- Evaluation and Learning

Each sub-category includes several standards to be assessed. A score is given to each standard and calculated for each of the 4E's: 1 = No / Not implemented, 2 = Partly / Partly implemented, 3 = Yes / Fully implemented.

For instance, in the effectiveness section of the VfM matrix, the analysis sought to answer the question "How well are the outputs from an intervention achieving (or likely to achieve) the desired outcome?"

To determine the VfM value for this category, the study scored the project on several standards, including "If the project team understands what would happen without the intervention; If the interventions align with UNDP's comparative advantage/areas of expertise (or those of their partners); If it is clear who will benefit from the intervention and how much importance they place on the outcome; If the project has a well-defined theory of change that is supported by evidence; If the project's objectives are specific and attainable; If the project team has considered the long-term viability of this intervention; If the project generates significant learning as a result of this intervention; If the project team effectively manages risks as a result of this intervention." The subcategories "Implementation and Monitoring" and "Evaluation and Learning" were evaluated similarly. The analysis described each of these standards and assigned a score based on the project's progress on that particular topic/standard.

The scores for the standards of the "Effectiveness" section were calculated (out of 3) using the results of various indicators learned during the evaluation. **The VfM value for "Effectiveness" was determined to be 2.7, indicating that the project achieved very good** "**Value for Money**" **in terms of effectiveness**. The "Equity" section of the analysis sought to determine whether the project addresses social or economic disparities. **The "Equity" part's VfM value was determined to be 2.6 (out of 3)**. This also indicates that the project was able to address social and economic disparities in part, thereby achieving very good "Value for Money." The analysis suggests that in **the "Economy" part (Is the project buying inputs of the appropriate quality at the right price) the project achieved excellent VfM value (3 out of 3). The project did excellent in "Efficiency**" (How well do UNDP and its partners convert inputs into outputs?) **as well in terms of value for money as it achieved 2.8 (out of 3) here.**

UNDP project implementation strategy and execution

UNDP's SID-CHT project and the Ministry of CHT Affairs jointly manage the CCRP project. MoCHTA's National Project Director (NPD) and National Project Manager (NPM) are in charge of overseeing the project's implementation. In addition to BRAC as a technical partner, three Hill District Councils serve as key implementers of the CCRP. The government plays a critical role in the project's implementation and oversight as part of the National Execution (NEX) Modality.

SID-CHT, UNDP, and NRM are all actively involved in supporting, monitoring, and guiding the field activities of CCRP, led by the Chief-Livelihoods and NRM. Additionally, CCRP receives support from other team members, including a Program Officer-Livelihoods, a Program Officer-Monitoring and Evaluation, and a Program Officer-Climate Change, who are all based in Rangamati. These teams are comprised of a District Manager and two Livelihoods and Community Mobilization Specialists and two District FFS experts and Upazila Facilitators, who provide day-to-day supervision and monitoring of CCRP activities at the district level.

It is composed of 32 full-time staff members, including three District Officers, three Technical Officers for Climate Change and Community Resilience; three Monitoring and Reporting Officers; and three Admin Assistants. Organizers are also included (20). Except for the Community Organizers, all of the staff are based in the district and perform their duties in the selected Upazilas.

This project's community part, the Climate Resilience Committee, oversees community-level initiatives and organises groups of participating villages to aid in their implementation on the ground. As part of the project implementation, traditional leaders (headmen and karbaries), Union Parishad members, Union and Upazila Parishad members, as well as Union and Upazila Parishad officials, play critical roles.

The evaluation assessed that the implementation strategy was well-executed throughout the project's various phases. The project planned and executed activities on time and in accordance with the strategies outlined above.

Efficiency related to institutional set-up and management

The evaluation discovered that CHT/UNDP had organised and managed institutional arrangements effectively. The activities appeared to be well-executed and supervised, and the division of roles and responsibilities appeared to be appropriate. Responsibilities have been defined clearly and have worked well in general.

The primary institutional challenge confronting CCRP appears to be ensuring adequate capacity, coordination, and collaboration within and among three HDCs that are connected to line departments. As stated in Section 3.1, representatives from the governments' Extension departments are transferred under HDCs in CHT. This presents several administrative difficulties when the government staffs become subject to CHT authority rather than their corresponding department. As a result, it has been particularly difficult to encourage government officials to connect with the HDCs, and officials infrequently move between CHTs or outside CHTs. This scenario was confirmed through a series of interviews with key informants in three districts. For instance, an interview with a representative from DAE of Rangamati revealed that despite the department's crucial involvement in the CCRP project being necessary, DAE faced a manpower shortage.

Previously, the three HDCs had established Planning Units for a project funded by the FAO. Members of the HDC staff discovered that these units contributed to more seamless integration of work across HDCs (DANIDA, 2019). It appears necessary to develop another mechanism for the improvement of extension services' coordination and collaboration in relation to HDCs.

Fund availability and Timeliness of activities

According to the CCRP project's completion report, funding was quite consistent, and the project was able to complete on time and within budget. One of the UNDP project officials from Khagrachari stated that it was difficult to transport materials in these areas, which increased the cost of day laborers, requiring them to spend more than the budgeted amount. He also refers to covid 19, which he believes has increased the project's cost. One of the local level stakeholders' from Rangamati (UP Chairman) also believes that the fund for project activities decreased because of the COVID 19 situation. However, according to the completion report, the project has received 2261598 USD in total to implement the project, which includes only 316261 USD COVID 19 expenditure. However, there were a few exceptions, for an example, one of the implementing Partner Staffs from Khagrachari said that, while initially, they had a plan to address a water-related issue, when they ran out of money, they decided to create a pineapple garden for the benefit of the community.

Concerning the project's timeliness, the study's findings indicate that the majority of the project's activities, as mentioned previously in this section, were completed on time, apart from some exceptions. The project officials explained that the implemented activities had not been completed on time because of the covid-19 pandemic. During the busiest parts of the project, the covid-19 pandemic posed a significant challenge to finishing tasks on time.

Monitoring and evaluation

The CRC Committee was established at the community, Upazila, district (at HDCs) and, finally, SID-CHT district and regional levels by CCRP as a systematic monitoring and evaluation mechanism. The CCRP core staff of HDCs and SID-CHT were given a brief introduction to the monitoring and reporting data flow diagram with roles and responsibilities. Most of the project's employees knew exactly what their

responsibilities are in terms of monitoring and reporting. All core staff members participated in capacity-building training on the monitoring and reporting tools, techniques, data collection, validation, and database. CCRP activities were being tracked in real-time using an offline data management system. UNDP, HDCs, Union and Upazila Parishad representatives, CRC members, and finally SID-CHT conducted site visits as part of the monitoring and joint monitoring process. Staff from HDCs and UNDP's SID-CHT took part in meetings with other stakeholders to discuss the project's progress and potential areas for improvement.

The evaluation found that the monitoring and evaluation mechanisms appeared to be well-planned and implemented. However, difficulties in overcoming the physiographic barrier have been identified. Similarly, the absence of coordinated supervision of monitoring activities by the HDCs had reduced the effectiveness of monitoring. This could be addressed by increasing joint supervision, for example, by establishing a monitoring committee comprised of representatives from HDCs and relevant line extension departments.

5.4 Sustainability

Sustainability refers to the continuation of benefits from a development intervention after major development assistance has been completed.

3.4.1 Financial, Institutional and economic sustainability

As illustrated in the preceding chapters, CCRP is found to produce highly relevant results cost-effectively. Simultaneously, the CCRP closely aligns with GoB policies. Moreover, the project component is implemented by the UNDP in collaboration with HDCs under the umbrella of the MoCHTA, with GoB line departments, including DAE, providing trainers, technical support, and some monitoring of activities. The project as a whole involved a diverse range of stakeholders in a variety of activities and interventions. Apart from involving them, a critical component of fostering sustainability among stakeholders is instilling a sense of ownership. The act or degree to which relevant actors and beneficiaries adopt ownership and responsibility for any initiatives or activities done by the stakeholders can be referred to as Stakeholders' ownership. A sense of ownership entails taking ownership of and accountability for any programs that eventually empower relevant actors and beneficiaries. This evaluation found that the CCRP project has succeeded in instilling a sense of ownership in many project beneficiaries and institutions.

Relevant stakeholders endorsed the finding as well. One of the Upazila Parishad Chairman from Rangamati thinks that the project has created a sense of ownership in the Upazila Parishad regarding this project. So, even if these projects are closed, they will be responsible for follow-up from their office or to solve any major problem. Because, above all, the common people are benefiting from it.

5.4.1 Community ownership

The evaluation conducted a few focus group discussion sessions with CRC members in three districts of CHT. Overall, this project was able to develop a sense of ownership in the community people. Participants expressed their gratitude for the project activities and the benefit they got.

During the Focus Group Discussions, participants expressed a high level of confidence in the project outcome's sustainability. They have formed a sub-committee in which they save money at a rate of ten takas per month, while those who cultivate paddy contribute 200 takas; so that in the future, if there is a problem with any scheme (for instance. solar panel, machine, or irrigation pump), they can repair it themselves.

They added that they maintain the materials provided by this project because they were created through their labour. Along with financial support, they purchased and installed 14,000 feet of pipes using their funds and labour. They claim to have contributed labour worth approximately Tk. 2 lakh each to this project. Now and then, the pipes are cut by rats or other animals, resulting in the machine's failure. They resolve them through the use of their own fund. Another very important aspect of sustainability was stated by them, as one of the CRC committee members said -

"We are also educating others (including members from different communities) about the project through subcommittees, so that future generations can benefit even when we won't be there."

However, there were a few alternative points of view. In an interview, one of the Implementing partner staff of CCRP in Bandarban opined that it would be a complete success if they were able to take ownership of the project by understanding it better. Many of them lack full confidence in their understanding of climate change and technical challenges, which may be due to a lack of information or a lack of capacity.

5.4.2 Risks regarding legal frameworks, policies, governance structures, and processes

In the Chittagong Hill Tracts, the remote hills are under increased stress as a result of intensified agriculture, illegal logging, road construction, and unsustainable slash and burn practices. Increased temperatures, as well as more erratic and violent precipitation, exacerbate these trends. These trends have a significant impact on communities' livelihoods and food security. Government institutions and communities have neglected common resource management in the post-conflict period, although it has historically been an integral part of CHT community life.

Partnerships with both government and traditional institutions of CHT are unique arrangements that give rise to risks inherent in developing new administrative arrangements, undertaking policy dialogue and managing expectations. Traditional institutions in the CHT may be reluctant to engage in advocacy or common resource management.

Partnerships with both the government and the traditional institutions of CHT present unique challenges in developing new administrative arrangements, engaging in policy dialogue, and ensuring that expectations are managed. The CHT's traditional institutions may be reluctant to get involved in advocacy or resource management efforts.

However, CCRP largely managed to mitigate the above-mentioned risks. Mitigation measures were implemented to manage relationships with local people and institutions, including hiring locally, aligning with both local and national structures (where they differ), and utilizing local focal points to manage contacts with communities. Additionally, the UNDP has developed emergency procedures and risk mitigation measures to address political unrest. Additionally, the CHT Climate Change Resilience Project is built around local resilience plans, capacitating communities and traditional leaders to assist in identifying advocacy inputs and coordinating resource management.

5.4.3 Existence of mechanisms, procedures and policies

The Country Policy provides critical context for the decisions made during the design phase of the CCRP regarding focus areas and engagements.

The Country Programme 2016-2021 was developed as part of a larger collaborative effort between the Government of Bangladesh and its development partners under the auspices of a Joint

Cooperation Strategy. Under this umbrella, development partners provided significant and strategic assistance in the form of financial and technical assistance to assist the Government in implementing key priorities in its plans.

Besides the country program, as discussed in 3.1.1, this project was largely relevant to national development policies and priorities. The project's relevance to national policies and priorities, as well as its alignment with related GoB line departments, indicates that the project's outcome may be sustainable in the long run.

5.5 Coherence

CCRP project has been able to coordinate with other initiatives to varying degrees in different communities. Strong mechanisms existed for the coordination of both internal and external forces. The project team-maintained synergies with the local government authorities throughout their activities.

Internal Coherence

The project was managed by UNDP as part of the portfolio of projects delivered through the Chittagong Hill Tracts Development Facility (CHTDF) which manages the SID-CHT project. As one of the members of the National Steering Committee (NSC) of the SID-CHT project signed between the Government of Bangladesh and UNDP, DANIDA / Embassy of Denmark joins the NSC meetings to review the progress of the project. The NSC is chaired by the State Minister of the Ministry of CHT Affairs and meets at least twice a year and discuss the progress of the project, provide the necessary guidance, and approve the reports. Apart from the NSC meeting, DANIDA organizes progress review meetings at least every six months DANIDA also makes regular monitoring visits in the field to see the results of the project.

The project benefited from the full capacity of the CHTDF/UNDP related to the CHT and synergies in implementation achieved through the Planning, Monitoring & Reporting (PMR) unit and operations platform supporting the implementation of all projects.

A project manager was responsible for the implementation of the project. At the Country Office, the implementation and assurance roles were overseen by the country office SMT. At the field level, the Livelihood and Natural Resource Unit of SID-CHT coordinate and manage all actions funded by DANIDA. NGO(s) and selected Union Parishads were engaged during the development of the LRPs. The selected plans of the LRPs were supported through Hill District Councils, Upazila, and Union Parishads.

The Climate Resilient Committees set up by the project at the selected watersheds (CRC) acted as the intermediaries between the community people, local government authorities, and the project team. They were a crucial part of the project in maintaining synergies between the various development actors. The CRC members shared that they were able to take lead on overall implementation, management, coordination, monitoring, and follow-up at the community level on climate resilience-building activities under this project. The project team had consulted with them before the project started. And, they had maintained regular communication with them since then. According to them, a concrete system has been developed through this project for developing local resilience plans (LRPs), and LRP implementation. This system follows a bottom-up approach where community people's involvement is the key.

The project had also placed monitoring mechanisms at the local level. Monitoring visits were made by the UDCC and UzDCC at LRP sites in the three hill districts. The Union leaders met with CRCs to learn

about the progress of the LRP Project implementation and to examine the effects of the LRP projects on the community and how they are dealing with the issues. These visits assisted local officials in recognizing CCRP efforts and in resolving a variety of challenges. Maintaining regular engagement with the community and monitoring activities might become a challenge in the future. The Union Parishads are anticipated to adopt the remaining LRPs for inclusion in the Government of Bangladesh's (GoB) Annual Development Programme (ADP). The Upazila Parishads and Hill District Councils (HDCs) would give technical assistance for the LRPs' implementation. Grants for the implementation of the LRP will be made available through the HDCs. Thus, even after the project is completed, the creation of community-based local resilience plans (LRPs) can continue through the efforts of local government divisions. While it cannot simply be assumed that such a multi-actor model would be effective or efficient if simply transferred to other parts of Bangladesh, the different forms of partnerships may be explored.

External Coherence

In the CHT region, there were very few non-governmental organizations (NGOs) that were directly involved in climate change and community-based resilience-building programs. In this location, the process for developing participatory local resilience plans (LRP) is still in its infancy. The long-term consequences of such a strategy are yet to be determined. The project team had worked with various NGOs in developing these local resilience plans. It is very difficult to achieve success without the concerted efforts of donors, NGOs, and other organizations. But the project lacked any concrete coordination mechanisms to concentrate the efforts of the development partners in the area of climate resilience. The project officials shared that a platform at the national level can strengthen national dialogue on climate resilience among the marginal communities. The project intended to arrange seminars/workshops/policy dialogues at the regional and national levels on environmental change issues (with a specific emphasis on CHT), but it was postponed due to the Covid-19 situation. This is one of the shortcomings of the project. By implication, there is a need to continue the process of establishing and strengthening the national dialogue. Engagement in joint advocacy with other development partners is an essential element of inclusive development. The multi-actor approach to developing and implementing the LRPs will require the combined efforts of the CSOs, I/NGOs, Donors, and other development partners working in this region.

However, the evaluation found strong synergies within the different projects managed by UNDP in this region. The CCRP project is a component of the Ministry of CHT Affairs' Strengthening Inclusive Development in the Chittagong Hill Tracts (SID-CHT) initiative, which is funded by the UNDP. A number of other components of the SID-CHT project are being implemented at the same time throughout the CHT Region to help communities achieve greater inclusion in their economic growth. The Agriculture and Food Security Project III (AFSP III) is one of them. CCRP was coordinated with the ongoing Agriculture and Food Security Project III (AFSP III), particularly concerning Farmers' Field Schools and climate risk identification and relevant response. In a similar vein, appropriate links were formed with the CHTWCA, through which training in climate change and integrated watershed management was provided to community stakeholders as well as Forest Department field workers. In this aspect, the project has achieved a commendable level of success. It was not an easy effort for the project authorities to take a holistic perspective and complement the achievements of each project without a solid coordination structure.

5.6 Impact

The evaluation focused on impact extensively. Broadly speaking, the CCRP project has contributed to building resilient livelihoods in the targeted communities. The outcome level results have indicated improvement in the community livelihoods in the targeted watersheds. Vulnerable communities are often located in remote areas and do not have access to modern technology and knowledge base. These communities not only have low access to many public facilities but often do not have access to programs supporting formal or informal education and training. The project leveraged support from institutions, agencies, and donors and introduced new technologies and products which have contributed to the improvement of the community's livelihoods.

The local resilience plans (LRPs) that were developed through a participatory approach will be of great value for the communities in the coming years. The project team engaged with the Union Parishads, the smallest rural administrative and local government units in Bangladesh in developing the LRPs. They have also engaged with the community people through the CCVA process which helped to identify climate vulnerabilities in the community and develop prioritized risk reduction plans. The prioritized risk reduction plans were approved by the Union Development Coordination Committee (UDCC) chaired by the Union Parishad Chairman. It is expected that the other LRPs will be taken by the Union Parishads to include in the Annual Development Programme (ADP) of the Government of Bangladesh (GoB). The Upazila Parishads and Hill District Councils (HDCs) will provide necessary technical support for implementing the LRPs. The grants for LRP implementation will be channeled through the HDCs. So, even after the project development of local resilience plans (LRPs) for the communities can continue through the efforts of the local government divisions. This will have greater implications for the entire CHT region.

5.6.1 Changes in the lives of the people and their communities

The output level results suggested that the project has brought on positive changes in the lives of the people and their communities. There were instances where the impact of the program was demonstrated beyond the immediate project participants. At the same time, the constraints in each of the districts were distinct, which partially explains differential results. Additionally, reforms at the policy level require a longer time horizon to germinate.

A common theme has emerged from the qualitative findings in this study that the acute water crisis in the targeted communities has largely been solved by the project intervention. The establishment of water supply facilities and solar-powered irrigation pumps have contributed to many positive outcomes in the community.

The community people have shared that the project has benefitted (81.4%, N=317) the women in the community through the implementation of the LRP schemes. Respondents were also asked in what way the project has benefitted women in the community. The responses were run through a word cloud generator to better illustrate the common trends in their responses. The below word cloud represents the statements of the respondents which came as a response. The statements were resized proportionally to how frequently they are used and then jumbled into some vaguely artistic arrangement.

Figure 11: How women in the community benefited through the LRP schemes

The visualization taps on to some trends in the quantitative data, but the narrative story of the data can be found through the thematic analysis of the qualitative information. Reduction in the water collection time is a common theme that emerged, and it is also linked to the empowerment of women in the community. The time spent on water collection imposes significant opportunity costs such as loss of income and education. And, in rural communities household water management – collection, storage, and use of water – is typically the responsibility of the female and child members of the family (Faisal & Kabir, 2005).

Women respondents from focus group discussion in Bandarban have shared that, most of the time, they had to spend the whole day collecting water from a stream that was a long way from their village. For this reason, they worked late at night to finish the household chores. But after the water pump has been set up, they have some free time. Some of them have engaged in home gardening, poultry rearing, and crafting. The participants also expressed their views that the LRP schemes have also contributed to the empowerment of women in family decision-making. Union Parishad ward member in Khagrachhari have shared that, women are becoming economically self-sufficient and increasingly important in family decision-making in the community.

Women living in remote rural areas are now able to take a break from their work

Janerang Para in the Bogalake area of Ruma Upazilla is one of the most remote villages in Bandarban. In the past, the murky water of the Chema Khal was the primary source of water for the communities. During monsoons and droughts, community members would dig holes near streams (known locally as patkua) and collect water from distant streams to collect water. During the dry season, the CHT water shortage is a regular phenomenon. However, the situation has worsened in recent years due to widespread deforestation in the region. In addition, stone extraction has diminished the capacity of the streams to retain water. A gravity Flow System has been attempted as a remedy for these issues (GFS). For many families in the village, collecting water three or four times a day is a major hindrance, as parents who are working in the fields frequently delegate this task to their adolescents or young mothers. During the dry season, it is possible to spend entire days searching for water, which is typically collected from streams flowing off of hills.

Baithaoti Tripura is one of the residents. She stated,

"I used to collect water from a stream that was a considerable distance from the village and required me to spend an entire day." I needed to stay up late to complete household chores. But now that I have more time, I have begun poultry rearing."

Previous water source

Water collection from current facility

Water storage tanks are now within reach. When needed, they can easily access water from this tank at any time of day. In addition, women are now cultivating seasonal vegetables and raising backyard poultry. The prevalence of waterborne illnesses has declined.

The solar-powered irrigation pump has been a game-changer in some communities. In a remote hilltop community of Rangamati, named Formon para, the changes in the community were easily observable. The community was situated in a geographically challenging area where one had to walk at least two hours to get to the nearest water source. The project had targeted this community based on climate vulnerability assessment and resilience analyses.

> During the summer period, the situation in of this community became so bad that we had to move to another place for three to four months, which is known as "Bonobas". Now, we are relieved from that crisis. A lot of time and money is saved which we can invest in other financial activities.
>
> *-CRC committee member from Formon para, Rangamati*

As a result of the project interventions, different types of crops are being produced in the community; besides meeting the needs of the family, they are also selling their produce on the open market to supplement their income.

The beneficiary respondents of the quantitative survey have shared their thoughts on the sustainability of the project. Around, 72 percent (N=1045) of the respondent of the project have shared that the results of the project will sustain in the future. The respondents who feared that the positive results of the project will not last, have identified the LRP schemes which are likely not to sustain in the communities. Around 62 percent of the respondents reported that the positive results of the Agri-machineries scheme are not likely to sustain. Close to that, 42 percent of the respondents shared that the afforestation efforts made through the project will not last in the future. Other schemes such as dam construction, solar-powered irrigation pumps, and water supply facilities were also noted by respondents as having less sustainable components. Some components required regular maintenance these could have contributed to their lack of confidence in the sustainability of project interventions. For example, agri-machinery like solar pumps, irrigation pumps, and water supply facilities require proper and regular maintenance and the community will have to bear this responsibility which may be quite difficult for them. Also, some of the schemes required further monitoring activities to ensure their sustainability.

In conclusion, the project had made lasting impacts on the lives of the community people in some aspects of their livelihoods. Notably, reducing the acute water shortage in the communities which were identified as a priority risk.

Through the partnership between the Local Government Division and the UNDP, the project was able to bring services closer to the people in areas that are most prone to climate change. The LRP schemes will undoubtedly have lasting impacts on the lives of the community people. If the remaining LRPs are adopted by the Union Parishads for inclusion in the Annual Development Programme (ADP) of the Government of Bangladesh (GoB), the entire CHT region will benefit.

5.6.2 Positive/ negative change in target beneficiaries, their communities, and duty bearers

Communication between government stakeholders and community people has increased because of this project. People are now aware of climate change, and they know that climate change is an

important issue. The project team took a proactive approach to tackle environmentally damaging practices in the community, such as unlawful stone lifting, teak tree planting, and tobacco harvesting. According to Rangamati's implementation partner staff, tobacco cultivation was the sole source of income for some rural communities. The project has aided them in developing self-sustaining livelihoods. They have constructed irrigation pumps for these communities and extended Agri-machinery support. They are now engaged in agriculture and afforestation, which contributes to the reduction of disease risk in communities. Through the project interventions, the most prominent vulnerabilities in the communities were overcome.

Study findings indicate that vulnerability to climate and environmental hazards such as landslides, flash floods, and thunderstorms is widespread among the surveyed populations. In addition to that, the destruction of crops due to wild animal attacks and crop losses due to pests are vulnerabilities that are left unaddressed. Though some vulnerabilities remain within the targeted communities, this project was successful in removing the financial barriers. Water supply and irrigation facilities have rejuvenated agricultural activities in the remote paras or communities in the region. With the help of solar, they can now cultivate land three times a year, compared to once previously. Before this initiative, some communities were unable to farm outside of the rainy season due to the shortage of available water. They can now farm throughout the year. The project has substantially contributed to the improvement of the community's livelihood.

To achieve institutional capacity, it is important to have in place: well-defined laws, participatory policymaking processes, and effective public and private sector organizations that create a framework within which the livelihoods of the poor can be continuously improved (DFID, 1999). In this aspect, one of the biggest achievements of this project was the development of Local Resilience Plans (LRPs) in the targeted communities. The community has planned its local resilience for the next 20 to 50 years. The project has paved the way for local ownership of climate actions, but it needs the transformational capacity of local authorities like regional councils, Hill district councils, and other key CHT institutions. There were horizontal linkages created between the local authorities through the project. These linkages will create longer-term cooperative arrangements among the institutions to jointly accomplish common goals. The project initiated a systematic monitoring and evaluation mechanism at all levels. A basic orientation was provided to the CCRP core staff of HDCs and SID-CHT on the monitoring and reporting data flow diagram. Process and progress monitoring tools were designed with databases and data trackers. These activities have positive future implications for this region.

5.6.3 Gender and human right based approach

Respect for universal human rights continues to be a priority in Bangladesh. In its second five-year strategic plan for 2016–2020, the National Human Rights Commission identified several challenges in the areas of civil, political, social, and cultural rights, including "Women Empowerment and Discrimination Against Women, Gender-based Violence"; "Occupational Safety, Wages, and Welfare, including Trade Union Rights of Garment Workers"; and "Full and Prompt Implementation and Compliance with the CHT Accord Focusing on Land Rights" (NHRC, 2016).

Failure to address basic development needs and rights of the marginalized ethnic groups, for example, in the CHT, has left the region behind the rest of the country. According to the Bangladesh Bureau of Statistics Data of 2011, only 7.8% of people living in CHT complete primary education, and absolute poverty and extreme poverty are prevalent in ethnic communities at rates of 65% and 44%,

respectively [7]. The CHT Peace Accord, signed in 1997, brought an end to years of insurgency in the region, but it has not been fully implemented. One area that requires additional attention is resolving land disputes that arise as a result of common-law and traditional land-use patterns. Without clearly defined property rights, this is a delicate issue that requires informed resolution.

While gender inequality has improved in general in Bangladesh, gender-based violence and equal access to health, education, and employment remain unaddressed (UN, 2014). Continued efforts in this area will also contribute to increasing women's economic participation, which is necessary for growth to accelerate.

CCRP places a strong focus on poor and vulnerable people, particularly marginalized women and smallholders, and adheres to the PANT principles (Participation, Accountability, Non-discrimination and Transparency). The use of labour-intensive methods to target impoverished and destitute women, as well as participatory community-based climate resilience assessment and protection, all exemplify a Human Rights-Based Approach. Gender equality is incorporated into the primary deliverables, most notably by requiring women to participate in labour-intensive infrastructure at a rate of 90%.

5.6.4 Cross-cutting issue

Leave no one behind

Through this final evaluation, it was assessed to what extent have the projects' response and recovery initiative(s) been inclusive in supporting the most vulnerable and marginalized group in the implementing area.

Lessons learned

For final evaluation it is significant to consider the lessons learned from the previous terms of the projects so this evaluation focused on the following key questions:

- ✓ What are the lessons that the projects have learned so far?
- ✓ What are the challenges that the projects have faced during their implementation?
- ✓ What measures have already been taken to mitigate those challenges?

Way forward

Based on the achievements to date, this evaluation provided forward-looking programmatic recommendations to the UNDP for its course correction and future programming.

Overall, the final evaluation assessed the results achieved in terms of policy support and institutionalization through interventions over the years. It identified value additions in terms of knowledge /skill enhancement and sharing towards facilitating national resilience focusing on climate change. It also explored the gaps and areas of focus, which need further attention for promoting national resilience. Additionally, this evaluation had a strategic approach to identify potential sectoral collaboration and areas of scaling up that should be taken forward to build a resilient Bangladesh.

[7] Government of Bangladesh (2015): "7th Five-Year Plan (FY2016-FY2020) – Accelerating Growth, Empowering Citizens", pp. 12 and 680

5.6.5 Risk assumption analysis

#	Risk	Impact(s)	Risk Treatment ast tense
1	Land tenure risk due to peace accord	Land tenure security of common resources or watersheds (or village common forests) remains a programmatic risk related to the uncertainties around climate and environmental variables that are beyond the control of the Development Engagement (DE).	The DE worked with both government and traditional institutions of the CHT, which as unique arrangement gave rise to risks inherent in developing new administrative arrangements, undertaking policy dialogue and managing expectations.
2	Lack of local level advocacy	Traditional and local government leaders in the CHT may not actively participate in advocacy or common resource management.	Inclusive risk reduction planning, local level and community consultations for advocacy input and capacitation of community groups to identify and advocate for changes in the management of common resources were relevant risk response.
3	Additional resource	There are financial risks associated with challenges that may arise in mobilization of additional resources.	
4	Natural disaster	Natural calamity (such as flood and droughts) may require actions that are beyond the scope of the engagement.	Prioritised actions linked to local development plans mitigated this together with mobilisation of actors and UNDP's emergency procedures.
5	Engagement in various COVID 19 response	High workload of the Government officials/ representatives due to their engagement in various COVID 19 response	Repurposing of AWP and budget, defined new strategy

6 Conclusions

Raising community awareness about environmental and climate-related hazards through a community climate vulnerability assessment (CCVA) and a local resilience plan (LRP) was a key achievement for this project and it will act as a stepping stone for building a resilient community in the CHT region. Now that the community members are aware of the human-caused causes of climate change and watershed drying, they are self-motivated to prevent deforestation and stone extraction from watersheds. Water scarcity was the primary issue in intervention areas, and this project has largely met the demand for water in these areas. Solar panels are used to provide irrigation for cultivation, and people can improve their livelihoods through agriculture.

The project was particularly responsive to gender equality and women empowerment. In the CRC committee, at least 50% of the members were women. There was a rule that, in a CRC committee, if there is a male president then the treasure must be female. Even in some committee's president and treasurer, all are female. Previously women have lost 3-4 hours in a day collecting safe drinking water but now water scarcity has been reduced and they are using their extra time for other work and contributing to the economic development of their family and society.

While this project was successful in accomplishing its objectives, it does have some limitations. To begin, this project was unable to include all remote areas under intervention, although residents of these areas express a strong desire to be included. Second, while numerous climate change-related hazards were identified during the CCVA process, the project was unable to address all of them due to the scope of work; as a result, they focused exclusively on the core climate change hazards. In khagrachhari district, in a site, it was possible to provide water pumps only in three communities out of five communities. The project has made a pineapple garden in these areas instead of a water pump due to budget shortage. Considering this as a pilot project, those who are non-beneficiaries of the project hope to be included in the next intervention. A notable challenge of this project is that due to transportation problems in the hill region it was very challenging to carry the materials like a rod, cement, pipe, and water tank in inaccessible areas and most of the funding are spent on this purpose and it is difficult to repair if any instruments get damaged in these areas. Moreover, the covid-19 pandemic also created some obstacles during the implementation period of the project.

One of the positive aspects of this project is that it instilled a sense of ownership in the relevant stakeholders regarding the project's activities. In some areas, spontaneous community participation through labor and financial assistance has aided the project's success. Even in some areas, community members have formed a joint fund on behalf of the project, into which beneficiaries deposit a certain amount of money each month to repair any damaged solar pump or another project instrument, ensuring the project's sustainability.

7 Recommendations

Climate change is a matter of concern not just in Bangladesh, but throughout the world. Making a community climate-resilient is not easy. According to the World Bank's report, it is not possible to eliminate climate change risks; rather, strategies should be developed to cope with and manage these risks. The following are a few recommendations for the project:

Table 8: Table of Recommendation

Key theme	Findings	Recommendation
Expansion of intervention area	This project intervenes only twenty watershed sites located within CHT's ten Upazilas. According to many stakeholders, there are additional vulnerable communities in numerous remote areas of CHT that require project intervention to cope with environmental and climate-related hazards. The residents of these remote areas face water scarcity and other climate-related risks as well.	it is necessary to expand the project's intervention area in order to ensure that the intervention's impact lasts long and can be disseminated organically. There are lot communities which have not received the interventions. Communities that are left unintended and are at risk of climate-induced hazards should be supported. Future programming should identify those communities that are at risk and take necessary actions.
Strengthen National Coordination Platform	The project lacked concrete coordination mechanisms to concentrate the efforts of the development partners in the area of climate resilience. Stakeholders at various level are working with climate change related issues in the CHT region. The coordination between the efforts of different stakeholders is channel through the HDC's. However, some aspects of this coordinating mechanism's operation are found to be lacking. The HDC is overburdened by the enormous responsibility heaped upon them. The LRPs that were created as part of this initiative are expected to be sustained by local government divisions. The Union Parishads are anticipated to adopt the remaining LRPs for inclusion in the Government of Bangladesh's (GoB) Annual Development Programme (ADP). The Upazila Parishads and Hill District Councils (HDCs) would give technical assistance for the LRPs'	To strengthen national dialogue on climate resilience among the marginal communities the efforts of the all the key stakeholders needs to be channelled effectively. Coordination with the development partners working in similar areas and district councils and relevant government departments needs to be strengthen. The LRPs that was developed through this intervention will not have the desired outcome without a collaboration between different stakeholders. it cannot simply be assumed that such a multi-actor model would be effective or efficient. Different forms of partnerships may be explored and strengthen to realise the LRPs to get the intended output.

Key theme	Findings	Recommendation
	implementation. Grants for the implementation of the LRP will be made available through the HDCs.	
Watershed restoration	The community's water crisis can be attributed to a variety of factors, including increasing demand, pollution, poor management, a lack of infrastructure, and changes in weather patterns as a result of global warming. The evaluation identified deforestation as a significant stressor contributing to the water shortage. Forest conservation should be one key area to focus on. Updated stone lifting upstream is causing the hill creeks to dry up. Illegal logging and sale of trees from village common forests contribute to the drying up of water sources as well.	The project was able to set up water supply facilities in remote locations, without addressing the key stressors for water shortage the results will not sustain in the long run. The project officials have also admitted to their limitations in this matter. Because of the remoteness of some communities, there were some locations where water supply facilities could not be established. The locations were geographically challenging. People have to depend on natural sources for water in those remote locations. Thus, conservation of the natural sources of water should be the priority.
Addressing the risks	The community people had identified different climate and environmental induced hazards during the CCVA process. But it was not possible for the project to solve all the climate related problem due to budget and geographical restraints. Therefore, the project has solved which was very necessary for the community people at that moment.	To mitigate the climate related risks in the communities, it is necessary to make a long time and integrated planning which should focus on every aspects of climate change and livelihood of the hill people.

8 Lessons learned

- Although the CHT is one of the most vulnerable regions to climate change, stakeholders perceptions and experiences were limited. The project has organized a cross-region visit to the Khulna region, which has more experience implementing climate projects.
- To address a lack of secondary data or research on climate change issues relevant to CHT, the project contracted with a consultant to develop a CHT Climate Resilience Framework. The framework has been drafted and will be shared with the appropriate stakeholders shortly.
- With the spread of covid-19 infection, several lockdowns were put in place and field activity was stalled. Multiple activities have been managed through alternative modes of operation, with a focus on ensuring a safeguarding policy for program implementation.
- It has been discovered that communities, through their life experiences, can motivate individuals to make greater efforts toward local adaptation. It has long been recognized that climate resilience requires both adaptation and mitigation. Gender parity in terms of women's participation in decision-making and implementation infused additional vitality into this project.
- As a result of the community's active participation in the CCVA and LRP development processes, their primary needs were addressed, and women have been particularly active as a result of their leadership roles on the CRC committee and during the implementation process.

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