

Extended Community Climate Change Project-Drought (ECCCP-Drought)

## Integrated Results Management Framework

## 1. Project Background

The project intends to promote a paradigm shift towards sustainable water management through replenishment and water-saving technologies. The project will implement an Integrated Water Resources Management (IWRM) concept using '4-R' (Reuse, Recharge, Recycle, and Reduce) approach for increasing resilience of the drought-vulnerable communities. The project will implement 2,500 rooftop-based Managed Aquifer Recharge (MAR) technique (rainwater directed through tubes to the aquifer) to replenish the ground water. It is expected that 2,500 rooftop-based MAR will replenish about 560,000 m<sup>3</sup> of water into the aquifer annually which will increase access to drinking water of the selected communities. The project will also implement 40 inject wells in ponds that will replenish an estimated 400,000 m<sup>3</sup> of water into the aquifer annually. In addition, the project will re-excavate 140 km canals and 300 ponds for preserving rain water. Furthermore, 15,000 farmers will apply drought-adaptive cropping patterns.

## 2. Section B.2.2. Outcome mapping to GCF results areas and co-benefits categorization

The table below presents outcome mapping to the relevant results areas and the types of co-benefits. The project has identified three co-benefits. Co-benefit 1 is related to environment, co-benefit 2 relates to income and gender and co-benefit 3 is associated with health.

Outcome	Alignment with results area
Outcome 1: Improved institutional and technical capacities to address climate change-induced drought	This outcome is aligned with ARA 2- Health, wellbeing, food and water security. By improving the capacities of the local institutions and communities on addressing climate change, the project is expected to reduce vulnerabilities of agriculture and livelihood systems in the drought areas of the country.
Outcome 2: Increased availability of surface and ground water for irrigation and drinking	This outcome directly comply with two adaptation results areas. Primarily it relates to ARA 2- Health, wellbeing, food and water security. Because appropriate water management interventions will be implemented under this outcome that will directly reduce the vulnerability of agriculture, livelihood and drinking water system in the drought affected Barind area. This will ultimately lead to reduce vulnerabilities of the drought affected communities by increasing their income and improving health.
Outcome 3: Drought resilient livelihoods created through a sustainable agricultural production	This outcome focuses on drought-adaptive sustainable agricultural practices that will increase food production and income. So, this outcome is related to ARA 2- Health, wellbeing, food and water security.

Co-benefit	Alignment with result areas
Co-benefit 1: Improved biodiversity by planting trees and preserving water in ponds and canals	This co-benefit is related to environment because the project will plant trees along the canals and around the pond. The trees will provide shelter for the birds and other animals. It will also uptake some CO <sub>2</sub> from the atmosphere.
Co-benefit 2: Increased income for farmers and women	It is expected that water interventions under this project will reduce time for fetching water for drinking and

	irrigation. They may use this additional time in productive activities. Hence it is related to economic and gender co-benefits.
Co-benefit 3: Improved overall health of the community	The project is expected to increase availability of safe drinking water which is important for good health. So, it is related to social co-benefit.

Outcome number	GCF Mitigation Results Area (MRA 1-4)				GCF Adaptation Results Area (ARA 1-4)			
	MRA 1 Energy generation and access	MRA 2 Low-emission transport	MRA 3 Building, cities, industries, appliances	MRA 4 Forestry and land use	ARA 1 Most vulnerable people and communities	ARA 2 Health, well-being, food and water security	ARA 3 Infrastructure and built environment	ARA 4 Ecosystems and ecosystem services
Outcome 1: Improved institutional and technical capacities to address climate change-induced drought	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Outcome 2: Increased availability of surface and ground water for irrigation and drinking	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Outcome 3: Drought resilient livelihoods created through a sustainable agricultural production	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

## 2.2 Co-benefits

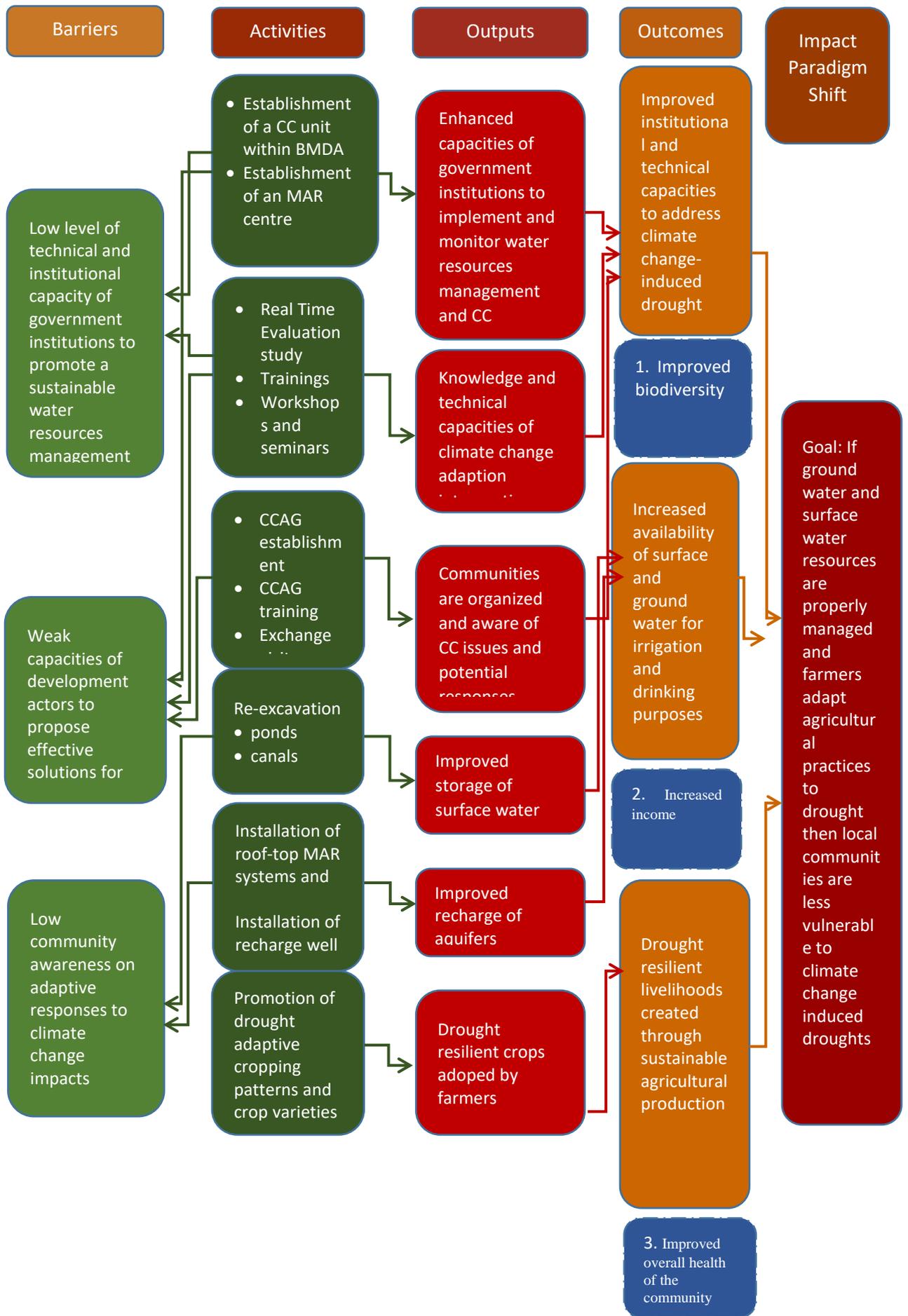
Co-benefit number	Co-benefit					
	Environmental	Social	Economic	Gender	Adaptation	Mitigation
Co-benefit 1: Improved biodiversity by planting trees and preserving water in ponds and canals	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

Co-benefit 2: Increased income for farmers and women	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Co-benefit 3: Improved overall health of the community	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

### 3. Section D.2. Paradigm Shift Potential

The analysis of climate change context in the feasibility report suggests that the monsoon period is gradually shifting and becoming shorter. At the same time, ground water depletion due to over-exploitation together with rainfall variability and temperature rise are worsening drought conditions. Hence, drought causes a decrease in agricultural output leading to loss of livelihoods and food insecurity. It also has direct health impacts since it reduces access to safe water and force people to use unclean water. Moreover, water infrastructure is not properly maintained, which reduces the available water.

The paradigm shift that the project will be based on the promotion of an Integrated Water Management (IWRM) concept using a '4-R' approach - Reuse, Recharge, Recycle and Reduce to the resilience of drought-vulnerable communities. More specifically, the paradigm shift will consist of the following key elements: i) shifting from unsustainable use of scarce water resources to a sustainable management of ground water and surface water resources; ii) building institutional capacities to address water scarcity problems at the grassroots level, among regional government authorities and the central government; iii) substantially reducing water consumption needs for agricultural productions; and iv) promoting cropping patterns and crops that are drought-tolerant. The theory of change is presented below:



Note: The blue boxes represent co-benefits.

#### 4. Annex 2a Logical Framework

LOGICAL FRAMEWORK				
1. GCF Impact level: Paradigm shift potential (max. 300 words)				
<p>The project will enable a transition towards a sustainable exploitation of water resources in the North-western area of Bangladesh that is most affected by climate change-induced drought. This will be achieved by substituting an unsustainable use of ground water resources with available surface water and by introducing innovative and low-cost techniques to recharge the below-ground aquifer. The project will also promote a shift towards less water-consuming agricultural practices and crops, thus reducing water needs for agricultural production and adapting agricultural production to drought. Replicable low-cost options will be introduced in the project area to promote climate-resilient sustainable development through the sustainable use of water resources. Finally, the project will build capacities at different institutional governance levels to sustain the project interventions in the future and to replicate and scale up the innovations proposed by the project to adapt poor farming communities to climate change.</p>				
Assessment Dimension	Current state (Baseline)		Potential target scenario (Description)	How the project/programme will contribute (Description)
	Description	Rating		
<b>Scale</b>	The practice of integrated water management (IWRM) as a means of adaptation to climate change in drought-vulnerable areas is found at very limited scale.	<u>Low</u>	The project will transform existing water management practices to integrated water management practices (IWRM) through 4-R approach (reduce, reuse, recycle, and recharge) practices in at least 14 upazilas (sub-districts) of Naogaon, Rajshahi and Chapainawabganj districts. 215,000 people will be directly benefited whereas all other people will be indirectly benefited.	The government adopted National MAR strategy to improve ground water recharge throughout the country. The building code act of the country also incorporates the MAR system with building design. This project will create knowledge and learning on the technical, social and financial viability as well as effectiveness of MAR system by implementing 2,500 roof-top based and 40 pond based recharge well MAR system in Naogaon, Rajshahi and Chapainawabganj districts. It is expected that these interventions will rapidly be scaled up by the government in association with various development partners including GCF.
<b>Replicability</b>	Replication of the selected interventions was found to be very limited.	<u>Low</u>	The proposed technologies particularly MAR systems and climate resilient agriculture will be replicated in the 16 districts of the Barind region. In addition, the MAR	The MAR systems will be replicated throughout the country by incorporating building codes. However, the project will create an enabling environment by enhancing the technical

			systems will be replicated in urban areas including Dhaka city.	capacity of local institutions and contractors and by generating and disseminating knowledge.  The agricultural practices proposed in the project will be replicated by other farmers. These will be profitable as presented in the pre-feasibility report as well as less vulnerable to drought.
<b>Sustainability</b>	The proposed interventions are mostly innovative in nature.	<u>Low</u>		The proposed interventions are self-sustained. The expected life expectancy of the project is 20 years. It is expected that the project interventions will sustain more than the expected life expectancy. Because the MAR structures are permanent and minimum seasonal maintenance is required. On the other hand, proposed agricultural activities are more profitable and less vulnerable to climate change than the farmers are doing now.

2.1. GCF Outcome level: Reduced emissions and increased resilience (IRMF core indicators 1-4, quantitative indicators)						
GCF Result Area	IRMF Core Indicators (1-4) <sup>1</sup>	Means of Verification (MoV)	Baseline	Target		Assumptions / Note
				Mid-term	Final <sup>2</sup>	
<u>ARA2 Health, well-being, food and water security</u>	<u>Core 2: Direct and indirect beneficiaries reached</u>	Pre-feasibility report, Baseline report, Real Time Evaluation study report, annual performance report, quarterly monitoring report	To be determined	Direct beneficiaries: 80,000  50% of direct beneficiaries are women	<i>Direct beneficiaries: 215,000</i>  50% of them are women  Indirect beneficiaries:	Farmers' understanding on climate-drought adaptive farming system increased  Local government institutions are supportive to

<sup>1</sup> The IRMF Indicators are set out in the [Integrated Results Management Framework](#)

<sup>2</sup> The final target means the target at the end of project/programme implementation period. However, for core indicator 1 (GHG emission reduction), please also provide the target value at the end of the total lifespan period which is defined as the maximum number of years over which the impacts of the investment are expected to be effective.

				Indirect beneficiaries: half of the population of the selected upazilas	All the people of the selected upazilas	the proposed farming practices  Seeds of stress tolerant varieties are available in the market
	<u>Supplementary 2.2: Beneficiaries (female/male) with improved food security</u>	Pre-feasibility report, Baseline report, Real Time Evaluation study report, annual performance report, quarterly monitoring report	To be determined	<i>30% of the selected beneficiaries improved food security</i>	<i>70% of the selected beneficiaries improved food security</i>	The community people own the water infrastructure including MAR system, canals and ponds.  Maintenance of the water infrastructure are carried out on a regular basis  The local institutions are supportive to the communities about maintenance of the infrastructure.
	<u>Supplementary 2.3: Beneficiaries (female/male) with more climate-resilient water security</u>	Pre-feasibility report, Baseline report, Real Time Evaluation study report, annual performance report, quarterly monitoring report	To be determined	<i>40% of the selected beneficiaries with more climate-resilient water security</i>	<i>80% of the selected beneficiaries with more climate-resilient water security</i>	The community people own the water infrastructure including MAR system, canals and ponds.  Maintenance of the water infrastructure are carried out on a regular basis  The local institutions are supportive to the communities about maintenance of the infrastructure.
	<u>Supplementary 2.5: Beneficiaries (female/male) adopting innovations that strengthen climate change resilience</u>	Pre-feasibility report, Baseline report, Real Time Evaluation study report, annual performance report, quarterly monitoring report	To be determined	<i>Female: +6,500 Male: +6,500  (Mainly having MAR infrastructure)</i>	<i>Female: +16,500 Male: +16,500  (Mainly having MAR infrastructure)</i>	The community people own the water infrastructure including MAR system, canals and ponds.

<p><u>ARA1 Most vulnerable people and communities</u></p>	<p><u>Supplementary 2.1: Beneficiaries (female/male) adopting improved and/or new climate-resilient livelihood options</u></p>	<p>Pre-feasibility report, Baseline report, Real Time Evaluation study report, annual performance report, quarterly monitoring report</p>	<p>To be determined</p>	<p>+ 12,000 female + 12, 000 male</p>	<p>+ 30,000 female + 30,000 male</p>	<p>Farmers' understanding on climate-drought adaptive farming system increased</p> <p>Local government institutions are supportive to the proposed farming practices</p> <p>Seeds of stress tolerant varieties are available in the market</p>
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<p><b>2.2. GCF Outcome level: Enabling environment (IRMF core indicators 5-8 as applicable)</b></p>					
<p><b>IRMF Core Indicators (5-8)<sup>3</sup></b></p>	<p><b>Baseline context (Description)</b></p>	<p><b>Rating for current state (Baseline)</b></p>	<p><b>Target scenario (Description)</b></p>	<p><b>How the project will contribute</b></p>	<p><b>Coverage</b></p>
<p><u>Core Indicator 5: Degree to which GCF investments contribute to strengthening institutional and regulatory frameworks for low emission climate-resilient development pathways in a country-driven manner</u></p>	<p>Local level government and non-government institutions have limited strength and plans for addressing climate change.</p>	<p><u>low</u></p>	<p>2 Government organisations strengthened their capacity in addressing climate change.</p> <p>60 selected NGOs strengthened systems and plans for addressing climate change (established focal persons and recruited specialised staff and integrated climate change)</p>	<p>The project will provide logistic and human resource support to the government to establish the proposed MAR centre. The project will also set up a Climate Change Cell at the Barind Multipurpose Development Authority (BMDA).</p> <p>The project will provide training to 100 selected partner organisations</p>	<p><u>Single sub-national area within a country</u></p>

<sup>3</sup> The IRMF Indicators are set out in the [Integrated Results Management Framework](#)

				(POs) of PKSF who are based in drought-vulnerable areas. 3 staff from each of the selected organisations will received training on addressing climate change and real time evaluation study systems.	
<u>Core Indicator 6: Degree to which GCF investments contribute to technology deployment, dissemination, development or transfer and innovation</u>	Water management technologies in drought-vulnerable areas in Bangladesh are mostly traditional.	<u>low</u>	<p>The project will implement 2,500 rooftop-based MAR systems and 40 pond-based recharge wells.</p> <p>The project will also implement drought adaptive cropping systems and horticulture with 12,000 farmers.</p>	The project will promote integrated water resources management by adopting 4-R (reuse, recycle, recharge, and reduce).	<u>Single sub-national area within a country</u>
<u>Core indicator 8: Degree to which GCF investments contribute to effective knowledge generation and learning processes, and use of good practices, methodologies and standards</u>	Currently, very limited climate change adaptation projects in drought-vulnerable areas exist. Most of the past and ongoing projects do not have a system for generating knowledge and learning for future planning and scaling up.	<u>low</u>	<p>The project will carry out at least 4 studies including the baseline and annual real time evaluation studies. In addition, the project will have mid-term and final evaluation by independent evaluators.</p> <p>The project will also publish periodic newsletters, produce</p>	The project will identify indicators for measuring resilience of communities to climate change-induced drought. The proposed studies will be based on identified indicators.	<u>Single sub-national area within a country</u>

			workshop reports, and guidelines.		
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3. Project/programme specific indicators (project outcomes and outputs)						
Project/programme results (outcomes/ outputs)	Project/programme specific Indicator	Means of Verification (MoV)	Baseline	Target		Assumptions / Note
				Mid-term	Final	
<b>Outcome 1: Improved institutional and technical capacities to address climate change-induced drought</b>						
Output 1.1: Enhanced capacities of government institutions to implement and monitor water resources management and climate change (CC) adaptation projects.	# of government organisation establishing a project- related unit.	Quarterly monitoring report, RTE reports, BBS, evaluation report.	0	2 GoB	2 GoB	Appropriate coordination and motivation of NGOs. NGOs are willing to participate. NGOs incorporate learnings into their daily operations.
	# of community-based NGOs trained by the project.		0	100 NGOs	100 NGOs	
Output 1.2: Knowledge and technical capacities of climate change adaptation interventions improved.	# RTE reports.	ECCCP-drought baseline report, quarterly monitoring report, RTE study report, evaluation report.	0	2	4	No external events causes anomalies in baseline or RTE results.  NGOs willing to participate in the training.  NGOs have technical staffs for carrying out RTE studies.
	# NGOs trained on RTE methods and utilisation of results.		0	100	100	
	Number of NGOs using RTE methods for evaluating their activities.		0	+30	+60	
Output 1.3: Communities are organised and aware of climate change issues	# of CCAGs established and carried out monthly	Quarterly monitoring report, RTE reports, evaluation report.	0	600	600	Active participation of the CCAG members in the monthly group meetings, trainings, and

and potential responses.	meetings on climate change issues.  Number of beneficiaries that increased awareness on climate change.		0  To be determined	40%  +215,000	70%  +215,000	implementation of activities.
<b>Outcome 2: Increased availability of surface and ground water for irrigation and drinking.</b>						
Output 2.1: Improved storage of surface water.	#km of canals re-excavated.	Quarterly monitoring report, evaluation report, Contractors' reports.	0	50	140	Canals and ponds are selected in appropriate locations.  Government institutions and communities participate actively.
	# of ponds re-excavated.		0	120	300	
Output 2.2: Improved recharge of aquifers.	# of rooftop-based MAR models implemented.	Quarterly report, piezometre data, evaluation report	0	1,000	2,500	Availability of roof-tops of private houses .  Rainfall occurs around the annual average rainfall of this region (about 1400 mm).
	# of pond-based recharge well installed.		0	15	40	
	Annual average ground water recharge increased by m <sup>3</sup>		To be determined	400,000 m <sup>3</sup>	960,000 m <sup>3</sup>	
<b>Outcome 3: Drought-resilient livelihoods created through sustainable agricultural production.</b>						

Output 3.1: # Farmers trained	# Farmers trained			7,000	15,000	Water access increases are sufficient to extend to irrigation.
Number of trained farmers actually applying the proposed cropping patterns.	Number of trained farmers actually applying the proposed cropping patterns.	Quarterly monitoring report, RTE study report, evaluation report.	Baseline to be provided in the inception report.	+6,000	13,000	Drought-tolerant seeds are available. Farmers are motivated to cultivate drought-tolerant crops

**Project/programme co-benefit indicators**

Co-benefit 1: Improved biodiversity by planting trees and preserving water.	# of trees planted.	Quarterly monitoring report, RTE study report, evaluation report	0	25,000 trees planted.	60,000 trees planted.	Local administration and BMDA are supportive of the project.
Co-benefit 2: Increased income for farmers and women.	% of income increased.	Quarterly monitoring report, RTE study report, evaluation report.	To be determined	20%	40%	Canals and ponds are selected in appropriate locations. Government institutions and communities participate actively. The farmers have access to water resources.
Co-benefit 3: Improved overall health of the community.	% of community people improved health.	Quarterly monitoring report, RTE study report, evaluation report.	To be determined	20%	40%	Canals and ponds are selected in appropriate locations. Government institutions and communities participate actively. The communities have access to water resources.

**4. Project/programme activities and deliverables**

Output	Activities	Description	Deliverables
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Output 1.1 <b>Enhanced capacities of government institutions to implement and monitor water resources management and climate change (CC) adaptation projects.</b>	Activity 1.1.1: Establishment of climate change unit at the Barind Multipurpose Development Authority (BMDA).	PKSF has already consulted with the BMDA on establishing a climate change unit. Existing BMDA staff will be assigned to this unit. The project will provide three staff and necessary logistics to the BMDA for this activity.	A climate change cell at BMDA
	Activity 1.1.2: Establishment of a MAR centre.	PKSF will arrange meetings with relevant ministries to initiate the MAR centre. PKSF will propose some logistics and staff support during the project period for the MAR centre.	A MAR centre
Output 1.2: <b>Knowledge and technical capacities of climate change adaption interventions improved.</b>	Activity 1.2.1: Real Time Evaluation (RTE) study.	<p>The PMU will prepare ToR for the study and baseline.</p> <p>Selection of farms by posting advertise on the PKSF website or in newspapers. Analysis of data and development of the study report.</p> <p>The PMU will prepare ToR for the real-time impact assessment and selection of consultants. It will prepare questionnaires and trainings for data collector/enumerators. Processing data and preparing report.</p>	Study reports
	Activity 1.2.2: Analyse results and develop knowledge database of intervention impacts.	PMU will prepare ToR for potential website-developer for developing a website for the project, a database management software and prepare newsletters.	A website, a data management software, data and information and newsletters
	Activity 1.2.3: Training to NGOs on climate change.	The PMU will prepare a training manual. The manual will be used to provide training to the selected staff of the selected 100 NGOs. A Bangla version of this manual will be developed to provide this training.	Training reports
	Activity 1.2.4: Trainings on CC issues and project management.	The PMU will prepare training manuals. The manuals will be used to provide training to the staff of IEs. A	Training report

		Bangla version of this manual will be developed to provide training to the IEs' staff	
	Activity 1.2.5: Organize knowledge-sharing workshops and seminars.	PMU will organise workshops and seminars. Government representatives, development partners, civil society representatives, IEs, etc. will take part in these workshops and seminars.	Workshop reports and seminar reports
Output 1.3: <b>Communities are organised and aware of climate change issues and potential responses.</b>	Activity 1.3.1: Beneficiary selection, group formation and mobilisation.	The project will select 215,000 beneficiaries in consultation with local government institutions and community people. The field officers of the IEs will carry out this activity. IEs will require approval of the list of selected beneficiaries by the PMU of Executing Entity.	List of beneficiary groups and resolution of group meetings
	Activity 1.3.2: Develop beneficiary's socio-economic profiles.	After selection, the IE field-level staffs will visit the selected beneficiaries from door to door and collect socio-economic information before providing support from the project. The PMU will prepare the format for collecting socio-economic profiles of the project participants.	Database on beneficiaries' socio-economic condition at the beginning of the project
	Activity 1.3.3: Training of beneficiary groups	IE's staff will prepare training plans and get approval from the PMU. The IEs' staffs will organise training sessions as per the approved plan. PMU will physically monitor the training activities on a sample basis.	Training reports
	Activity 1.3.4: Organize exchange visits for CCAG members and IEs' staffs.	PMU will identify best practices. Then organise exchange visits for the local communities and institutions to exchange the experience of selected best practices. The IEs staff will assist the PMU in organising the exchange visits including selection of	Exchange visits reports

		participants, venue, invitations, accommodation, logistics etc.	
Output 2.1: <b>Improved storage of surface water</b>	Activity 2.1.1: Ponds re-excavation.	Carry out consultations with CCAGs to select beneficiaries for ponds, procure contractors, re-excavate ponds, and plant trees around the pond. IEs will receive approval for implementing this activity from EE's PMU.	300 Re-excavated ponds
	Activity 2.1.2: Canals re-excavation.	Carry out consultations with CCAGs to select beneficiaries for ponds, procure contractors, re-excavate canals, and plant trees around the canals. IEs will receive approval for implementing this activity from EE's PMU.	140 km canal re-excavation
Output 2.2: <b>Improved recharge of aquifers</b>	Activity 2.2.1 Installation of rooftop managed aquifer recharge system.	The IE staff in consultation with CCAG members will select appropriate sites to establish artificial ground water recharge plant.  Installation of shallow piezometre for monitoring effectiveness of MAR.  The IE will procure the works as per the procurement plan approved by the PMU of EE.	2,500 rooftop managed aquifer recharge system
	Activity 2.2.2 Installation of recharge well for ground water recharge in ponds.	The IE staff in consultation with CCAG members will select appropriate sites to establish artificial ground water recharge plant.  Installation of shallow piezometre for monitoring effectiveness of MAR.  The IE will procure the works as per the procurement plan approved by the PMU of EE.	40 ponds with recharge well
Output 3.1: <b>Drought-resilient crops are adopted by farmers</b>	Activity 3.1.1: Promotion of drought-adaptive cropping patterns, crop varieties, and fruit trees.	The IE staffs will select farmers based on pre-defined criteria in consultation with CCAG members. Selected	7,500 farmers are implementing this activity

		farmers will receive training, seeds, and other input support to establish drought-resilient cropping patterns.	Report on cropping pattern and crop varieties and fruit trees
	Activity 3.1.2: Promotion of drought-adaptive fruit.	Selection of appropriate farmers based on pre-defined criteria. Provision of tree saplings, fertilisers and trainings.	7,500 farmers are implementing this activity  Report on drought adaptive fruit