ANNEX 2A: LOGICAL FRAMEWORK

LOGICAL FRAMEWORK

1. GCF Impact level: Paradigm shift potential (max. 300 words)

The project will contribute to climate-resilient development pathways in Sierra Leone through the sustained impact of project measures that have high potential for replicability and scale. Overall, these impacts will benefit about 700,000 people. The project will contribute to the Paradigm shift potential objectives in two ways. First the project will transform policy, planning and project delivery process in Sierra Leone to incorporate best available CIS information. This will ensure informed climate 'smart' decision making to facilitate climate resilient development (including adaptation and DRR planning) processes. Secondly the project will catalyze (through the development and demonstration of applied CIS) mainstream application of CIS in development processes on a sustainable, long-term basis. The CIS capacity, products and infrastructure delivered are designed to support the mainstream integration of CIS information into decision-making as part of key policy, planning and development processes in Sierra Leone. The project will stimulate a demand-based model for climate information and use of ICT/mobile platforms to enable public and private sector participation, innovation, and market development. It will contribute to key policies in the country and supports co-financed efforts to mainstream climate information into development plans. It will institutionalize knowledge generation and learning through the enhancements to the climate and weather information systems and strengthen country capacities to sustain project impacts. Knowledge, skills and ownership will be improved to manage climate risks and adaptation measures.

Assessment Dimension	Current state (Baseline)		Potential target scenario (Description)	How the project/programme will contribute (Description)
	Description	Rating		
Scale	Limited access to responsive CIS hinders poor capacities to prevent, cope, respond to and recover from climate shocks and stresses	Low	Scaled-up action in support of better weather forecasts, early warning systems and climate information as well as guidance for weather and climate monitoring and prediction at all spatial scales	Outputs 1.1, 1.2, 1.3 and 1.4. Improving weather and climate monitoring techniques and projections and expansion and modernisation of observation and monitoring network to fill most critical gaps in coverage at all spatial and temporal scales
Replicability	CIS systems remain weak, localised and incapable of coping with climate-related extreme events such as storms, droughts, and floods	Medium	Strengthened CIS knowledge management and dissemination of best practices, like modernised forecasting to improve the base for learning with a high potential for replicability in other communities.	Outputs 2.1 and 2.2 Replication will be facilitated through tailoring the collection of hydro-meteorological data to address specific climate change threats and tailoring the analysis of data and packaging of information to address the needs of specific end-users will prompt geographical expansion and uptake
Sustainability	Low sustainability of the CIS services results, owing chiefly to lack of government operational funding and lack of trained personnel to produce forecast services	Medium	Creation of a demand-driven model for climate information and services which will encourage public and private sector stakeholder involvement	Output 2.2 and 3.2, Climate Change Trust Fund will be established as a financial mechanism targeted at addressing climate change. Cost-recovery with PPPs will be piloted to improve sustainability. Strengthened capacity at all levels for improved CIS delivery.

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)[1]	Means of Verification (MoV)	Baseline	Target		Assumptions / Note
				Mid-term	Final[2]	
	Core 2: Direct and indirect beneficiaries reached	Surveys conducted by the Programme among target beneficiaries	0[3]	Direct: 300,000 Male: 150,000 Female:150,000 Indirect:1,000,000 Male:500,000 Female:500,000	Cumulative Direct : 700,000] Male :300,000 Female : 400,000 Cumulative Indirect : 2,538,400 Male: 1269200 Female: 1269200	Climate services are mainstreamed in national planning and DRR strategy
ARA1 Most vulnerable people and communities	Core 2: Direct and indirect beneficiaries reached	Surveys conducted by the Programme among target beneficiaries	0 Ibid	Direct: 300,000 Male: 150,000 Female:150,000 Indirect:1,000,000 Male:500,000 Female:500,000	Cumulative Direct : 700,000] Male :300,000 Female : 400,000 Cumulative Indirect : 2,538,400 Male: 1269200 Female: 1269200	Climate services are mainstreamed in national planning and DRR strategy
ARA2 Health, well-being, food and water security	Core 2: Direct and indirect beneficiaries reached	Surveys conducted by the Programme among target beneficiaries	0 Ibid	Direct: 300,000 Male: 150,000 Female:150,000 Indirect:1,000,000 Male:500,000 Female:500,000	Cumulative Direct : 700,000] Male :300,000 Female : 400,000 Cumulative Indirect : 2,538,400 Male: 1269200 Female: 1269200	Climate services are mainstreamed in national planning and DRR strategy

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[1] The IRMF Indicators are set out in the Integrated Results Management Framework

[2] The final target means the target at the end of program/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.

[3] Baseline assessment of climate Hazards impact to be undertaken during year 1

ARA3 Intrastructure and built environment	Supplementary 3.1: Change in expected losses of economic assets due to the impact of extreme climate-related disasters in te geographic area of the GCF intervention	UNDRR Global Assessment Report Supported by further analysis of data from Underlying platforms: EM- DAT EM-DAT - The international disaster database and National surveys	0[4]	Reduction of losses in economic assets estimated at USD 16 million annually by 2030	Reduction of losses in economic assets estimated at USD 24 million annually by 2040	Data for losses of lives and economic assets is available and credible
ARA1 Most vulnerable people and communities	Supplementary 2.7: Change in expected losses of lives due to the impact of extreme climate-related disasters in the geographic area of the GCF intervention	EM-DAT – The international disaster database and national surveys Surveys conducted by the Programme among target beneficiaries	120 [5]	Reduction of lives lost annually by 60 by 2030	Cumulative reduction of lives lost annually by 90 in 2040	There will be climate Hazards across the Country. Climate services are Mainstreamed in national planning and DRR strategy
ARA4 Ecosystems and ecosystem services	Supplementary 4.1: Hectares of terrestrial forest, terrestrial non-forest, freshwater and coastal marine areas brought under resoration and/or improved ecosystems	Field monitoring reports EPA reports	None	Conservation/restoration of 500 ha of mangrove forests, linked to mangrove nurseries.	Conservation/restoration of 1,000 ha of mangrove forests, linked to mangrove nurseries.	Monitoring systems provide sufficient detail to guide effective planning.

[4] Total economic losses of the 2017 climate induced multiple hazards were estimated at USD 31.65 million, while the preliminary cost of resilient recovery is estimated at USD 82.41 million (World Bank, 2017).Absolute USD figures to be added for targets following a baseline assessment to be conducted during the inception phase for re-estimating the figures.

[5] Data Source EM-DAT 2020. From 2010 to 2019, climate induced natural disasters claimed over 1,150 lives in Sierra Leone (EMDAT, 2020). The targets are indicative and further target setting will be done during the baseline study at inception .

2.2. GCF Outcome level: Enabling environment (IRMF core indicators 5-8 as applicable)					
IRMF Core Indicators (5-8)[6]	**Baseline context (Description)**	**Rating for current state (Baseline)**	**Target scenario (Description)**	**How the project will contribute**	**Coverage**
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	. Inadequate institutional capacity for climate responsive and anticipatory planning. Gaps remain in knowledge; particularly around how long-term focuses of climate change adaptation and mitigation can be more effectively tied to sustainable development outcomes and disaster risk reduction	low	Strengthened institutional and regulatory capacity of the National Met and hydrolocal services	Institutional strengthening, and implementation support. Strengthening NMHSs' legal and regulatory frameworks; improving their institutional performance as the main provider of weather, climate, and hydrological information; building the capacity of personnel and ensuring operability of future networks	National level (one country)
Core Indicator 6: Degree to which GCF investments contribute to technology deployment, dissemination, development or transfer and innovation	Massive underfunding of NMHSs has led to (a) a deterioration of meteorological and hydrological observation networks and outdated technology, (b) a lack of modern equipment and forecasting methods and (c) poor quality of services	low	Strengthened delivery of climate and weather information services for improved water sector resilience	Modernization of observation infrastructure and forecasting. Includes networks and information and communication technology (ICT) systems, improving the meteorological and hydrological forecasting systems, and refurbishing facilities.	National level (one country)
Core indicator 8: Degree to which GCF investments contribute to effective knowledge generation and learning processes, and use of good practices, methodologies and standards	Limited knowledge generation, sharing, and collective learning to promote awareness and understanding by communities of the importance of weather and climate information and effective use of early warnings	low	Strengthened knowledge base on climate, including systematic observations and EWS, to inform climate services and decision-making)	Implementation of operational decision support systems to transform weather and climate information into information that can be used by various water related sectors for improved decision making	National level (one country)

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[6] The IRMF Indicators are set out in the Integrated Results Management Framework

3. Program/programme specific indicators (program outcomes and outputs)

Program/programme results (outcomes/ outputs)	Program/programme specific Indicator	Means of Verification (MoV)	Baseline	Target		Assumptions / Note
				Mid-term	**Final**	
Outcome 1						
Output 1.1 Modernised weather, climate and hydrological observation networks	Number of stations rehabilitated or improved by the program	Executing Entity annual report reflecting equipment for data centralization, operational forecast, climatology and production, as well as for access to data from secondary networks	No existing functional stations	100	280	Sectors are willing to make operational Changes based on Climate information
Output 1.2 Established Guidelines for operationalization of NFCS	Standard Operating Procedures (SOPs) in place for the deployment, maintenance, calibrations and quality assurance of the observational network	Verification of the existence of operational procedures and their implementation	No guidelines in existence	0	One (1) set of Guidelines in place	
Output 1.3. Enhanced capacity at National and local levels to generate climate-related data and forecast extreme events	Number of professionals having participated in trainings	Surveys of proficiency at the beginning and end of training programs Surveys of level and quality of knowledge of actors trained	None	Number: 180 Male: 90 Female:90	360 Male:180 Female:180	Government identifies suitable candidates for training and deploy the trained staff when required
Output 1.4 National hydromet programs aligned with Regional and Global observation systems	Memorandums of understanding for WMO Integrated Global Observing System developed or revised	Executing Entity reports Program reports EPA annual reports	None	0	1	
Outcome 2						
Output 2.1 Multi-Hazard Early Warning Systems established and operational	Number of hazards (intense floods, intense landslide, intense droughts, coastal	Executing Entity annual reports reflecting equipment for data centralization, operational forecast,	No data currently available. To be potentially	2	4	Verification of the existence of operational procedures and their implementation

	erosion, tropical storms and sea level rise hazards) for which warning, or monitoring forecast bulletins have been produced with sufficient lead-time for preparedness and early response	climatology and production, as well as for access to data from secondary networks

Surveys/tests of proficiency at the beginning and end of trainings | included in WMO Community Platform core dataset and Sendai Framework monitor. | | | |
| Output 2.2 Anticipatory Action /Forecast-based Action established and operational | Operational anticipatory action/forecast and modelling capacities improved (composite index[7]) | EE annual report reflecting equipment for data centralization, operational forecast, climatology and production, as well as for access to data from secondary networks.

Surveys/tests of proficiency at the beginning and end of trainings | No data currently available. | 1 | 4 | |
	Climate Change Trust Fund established as a financial mechanism targeted at addressing climate change	EPA reports	No climate trust fund exists	Draft instrument establishing trust fund	Final instrument establishing trust fund in place	
Outcome 3						
Output 3.1 Climate-resilient ecosystem-based infrastructure	Area of degraded or converted mangrove ecosystems under restoration	Field monitoring reports Remote sensing and thematic mapping Bio-physical survey/ monitoring	None	Conservation /restoration of 500 ha of mangrove forests, linked to mangrove nurseries.	Conservation /restoration of 1,000 ha of mangrove forests, linked to mangrove nurseries.	Monitoring systems provide sufficient detail to guide effective planning.

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[7] This will be measured using an 4-level index-based system to accurately measure the improvement of NMHS technical capacities to provide basic services:
- Level 1: operational forecast is produced on paper on a daily basis for 24 hours
- Level 2 : strengthened use of remote sensing; forecast bulletins are updated every 6 hours to deal with extreme weather
- Level 3 : operational forecast is performed numerically and experimentally by crosscutting data from other stations, from remote-sensing and from other global and regional models
- Level 4 : operational forecast is performed numerically and systematically by crosscutting data from other stations, from remote sensing and from other global and regional models

	Area of coastal protection services	Field monitoring reports Remote sensing and thematic mapping	None. To be determined as part of baseline assessment	To be determined	To be determined	
Output 3.2 Operational Weather, Climate and Hydrological Forecasting system established	Model products form the primary source for products across the different forecasting timescales.	Executing Entity reports Program reports Climate information and Socioeconomic baseline surveys	None	Spatial knowledge base	Operational DSS in place and operational	
Outcome 4						
Output 4.1: Program Management Technical Assistance is in place and Program Supervision Achieved	Technical reports and plans developed (communication, gender, ESMPs, audits, etc.)	Program Progress Reports, Supervision Aide Memoires, audit reports.	None	10	20	None
Output 4.2 Monitoring, Evaluation and Learning system is established	Annual Work Plans and reports prepared and disseminated	Program Progress Reports, Supervision Aide Memoires, technical and financial audit reports.	None	10	20	None
Program/programme co-benefit indicators[8]						
Improved public health	Mortality rate attributed to exposure to unsafe WASH services (per 100 000 population	Program Progress Reports, Supervision Aide Memoires, audit reports.	69.5	To be determined	To be determined	Knowledge products from Climate services inform WASH program designs
Improved carbon sequestration from mangrove restoration	GHG emissions per capita in the targeted project districts	Program progress reports National Green House Gases inventory	To be determined	To be determined	To be determined	Restored mangrove ecosystems contribute to emission reductions, by acting as carbon sinks

4. Program/programme activities and deliverables

Output	Activities	Description	Deliverables
Output 1.1 Modernised weather, climate and hydrological observation networks	Activity 1.1.1 Modernised weather, climate and hydrological observation networks	Expansion of coverage of meteorological monitoring and observation infrastructure	5 Mobile Automatic Weather Station. 2 Upper Air meteorological stations) 40 Automatic Agrometeorological stations 120 Automatic Rain gauge Stations.

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[8] Targets for the co-benefits to be determined during the baseline study.

			64 Automatic Weather stations 4 Weather Radar for Lungi International Airport and other inland locations
		Expansion of coverage of Hydrological monitoring and observation infrastructure stations	40 hydrological stations
	Activity 1.1.2 Establish centralized Meteorological, Climatological and Hydrological (MCH) Database and operational decision support system	Establishment of a database for climate weather and hydrological services by recovering climate data and digitizing the available data	6 Climate-smart labs; 1 Calibration Laboratory ;1 Central Data System and one (1) operational data base management and decision support system in place and operational
Output 1.2 Established Guidelines for operationalization of NFCS	Activity 1.2.1 Preparation of policy documents and Standard Operating Procedures (SOPs) on the National Framework for Climate Services (NFCS)	Mainstreaming climate information in development planning and decision making, including preparing and approving NFCS-related policy documents and Standard Operating Procedures (SOPs);	One (1) set of Standard Hydromet procedures in place and operational
	Activity 1.2.2 Implement the Quality Management Systems (QMS) for hydrological and meteorological services	Quality Management Systems and ISO certification shall be implemented for weather and climate services	One (1) set of Hydromet quality assurance and quality management systems in place and operational 2 training workshops (with an estimated 40 participants (50% women) trained to Implement the Quality Management Systems (QMS) for hydrological and meteorological services
Output 1.3. Enhanced capacity at National and local levels	Activity 1.3.1: Enhance the capacity of MDA staff to produce, package and communicate user-targeted services by equipping them with adequate skills through education and training	Training activities (ToT approach) on O & M of technical equipment and instruments as well as modelling and seasonal weather forecasting; Data rescue of non-digitized data	2 training workshops targeting fourty (40) technical staff in the national hydrological and Meteorological services departments trained in operational decision support systems
	Activity 1.3.2: Conduct trainings for public and private sector actors to enhance awareness and market products for the delivery of climate services	Impact-oriented programmes and programs that would create spin-offs for scaling up and replicating successful interventions Training of trainers in preparation and dissemination of climate services k knowledge products, as well as private partnership opportunities in provision of hydromet services	2 training workshops targeting fourty (40) technical staff undertaken to enhance the capacity of MDA staff to produce, package and communicate user-targeted services by equipping them with adequate skills through education and training for the following sectors: (i) Agriculture, (ii) Disaster Risk Reduction (DRR) (iii) Water (iv) Health (v) Energy 2 training workshops targeting fourty (40) staff in the private and public sectors trained in creation and awareness of products for delivery of hydromet services

	Activity 1.3.3: Establishment of Communities of Practice	Community of practice created in operational numerical weather and seasonal prediction and forecasts verification	2 knowledge products that advance professional practice, as well as the development of hydromet community whose members frequently interact
	Activity 1.3.4: Community based actions and capacity building	Address capacity barriers at national and local level and empower districts and communities to ensure 'last mile' disaster preparedness and response	5 community-based capacity building workshops delivered (targeting an estimated 200 community participants)
	Activity 1.3.5: Specialised training for actors in climate information producers including SLMet, NWRMA and disaster risk management staff	Recruitment and training of specialists (26 no) for weather and climate forecasting ; disaster risk reduction , agro meteorology, climate services , hydrology and marine meteorology	Twenty-six (26) SLMet, NWRMA and disaster risk management staff trained in provision of climate services information
Output 1.4 National hydromet programs aligned with Regional and Global observation systems	Activity 1.4.1: Implement WMO Information Systems and Integrated Global Observation Systems	International collaboration in meteorology that includes sharing observation, data, products and relevant skills, enhancing human resources and infrastructure	Two (2) reports on strengthened partnerships for delivery of hydromet services Four (4) staff from the NMHS trained in the implementation of WMO information systems and Integrated Global observation systems
	Activity 1.4.2: Collaboration and study tours with regional organisations	Facilitation collaboration and organizing study tours	Two (2) study tours to regional climate centers like NIMET and Agrhymet undertaken to strengthen partnerships for delivery of hydromet services
Output 2.1 Multi-Hazard Early Warning Systems established and operational	Activity 2.1.1 Delivering improved impact-based risk information services	Development and implementation of an SMS and SHS information portal. Monitoring of user assessment of services provided by SHMS institutions and organisations	Key deliverables: SMS and SHS information portals developed; information dissemination to national met agencies and their subsidiaries and communities vulnerable to climate risks and Five (5) tailored warnings and advisories for fishing communities developed and disseminated.
	Activity 2.1.2: Establishing community based Early Warning Systems	Development of communication guidance and Communication Action Response Plans (CARPs).	One (1) protocol for early warning and disaster risk preparedness in place and operational; Four (4)) communication guidance and community Action response plans and Five (5) tailored trainings on establishing community based Early Warning Systems
	Activity 2.1.3: Support the Meteorological Agency of Sierra Leone in designing an extreme weather early warning system (EWS) for different sections of the coast	Consultation and engagement with communities on tailored early warning information through Community-based Action teams	Key deliverables: One (1) Extreme weather EWS in place and operational, with capabilities for replication across coastal settlements and 2 Workshops (targeting 40 participants) to support the Meteorological Agency of Sierra Leone in designing an extreme weather early warning system (EWS) for different sections of

			the coast
Output 2.2 Anticipatory Action/Forecast-based Action established and operational	Activity 2.2.1: Procure risk mapping equipment and software for the preparation and processing of weather and climate information for the DRR	Procurement of risk mapping equipment and software, development of guidelines for streamlining meteorological and hydrological information generation.	One (1) set of equipment and software procured and installed. One (1) set of guidelines for streamlining hydromet information prepared 2 training workshops targeting 40 participants in the preparation and processing of weather and climate information for the DRR
	Activity 2.2.2: Flood and landslide hazard assessment and mapping for Improved Resilience in Sierra Leone	Establishment of flood risk maps and thresholds for rainfall events likely to cause flooding	One (1) Flood Risk map to inform freetown urban drainage infrastructure planning
	Activity 2.2.3: Creation of Sierra Leone Climate Fund to facilitate climate risks management activities including the forecast-based action	Establish a Sierra Leone Climate Fund to be a financing mechanism for priority climate change actions and interventions	One (1) report on establishment of the Sierra Leone Climate Fund prepared and disseminated
	Activity 2.2.4: Development of thresholds of climate hazards and effective triggers for anticipatory action plans	Five workshops to be held in each provinces to train about 20 participants per training	Five (5) workshops targeting training of an estimated 100 participants (50% women) to enhance the technical capacity in the development of thresholds of climate hazards and effective triggers for anticipatory action plans
Output 3.1 Climate-resilient ecosystem-based infrastructure	Activity 3.1.1: Climate services for enhanced ecosystem-based disaster risk reduction (Eco-DRR)	Use of climate services to inform regulatory functions of ecosystems (such as forests, wetlands and mangroves) to mitigate, prevent, or buffer against disasters.	1 report prepared on use of climate services to inform regulatory functions of ecosystems.
	Activity 3.1.2: Conservation and restoration of degraded critical habitats such as mangroves, wetlands	Sustainable management, conservation and restoration of ecosystems to reduce disaster risk, with the aim to achieve sustainable and resilient development (covering the western area peninsula)	Establishment of 4 community based micro-catchment management committees development of micro-catchment management plans and implementation of selected interventions in the mangroves and wetlands (targeting restoration efforts).
	Activity 3.1.3: Climate services for climate-resilient infrastructure and user-resilience	Generation of climate information to support systemic resilience frameworks; asset design and structuring and innovative financial solutions in different priority sectors	One (1) report on climate services information products e.g., codes to inform water infrastructure programming
	Activity 3.1.4: Preparation of state of the coastal and marine environment report and atlas.	Preparation of planning tools for enhanced climate information services	One (1) report on the state of the coastal and marine environment report and atlas.

Output 3.2 Operational Weather, Climate and Hydrological Forecasting system established	Activity 3.2.1: E-infrastructure for weather and seasonal forecasting with support system including ICT infrastructure procured and established	Establishment of an e-infrastructure for weather and seasonal forecasting, data, and information management.	One (1) report on ICT infrastructure to support hydromet services in place and disseminated Two (2) training workshops on weather and seasonal forecasting targeting 40 participants
	Activity 3.2.2: Installing solar systems for sustainable power supply for the enhanced hydromet services	Installation of solar based power backup systems for enhanced hydromet services	One (1) report on installation of solar powered equipment and inverters, for strengthened hydromet services
	Activity 3.2.3: Enhance O&M through Cost-recovery mechanism through private sector engagement	Delivery of cost recovery services to generate revenue and become financially self-sufficient.	Mechanisms for Cost recovery agreed (1 report delivered) Two (2) training workshops on Enhance O&M through Cost-recovery mechanism through private sector engagement, targeting 40 participants
Output 4.1: Program Management Technical Assistance is in place and Program Supervision Achieved	Activity 4.1.1: Recruitment of Technical Assistants, Preparation of the Operational manual and Program supervision	Recruitment of staff and TA to strengthen hydromet program operations	Four (4) Technical Assistants (TAs) competitively procured. The TAs will have different expertise including a Climate Adaptation technical expert, Environment, Gender, Project Management, Procurement, Financial Management, Biodiversity, Water Resources to enable effective coordination of all project interventions.
Output 4.2 Monitoring, Evaluation and Learning system is established	Activity 4.2.1: Monitoring, Evaluation and Learning System in place and operational	Establishment of protocols and standard procedures to ensure that data is gathered in a technically sound manner, is consistent and can be compared throughout the years	One (1) Web based M & E protocol and One (1) set of standard procedures in place and operational
	Activity 4.2.2: Impact evaluation	Impact evaluation assessment of the program	One (1) M & E report on impact assessment

5. Monitoring, reporting and evaluation arrangements (max. 300 words)

Monitoring and reporting will follow (i) the Theory for change and (ii) the log frame matrix. The log frame will be used to assess progress towards the Program Development Objective through key indicators. The M&E approach will involve a combination of field-based data collection and remote sensing/GIS. In addition, the program monitoring, reporting and evaluation arrangements will be fully compliant with the GCF monitoring and accountability policy requirement and AMA.

Program progress will be monitored by the Bank based on official data sources monitored directly by the EE. In addition, individual evaluations will gauge progress towards the PDO, assess the impact of the programme on the beneficiaries, assess the quality of the work carried out by its different components, and evaluate overall program efficiency. The protocol agreements between the Bank and the Government of Sierra Leone will detail the reporting requirements. Key milestones will include (i) Start of Program Implementation Quarter 3, 2023 (ii) Interim Evaluation Quarter 3 2026 (iii) Program Completion, Quarter 3 2028) and (iv) Final Evaluation   Quarter 4, 209. Detailed reporting will be as follows:

Inception phase
A baseline study will be undertaken at programme inception to generate an updated assessment of the context, particularly with respect to the various indicators and targets. The results of the baseline study will be used as the reference point by which progress towards achievement of the targets will be assessed.

Annual performance report
Annual performance reports will be elaborated by the EE during the lifespan of the programme. The reports will include a narrative on implementation progress based on the log frame, against the relevant criteria of the investment framework as set out in the FP. In line with the AMA, the APR shall be submitted to the GCF Secretariat on an annual basis for the period ending on 31 December within sixty days after the end of the relevant annual period. The first APR will be submitted following the end of the calendar year and the last APR required to be submitted within six months of the end of the relevant reporting period.

Mid-term evaluation
The mid-term evaluation (MTE) will provide an independent assessment of programme performance at mid-term against the Fund's investment framework criteria, to analyse whether it is on track, what problems and challenges it is encountering, and which corrective actions are required so that the programme can achieve its intended outcomes by programme completion in the most efficient and sustainable way.

Final program evaluation
A final evaluation will be implemented six months after program closure and will examine the overall performance of the program against the investment criteria and other evaluation criteria that will be defined in the evaluation guidelines including financial/economic performances as part of the "Funded Activity" efficiency and effectiveness criterion, as well as the sustainability and scalability of results and impacts and lessons learned, during the relevant period. The objective of the final evaluations will be to learn lessons and apply those lessons in order to upscale and replicate successful programmes.

Independent evaluators
Interim and final evaluation reports will be prepared by an independent evaluator selected by the Bank. Copies of these reports shall be forwarded by the Bank to the Fund. The Bank will retain all M&E records for this program for up to five years after program financial closure in order to support ex-post evaluations. A detailed M&E budget, monitoring plan and evaluation plan will be included in the programme evaluation prior to Bank Board approval.

Methodologies for monitoring and reporting on key outcomes of the programme
The GVC will be responsible for the overall program-based M & E and will coordinate the establishment of a management information system (MIS) and M&E plan with the support of partner government agencies, contracted service providers, and communities. A major effort will be dedicated to improving, updating and modernizing M&E systems at different levels and for different purposes. The M & E system will (i) enhance the periodic assessment of program performance; and (ii) enhance evaluation of their results in terms of relevance, efficiency, effectiveness, impact, and sustainability.

A third-party institution will be contracted to develop a comprehensive MIS to capture field information and allow for effective data analysis and reporting to guide implementation. The program-wide MIS would mainly address input-output monitoring related to the various activities proposed under the program components.

Sources of data for feeding the M&E system will include: (a) data collected through the program MIS, such as progress, technical, and financial reports; (b) qualitative and quantitative household survey instruments; (c) existing and newly collected geo-referenced data (including global datasets); and (d) scientifically collected environmental and ecosystem health data. A baseline survey will be prepared. Data collected will be as much as possible disaggregated by gender.

For knowledge-oriented services, client satisfaction surveys will be used to assess the performance of the EE services based on client experience. The surveys will shed light on the constraints clients face in accessing information services, their views about the quality/adequacy of services, and the responsiveness of government. The surveys will be conducted by the GVC supported by national agencies.

For capacity strengthening outputs, formal surveys will be used to monitor outputs. Findings from the sample of people interviewed will be applied to the wider target group or the sub basin population as a whole. Quantitative estimates will also be made for the size and distribution of impacts.

Rapid appraisal methods will be used to gather views and feedback of beneficiaries and other stakeholders, in order to respond to national decision-makers' needs for information. Methods will include key informant interviews, community group interviews and mini surveys. The M & E system will regularly track the performance of the community-based interventions (activities) and contribute to reporting on the national PIDACC indicators.

Beneficiary surveys and assessments will be undertaken through systematic consultation with program beneficiaries and other stakeholders to identify and design development initiatives, signal constraints to participation, and provide feedback to improve services. For activities implemented at national level (including the village/community levels), a monitoring system will be applied that will strengthen participatory methods and processes for data collection.

Beyond tracking and monitoring progress, an impact evaluation would be undertaken to better understand the extent to which GCF funded activities reach the poor and the magnitude of their effects on people's welfare. An ex-post comparison of the programme and non-equivalent control group will be undertaken. The methods will range from large-scale sample surveys in which program populations and control groups are compared before and after, and possibly at several points during program intervention to small-scale rapid assessment and participatory appraisals. Baseline and end surveys will help to gather baseline data, as well as evaluate progress across variables such as incomes, health, access to land, access to natural capital, gender dimensions and adaptive capacities.