Terminal Evaluation

"Building Adaptive Capacity to Catalyze Active Public and Private Sector Participation to Manage the Exposure and Sensitivity of Water Supply Services to Climate Change in Sierra Leone" (PIMS# 4613, GEF ID # 4599)

GEF Project ID: 4599 UNDP Project ID: 000866332

Abstract

The "Building Adaptive Capacity to Catalyze Active Public and Private Sector Participation to Manage the Exposure and Sensitivity of Water Supply Services to Climate Change in Sierra Leone (PIMS 4613)" project aimed to enhance adaptive capacity of decision-makers in the public and private sector involved in water provision to plan for and respond to climate change risks on water resources. The project sought to complement several water-related projects established by the UNDP and other funders in Sierra Leone. Within water resources management, the project focused on addressing the skills deficit of water managers and the insufficient policy framework to secure the vital economic and the functionality of water management systems in a changing climate.

Mrs. Stephanie Hodge and Dr. Hindowa Momoh

Contents

I. OPENING PAGE:

- **Title of UNDP supported GEF financed project**

"Building Adaptive Capacity to Catalyze Active Public and Private Sector Participation to Manage the Exposure and Sensitivity of Water Supply Services to Climate Change". Total budget for the project is USD 13.090 million

- **UNDP and GEF project ID#s**

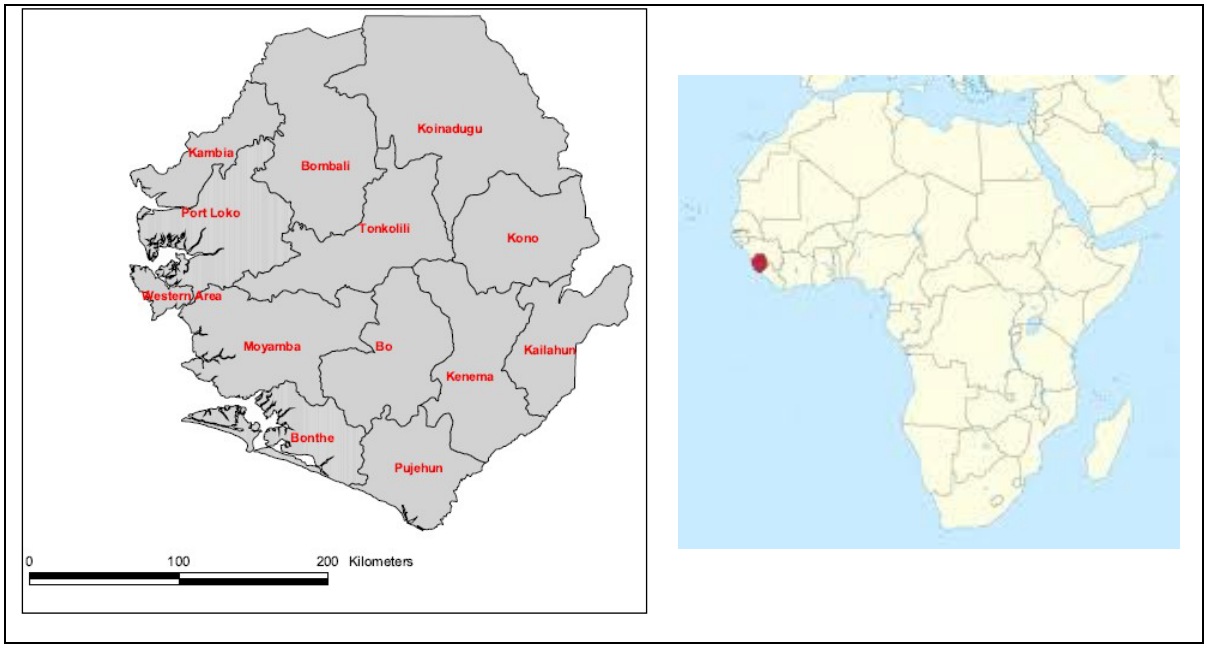
GEF project ID: 4599, UNDP project ID: 0008966332

- **Evaluation time frame and date of evaluation report**

July 1, 2020 - August 11, 2020

- **Region and countries included in the project**

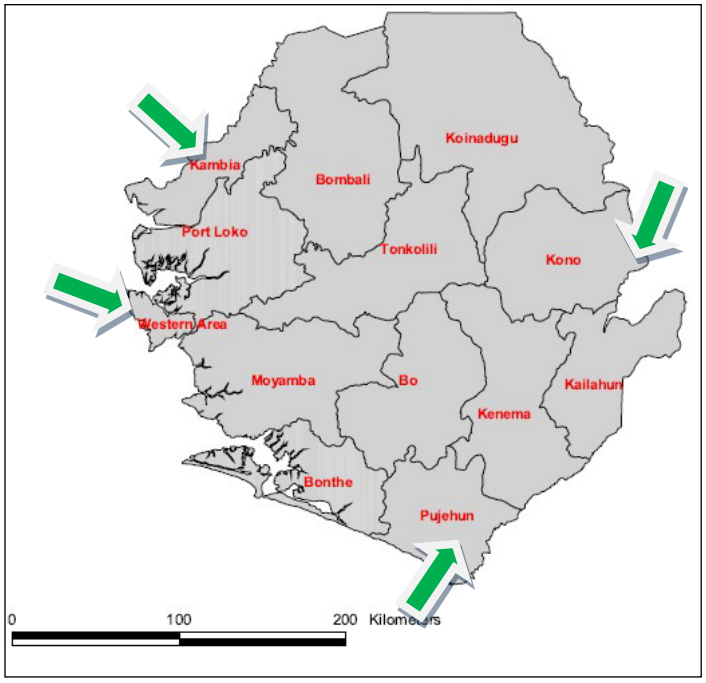
Sierra Leone is an anglophone West African country, bordering the North Atlantic Ocean between Liberia and Guinea. The country is richly endowed in natural resources, especially minerals such as diamonds, titanium bauxite, gold and rutile, on which the economy is largely based. However, despite this natural wealth, 70% of the total population of 6 million people (FAO, 2012) live in poverty. Sierra Leone's 11-year civil war (1991–2002) was a large influencing factor in the deterioration of livelihoods, infrastructure, production capacity and economy. In 2010, the country's GDP stood at approximately 2.2 billion USD (World Bank, 2010). Resilience and economic growth are priorities to the country.



Map of Sierra Leone and location in Africa

Four Pilot Sites:
This project aims to support infrastructure and capacity building in the urban setting (Freetown and Guma Valley Reservoir) and in the rural setting (southern, northern and eastern regions). During the PPG phase, explicit community level consultations were conducted to establish local climate related risks, vulnerabilities and capacities with a focus on the water sector. The intervention districts were identified in a participatory manner during the inception phase and are particularly aligned with the planned AfDB interventions in Pujehun, Kambia and Kono. Specific pilot sites and communities have been identified during the PPG phase based on existing climate vulnerabilities and water sector risks. In consultation with the district councils and the WASH

coordination officers of MWR, two pilot communities per district were selected and profiled during the PPG phase consultations.



Map of intervention areas/districts (green arrows)

- **GEF Operational Program/Strategic Program**

Applicable GEF Strategic Objective and Program: Adaptation to Climate Change, Objective 1: Reduce vulnerability to the adverse impacts of climate change, including variability, at local, national, regional and global level and Objective 2: Increase adaptive capacity to respond to the impacts of climate change, including variability, at local, national, regional and global level.
Applicable GEF Expected Outcomes: Outcome 1.1: Mainstreamed adaptation in broader development frameworks at country level and in targeted vulnerable areas; Outcome 1.2: Reduced vulnerability in development sectors; Outcome 2.1: Increased knowledge and understanding of climate variability and change-induced risks at country level and in targeted vulnerable areas; Outcome 2.3: Strengthened awareness and ownership of adaptation and climate risk reduction processes at local level; Outcome 3.1: Successful demonstration, deployment and transfer of relevant adaptation technology in targeted areas.
Applicable GEF Outcome Indicators: (following AMAT tool) Indicator 1.1.1: Adaptation actions implemented in national/regional development frameworks. Indicator 1.2.3: Number of additional people provided with access to safe water supply and basic sanitation services given existing and projected climate change. Indicator 2.2.1: Number and type of targeted institutions with increased adaptive capacity to reduce risks of and responses to climate variability. Indicator 2.3.2: Percentage of targeted population awareness of predicted adverse impacts of climate change and appropriate responses.

UNDAF 1 Outcome(s): 3. Natural resources are sustainably and equitably managed, and threats and impacts from natural and man-made disasters are reduced.

Expected CP Outcome(s): Policy framework and institutional arrangements for managing natural resources and addressing climate change, disaster and environmental management are strengthened.

Expected CPAP Output(s):
(i) Policies, legal and institutional framework for managing land tenure reform are improved;
(ii) Increased resilience and enhanced national and local capacities for disaster risk management, environmental governance, climate change adaptation and mitigation for effective early warning system exist;
(iii) Improved Waste Management in Bo and Makeni cities and relevant lessons learned are shared with other local councils.

- **Implementing Partner and other project partners**

The executing agency implementation partner for the project is the Ministry of Water Resources, Sierra Leone. The GEF implementing agency is the UNDP CO. As per the project document, the project start date was May 2014, and the project document got signed in June 2014. Actual implementation of the project started much later, due to outbreak of Ebola during Q2 2014, leading to changes in the priorities both for UNDP and the national counterparts. The project manager was appointed during October 2015. The inception of the project happened in December 2015 (as per PIRs however no inception report is available). There was further delay in actual implementation of the project due to time taken for approval of the work plan and the budget for the year 2016.

- **Evaluation team members**

International, Stephanie Hodge, and National, Dr. Hindowa Momoh

- **Acknowledgements**

The authors wish to thank UNDP Sierra Leone and the "Building Adaptive Capacity to Catalyze Active Public and Private Sector Participation to Manage the Exposure and Sensitivity of Water Supply Services to Climate Change in Sierra Leone" Project Team for the assistance and information provided during this Terminal Review.

[1] Based on the "Transitional Joint Vision for Sierra Leone" of the United Nations Family 2013–2014

II. EXECUTIVE SUMMARY

- **Project Summary Table**

Project Title:	Building adaptive capacity to catalyze active public and private sector participation to manage exposure and sensitivity of water supply services to climate change			
GEF Project ID:	4599		*at endorsement (Million USD)*	*at completion (Million USD)*
UNDP Project ID:	000866332	GEF financing:	2,940,000	2,940,000
Country:	Sierra Leone	IA/EA own:		
Region:	África	Government:		9,000,000
Focal Area:	Climate Change	Other:		1,000,000
FA Objectives, (OP/SP):				
Executing Agency:	Ministry of Water Resources	Total Project Cost:		13,090,000
Other Partners involved:		ProDoc Signature (date project start):		June 27, 2014
		(Operational) Closing Date:	Proposed: October 2017	Actual: December 31, 2019

- **Project Description (brief)**

Sierra Leone is endowed with abundant water resources in the form of seven major rivers, yet only 34% of the population has access to safe drinking water (up to 80% of the rural population has no access). The NAPA stated that the water supply in Sierra Leone (Freetown and inland settlements) required urgent attention. This sector is also depicted as one of the most vulnerable to climate change. Climate change has the potential to severely disrupt the water regimes, possibly leading to floods, droughts and changes in the amount of runoff as well as changes in groundwater levels. Another priority project of the NAPA included improving the existing supply of water in Sierra Leone. The third priority project related to water included the promotion of rainwater harvesting techniques to improve access to water at household and community level. The project addressed the climate change-induced water related problems in Sierra Leone in general and in Freetown and the three districts where the pilot projects are being implemented. The outcomes of the project were expected to provide the impetus for government and other stakeholders to intensify efforts geared toward adapting successfully to climate change induced impacts on the water sector in the country.

This project thus aimed to support infrastructure and capacity building in the urban setting (Freetown and Guma Valley Reservoir) and in the rural setting (Southern, Northern and Eastern regions). During the PPG phase, explicit community-level consultations were conducted to establish local climate related risks, vulnerabilities and capacities with a focus on the water sector. The intervention districts were identified in a participatory manner during the inception phase and are particularly aligned with the planned AfDB interventions in Pujehun, Kambia and Kono. Specific pilot sites and communities were identified during the PPG phase, based on ***existing climate vulnerabilities and water sector risks***. In consultation with the district councils and the WASH coordination officers of MWR, two pilot communities per district were selected and profiled during the PPG phase consultations.

The project had several entry points and overall focuses on capacity building for climate resilience decision-making in the water sector. Outcome 1, "Critical public policies governing the management of water resources," revised to incentivize climate-smart investment by the private sector, would be achieved through specific technical capacity development activities and igniting informed public and private sector dialogues. Based on focused capacity needs assessments, a suite of professional updating activities would be designed especially for staff of the newly formed Ministry of Water Resources, the Guma Valley Corporation and other specified key

target groups. Outcome 2, "Water supply infrastructure in Freetown and Pujehun, Kambia and Kono districts made resilient against climate change induced risks," focused on pioneering innovations that particularly address the dry season water supply problems, which would likely be worsened by anticipated climate change impacts. On request of the MWR, rainwater-harvesting (RWH) innovations were to be established as learning experiments, capturing and storing drinking water-quality rainwater during the rainy season and saving it for use in the dry season. In Freetown, existing springs that were already being developed by Guma as supplementary sources would be protected from degradation and rainwater for supplementation of the sources would be attempted through construction of stand-along RWH infrastructure. Innovative designs of collective "rooftops" for water capture in high-density living areas would be tested. In Pujehun, Kono and Kambia districts—the focal areas for planned AfDB water supply investments—this project was to build capacities of district-level water professionals for climate resilient planning and decision-making. Additionally, low-cost and simple water supply and storage techniques promoted by the Welthungerhilfe and two associated community-training centers were to be further developed to incorporate RWH innovations in their designs to help overcome dry season water supply shortages.

- **Evaluation Rating Table**

Evaluation Ratings[i]:			
1. Monitoring and Evaluation	rating	2. IA& EA Execution	Rating
M&E design at entry	S	Quality of UNDP Implementation	S
M&E Plan Implementation	S	Quality of Execution/Executing Agency	S
Overall quality of M&E	S	Overall quality of Implementation/Execution	S
3. Assessment of Outcomes	rating	4. Sustainability	Rating
Relevance	R	Financial resources:	L
Effectiveness	S	Sociopolitical:	L
Efficiency	S	Institutional framework and governance:	ML
Overall Project Outcome Rating	S	Environmental:	L
		Overall likelihood of sustainability:	L

Ratings for Outcomes, Effectiveness, Efficiency, M&E, I&E Execution, Relevance	***Sustainability ratings:***
• Highly Satisfactory (HS): no shortcomings • Satisfactory (S): minor shortcomings • Moderately Satisfactory (MS) • Moderately Unsatisfactory (MU): significant shortcomings • Unsatisfactory (U): major problems • Highly Unsatisfactory (HU): severe problems	Likely (L): negligible risks to sustainability Moderately Likely (ML): moderate risks Moderately Unlikely (MU): significant risks Unlikely (U): severe risks
Additional ratings where relevant: Not Applicable (N/A) Unable to Assess (U/A	

- **Summary of conclusions, recommendations and lessons**

Main criteria	Rating[ii]	Explanation
Project Strategy	S	The relevance of the project to the Draft National Development Plan NDP (2019–2023) and the Sierra Leone commitment to the Sustainable Development Goals SDGs is high. The project contributed to the realization of the goals of Clusters 1, 3 and 7 of the NDP, which seeks to address issues related to poverty reduction, the need for resilient infrastructure and the nation's attention to issues of vulnerability to external shocks and building resilient communities. These national goals are in turn linked to Sustainable Development Goals 1, 6 and 7, which address issues of poverty reduction, provision of clean water to all and the mobilization of all to take appropriate climate action. In terms of the design and strategy, generally, the TE found the pilot approach and duel focus on the rural and urban targeted risk approach has been excellent. The pilot focus on showcasing new technology and influencing cross-sectoral WASH and climate policy was a solid strategy. However, this element required a cross cutting and perhaps third component for linking the two main components in terms of policy efficacy, sustainability, links to vocational and public service education and other resilience level policy level results. The capacity development and sustainability approach also was found to have required more fleshed out implementation strategies with a theory of change including to develop training on maintaining

Main criteria	Rating[ii]	Explanation
		the new technologies and for creating a learning and coordination platform for resilience. This is a lesson learned for new work in this area. Overall, the projects implementation strategies were weakly designed, and the targets and indicators were not always smart, but there was some implementation thinking about sustainability and policy level results. There were technical gaps found in the design on the water quality monitoring aspects as well. Water quality monitoring could have featured stronger in the design. The steering committee was the central decision-making and monitoring body but the design might have spelt out the role of a technical work planning and cross sectoral joint project task committee. UNDP provided extraordinary support to implementation including hosting the project management support office. Most of the focus for implementation was delegated to the community level infrastructure improvements but in hindsight learning for planning and policy was central to the upscaling work. The training of the WASH committees was a significant input. More could have been designed in the original document to engage the NGOs and communities with the district planning mechanics and support of knowledge management KM in the WASH and climate information sectors.
Results Project Objective: Enhance the adaptive capacity of decision-makers in the public and private sector involved in water provision to plan for and respond to climate change risks on water resources. Indicator 2.2.1: No. and type of targeted institutions with increased adaptive capacity to reduce risks of and responses to climate variability.	S S	The target for this project included: • Capacities of at least 2-line ministries and 2 District Councils to mainstream adaptation concerns within water policies and local development plans are strengthened. • Capacities of two research/training centers to deliver relevant trainings on climate change issues are strengthened. Results: The evaluation team thus considered what had been achieved in terms of the policy goals and capacity development expected results. As mentioned above, the implementation approach was generally guided by an active steering committee. However, with work planning led by the MWR project coordinator, decisions were taken early on concerning implementation and budget, and for a prioritization of the water access needs of people and sites identified during the PPG stage. The design was built to succeed in this regard (focus on provision of water technologies to most at risk and remote). The design included inputs for policy and monitoring by government officials that dealt with WASH and climate policy and the cross-sectoral nature of the work but the broader collaboration in implementation was limited. The implementing context during Ebola and crisis's was a large part of the limiting factor. The project did manage to bring the cross-sectoral counterparts together through many platforms including the steering committee and several policy forums (but late). The project provided a review of the policies and policy advocacy but it was implemented late (last months of implementation September – December 2019). There were three policy briefs developed: 1) "Management of New Water Supply Technologies in the Kargboto community, Tonko Limba Chiefdom, Kambia District, Sierra Leone, 2) Promotion of rainwater harvesting in Sierra Leone in the "Introduction: The Water Challenge in Sierra Leone" policy brief and 3) "Use of Traditional Knowledge Systems to Manage and Protect Water Resources in Kortumahun Community, Panga Krim Chiefdom, Pujehun District, Sierra Leone." These were presented during a PPP conference (also organized by project CTA) held at Kobeibu Hotel and Conference Centre in Bo Town from November 20–21, 2019. This was highly successful and attended by up to eighty (80) participants from government agencies, local authorities, WASH Sector NGOs and bilateral and multilateral cooperating partners supporting water and sanitation supply initiatives in Sierra Leone.[iii] TE noted the policy work for a pilot of new technologies needed more rigor on cost benefits analysis. While they were somewhat strong on the social economic aspects of NWT, the quantitative analysis for policy was lacking and provides a lesson learned for future work scaling up appropriate technologies to other parts of the country. Secondly, the evaluation team considered the capacity development conducted under the project. The training (geared at planning and policy staff) included 10 technical staff from the Ministry of Water Resources and 15 staff from 3 District Councils who were trained to integrate climate risks into planning, especially as it relates to the water sector. In Freetown, Kambia, Pujehun and Kono, 18 participants were trained. The project succeeded in training staff from government in the use of tools that promoted risk assessment and adaptation to climate change. Up to 37 interventions promoting water harvesting, borehole drilling and protection of natural springs were implemented over the project life span. Where these were completed, beneficiary community groups can access portable drinking water from these sources. The project had generated lessons collated and packaged these as communication and knowledge management products. These can be continued to be disseminated to other areas of the country as a way of promoting replication of successes. The greatest value added of the work has been the success in the provision of access in the remotest, most vulnerable and neediest places in SL for access to clean water and it provides a sound model of local water governance that can be replicated elsewhere(see case studies). This lesson from this work can be scaled. The UNDP can focus on supporting the operationalizing the water quality monitoring aspects with sectors including the Environment Protection Agency (EPA), Ministry of Water Resources and others through continued capacity building, providing motivation and instrumentalization, i.e. infrastructure for monitoring water quality: access to higher technology including on the scientific work and monitoring water quality and climate change impacts and scenarios.

Main criteria	Rating[ii]	Explanation
Component 1 Critical public policies governing the management of water resources revised to incentivize climate-smart investment by the private sector. Indicator 1.1.1: Adaptation concerns and actions mainstreamed within at least the Guma Reservoir Management process. Baseline: The overall risk that climate change may pose on the sustainability of water supply to the capital is not well integrated into Guma Reservoir management. Indicator 1.11.2: Number and type of targeted institutions with increased adaptive capacity to reduce risks of and responses to climate variability. Baseline: 1.1.2.1: Key decision-makers who are supposed to lead the implementation of the policy have limited knowledge of climate change impacts or adaptation responses. 1.1.2.2 Information, including inventory and mapping, is inadequate and staff from MWR have limited expertise to internalize climate changes into existing local development plan. 1.1.2.3: Low interplay exists between public and private sector on adaptation strategies investment 1.1.2.4: Existing coping strategies and adaptation action are not documented at all, including for the water sector	S	End of project targets o The CC. resilience plan for Guma reservoir is established. o 15% of staff from targeted institutions are aware of predicted impacts of climate change and appropriate responses o 60% of those targeted have access to relevant disseminated adaption experiences from the project. Results A Climate Change Resilience Plan for the Guma Water Reservoir was produced by the project in October 2016. 85 policymakers (25 Members of Parliament, 45 Councilors from 3 district Councils and 1 City Council 15 Civil Society Activists) have been introduced to climate change issues and acquired knowledge on climate change impact and adaptation responses, including: - 25 members of Parliament - 45 councilors from 3 district councils and 1 city council - 15 civil society activists were trained. The issue of climate change is relatively new in Sierra Leone, so the benefiting; policymakers has been the first to benefit from this support. Of staff from targeted institutions (MWR; EPA; LCs, GVWC; etc.)15 % are now aware of predicted climate change impacts. Technical staff from Ministry of Water Resources (MWR), GVWC and the three district councils supported the development process of climate change risk management tools and guidelines during the training to be integrated into the water policies. Of targeted stakeholders, 60% have access to relevant disseminated adaptation experiences from the project. Several trainings were conducted during a consultancy by INTEGEMS, a consultancy firm contracted to do the Climate Change Risk Management and Capacity Assessment for the water sector in Sierra Leone. Also, 6 NGO's were contracted: 3 to do village savings and loan scheme trainings and 2 to do awareness sensitization on climate change in all project locations. WASH committees, as consultancies, were given out to 6 different NGOs to carry out the awareness sensitization on climate change activities in all project locations. The training provided a sustainable communication platform for climate change risk management at the community level. These platforms would increase stakeholders' and communities' access to appropriate information and communications on climate change risks and adaptation measures in the water sector. They would also support the mobilization and empowerment of communities, through 1) resource mobilization for the continuous maintenance and sustainability of the water points and 2) the said trainings in the communities that have been capacitated on climate change issues to enable them participate in the development and implementation of bylaws to effectively integrate local and cultural knowledge with gender consideration in climate change adaptation measures in the water sector. **Key Results of the Above at TE:** (1) More than 50 officers from the Ministry of Water Resources were provided with relevant climate risk management guidelines/tools; (2) 85 policymakers (25 Members of Parliament, 45 councilors from 3 district councils and 1 city council, 15 civil society activists) have been introduced to climate change issues and acquired knowledge on climate change impact and adaptation responses; (3) Baseline waterpoint mapping, climate change risk management tools and guidelines were made for integration into water policies and stakeholders were trained. Design and development of the web-based Hydrological Information Management System (HIMS) was done. INTEGEMS conducted a two-day training for staff on the management and administration of HIMS on July 16 and 17, 2020. The team saw • sample/historical data on discharge measurements; • shapefiles of the Rokel River Basin; • Sample data from the surface water monitoring stations. 4. A climate change resilience plan was developed for the Guma Valley Reservoir, resulting in increased understanding of climate change-related issues which could affect the water supply in Freetown. A contingency plan has been developed. 5. The Sierra Leone Business Forum and WASH donors participated in the annual WASH sector review conference. 6. The staff of the Ministry of Water Resources has been funded for several training programmes on water quality, hydrological monitoring and related subjects.
Component 2 Water supply infrastructure in Freetown and Pujehun, Kambia and Kono districts made resilient against climate change induced risks	S	Target: 5.000 at intervention sites in Freetown and three districts Results The original target above was set low. In fact, the project has provided approximately 44,814 people with access to safe drinking water as a result of the construction of 35 water facilities. Some of these facilities would

Main criteria	Rating[ii]	Explanation
Indicator 1.2.3: Number of additional people provided with access to safe water supply and basic sanitation services given existing and projected climate change Baseline: Type and level: 0 (aside from already existing local coping mechanism)		need to be further supported to become fully operational with a sustainability plan based on transgression during implementation. This is noted in the cases and recommendations. Key Results at TE (See field cases in Annex) (1) Pilot demonstrations of innovative climate resilient rainwater in at least 3 public buildings with reservoirs were established to alleviate the bottleneck of drinking water supply in the dry season; (2) Spring water improvement was designed, tested and demonstrated in the high-density area in Freetown (benefiting at least 200 households): (3) Sustainable community reservoirs with 9 stand-alone rooftop rainwater harvesting systems (in 3 hospitals and 6 schools), as well as 5 resilient gravity fed water distribution systems designed and pioneered in Kono, Kambia and Pujehun; (4) More than 200 households were provided with water storage and treatment systems for drinking water usage in times of prolonged dry-spells and drought in Kono, Kambia and Pujehun districts.
Project Implementation and Adaptive Management		The project was initiated when Sierra Leone experienced the Ebola outbreak in 2014. This delayed the project start-up and made the mobilization of collaborating agencies difficult. A second major challenge was the low level of participation in project identification and implementation by the local authorities and the limited scope and opportunities for private sector engagement. Third was the issue recorded with the relationship with local contractors, who were perceived to have abandoned their work. The TE feels this was a miscommunication and lack of-reflection of the spirit in which the project was intended to be implemented I.E. a failure of partners in the development and learning approach with a strong knowledge management implementation in the PIU The choices between key implementing partners made at the beginning around implementation were in this context. The project was implemented mainly by the water sector and the UNDP in the absence of a strong PIU and full complement of staff. The results, however, reflect a strong focus on delivery of water engineering and introduction of new technologies in the targeted rural and urban areas. The downstream concrete results were particularly good, with over 85 % of the technologies implemented. The policy and learning work were implemented quite late and included a conference in November 2019 to showcase results. On the policy and softer upstream side, lessons were learned. For instance, the policy advocacy work showcasing process and the learning by doing through working together to plan with other sectors was late in implementation. In fact, the work planning was rather led by the water sector may have included more policy work activities at the early implementation. The implementation, however, supported the intersectoral monitoring through the steering committee; this was a good result although rather undocumented in reporting. The EPA and its relationship with the water sector and the districts and local levels were brokered. This was also a good result. Adaptive management was led by UNDP and the steering committee with a strong UNDP oversight of the delivery and results. The need for overarching technical monitoring was clear from the design but not rectified until near the end of project. The inclusion served the CTA well in August 2019, accelerated the implementation and supported the project to achieve more balanced results. The absence of a strong knowledge management plan and operational PIU support staff has been a lesson learned. The TE found a lost opportunity for stronger implementation including how such a platform might have been a cost effective option for contributing to policy and learning results throughout. The lack of KM in implementing also represents a missed opportunity to support the coordination of the private sector and the WASH and climate sectors for learning and cooperation as well. The learning and coordination for policy work was picked up late by the CTA through the organizing of the PPP conference WASH Coordination platform. The Knowledge Management session of the conference highlighted the need for dialogue and information-sharing in the WASH sector in Sierra Leone. The current status was causing unnecessary duplication of effort in terms of project interventions as different organizations ended up supporting the same communities while other communities went without services. The venue showcased that constant dialogue and information-sharing can help with standardization of approaches to water service delivery systems and facilities. It was therefore considered critical that participants be requested to share their views on the creation of a dialogue platform and protocols for information-sharing in the WASH sector.
Sustainability	L	The sustainability of project outputs was assessed from several perspectives, including institutional, financial, socio economic and environmental. Generally, the sustainability is about the lesson learned achieved through this exercise in terms of NWTs and the experiment for the practical implementation and scaling - providing broader access. In this regard, for the imported technologies, the central lesson is to provide the training for the continued maintain ace and subsides and support to ensure the provide sector can benefit from the import and the installation. In terms of the most cost effective system for a larger number of persons in the country, the TE questioned what is most cost effective for large scale roll out and this seems to be the gravity system. The lesson is that each context has specific needs and that a broader mix of technologies to l enable risk reduction and access and especially to remote and vulnerable populations. The government should provide subsidies for new imported technologies. The critical aspect for the system is the monitoring of water quality. The project has supported the government with this effort on building enabling environment and providing some infrastructure i.e. kits for monitoring of water quality but this is central to the provision of access to clean water and must be addressed as a priority. The institutional coordination of WASH and climate change planning work needs learning mechanism -platform to continue to engage the stakeholders that are critical to the role out of the learning gained by this project. **Financial Resources (ML)**

Main criteria	Rating[ii]	Explanation
		The project (a basic needs project that proposes through innovative pilots the most cost-effective and practical solutions to the wicked problem of sustaining clean water access to rural and risky communities to the government) has been funded primarily from grants with little financial input from government. In the short run, some things need to be finalized and for these remaining inputs, UNDP has provided core resources to support the finalizing work of this project. The project management communicated with the local authorities to ensure that projects in need of further support are adopted as part of the development strategies of these local authorities. The Project Coordinator had also identified resources under the GEF Small Grants Programme that were used to provide support to the unfinished or stumped infrastructure projects requiring continued support. Although community beneficiaries have established WASH committees at each project site that collect monthly contributions from individual households, it is doubtful that the amounts collected will be enough to cover the costs of maintenance of these facilities. Additionally, interventions have begun to support the private sector's involvement by using local contractors, but this aspect needs further deepening and completion of the demand-supply with more training of local youth to maintain the technologies to stimulate more demand. The monitoring of clean water and the sustained provision of access including maintenance is essentially a government responsibility and does need the backing of the policy and a strong role of the district in support of communities. It will be through capacity developed for the operationalization of existing decentralization policies and to build monitoring capacities at the sub-regional level to ensure the water is safe (regulated) and sustained. **Socioeconomic (ML)** As mentioned above, the project was funded primarily from grants with little financial input from the government. Although community beneficiaries have established WASH committees at each project site that collect monthly contributions from individual households, it is doubtful that the amounts collected will be enough to cover the costs of maintenance of these facilities. The daily scramble for the limited water supply sometimes was shown to be leading to conflicts among community members. This is a serious socio-economic problem that could bring disunity to the community, and hence affects community development strides that require community cooperation. This project is assuring a sustainable water supply model during a period of transition and is a model supporting the decentralization of water management to the districts in the translational period. This work needs to be sustained in the most vulnerable and risky areas to keep the peace. The evaluation here agrees with the input of the CTA who suggests in general that, although the project invested in the training of government and local authorities in climate change adaptation, the trained officials were operating within institutions that could not manage the projects that were funded. This is reflective of the implementation approach, which could have been more collaborative with institutions of education and the Ministry of Education (MOE) in designing a course for sustaining and maintaining the infrastructure. The beneficiary communities are not familiar with some of the new technologies introduced by the project and are therefore likely to be unable to manage them without continued outside support. **Institutional framework and governance (ML)** The history is still very relevant. In 2011–2012 the then *Ministry of Energy and Water Resources* undertook an extensive process of consultation with the general public and a range of water sector professionals and academics. The outcome was a new National Water Resources Management Law that was passed in 2014. The National Water Resources Management Act gave Sierra Leone Ministries, led by the Ministry of Water Resources, the power to introduce regulatory controls over water activities in order to protect, improve and promote sustainable use of Sierra Leone's water environment. This included springs, streams, rivers, estuaries and groundwater resources. A timetable of action to establish **a new regulating agency was set** as well as details of the permissions and charges that would be applied for abstracting raw water and discharging to water courses. The idea of the project was to pilot/showcase the introduction of innovative and low-cost technologies and local governance and water management systems in the remotest and most vulnerable parts of the country to get clean water to needy communities in such a way that it is sustainable and addressing the new climate change risk posted as increasing temperatures and increasingly drier areas in relation to that law. The WASH and Climate Adaptation policy framework is governed by the new overarching (the National Water and Sanitation Policy of 2012) instituted in 2014 and climate policies or directives. Creating the opportunity to link the lessons arising from this water policy to climate risk monitoring for improved and sustainable water management was a key aim of the more upstream aspects—that policy and intersectoral linkages work. The operationalization of the 2014 WASH law (The National Water and Sanitation Policy of 2012) is a key expectation as was the risk and monitoring work needed to ensure that basic needs are met in the face of increasing climate changes. This project's work is a priority for the government as it is serving basic needs, and the institutional work to be done is also a priority for the operationalization of new WASH and climate policies and decentralization of EPA and water quality monitoring to the districts. The work with districts and planning is thus a key part of the process, a process begun with the operational work shown by this project. Sierra Leone is thus, at the beginning of the project, still going through a process of decentralization. Under the Local Government Act (2004) and in line with the Local Government Regulations (2004), responsibilities for sanitation provision were decentralized, with Local Councils assuming full responsibilities on sanitation aspects in 2005. However, Local Councils are still a deficit in capacity and still determining what this role might mean in practice and how they will implement this demanding responsibility. This project has to some degree shown the way forward and this needs to be communicated to policymakers. There are therefore concerns regarding human resources as the sector adopts decentralized service provision. Local government bodies, with limited technical capacity and financial resources, are likely to struggle to fulfill their roles. Decentralization was reintroduced in Sierra Leone in the immediate post-war years after three decades of suspension. The

Main criteria	Rating[ii]	Explanation
		devolution of water supply services started taking place only during the second phase (post-2008) and is only now being devolved to the councils, and is still currently largely limited to the rural water supply. Delays in devolution, experienced in the past years, have largely been due to weak local level capacities especially in the district councils against associated financial and other risks. The decentralization policy requires that the central government transfer both funds and personnel for devolved functions. The government has devolved functions of the rural water supply to the councils since 2004 the staff have not been fully devolved. MWR attached engineers to each district and their salaries have been paid by the Ministry and not the councils. Some of the achievements thus far include: the engineers organize coordination meetings between community/district stakeholders and partners working in the sector; monitor activities funded by the government; award contracts to contractors through a rigorous National Public Procurement Process; monitor sanitation in the communities; train pump technicians for the maintenance of hand pumps in the communities. The policy, planning and capacity building needs: The Local councils (LCs) provide oversight to MWR activities at District level. They plan district water need together. As such, the District Engineers are accountable and report to the Local councils. Same report is also shared with MWR management. Also, part of the funds received by MWR at District level passes through the LCs. During the Presidential Retreat held in March this year, the need for institutional capacity building and in particular around monitoring and regulatory work was discussed and flagged. Training and provision of water treatment kits and chemicals are required. There is a need to upgrade training sessions, supply chemicals, and reagents for treatment and testing for water quality. This is the basis of a follow won project. UNDP is well positioned and has best capacity to support this effort. **Environmental (ML)** This is an environmental project and has control and regulation of clean water access, knowledge of the quality and pollution, and flow at its heart. The project supported water quality monitoring but much more need to happen in terms of operationalizing policy and supporting the districts with planning and operationalization at the sub-national level. They work with MET Agency to update the water flow collection point and the work on the district water authority web page.

- **Recommendations**

#	Recommendation	Description	Responsible Party
1	Develop Phase two of project to scale NWT and governance learning. Operationalize local governance model.	The next phase can focus on addressing issues related to improved security of the facilities and the enhancement of community and local authority management systems as they take over responsibility for the pilot projects. Focus on the upstream work on intersectoral WASH and climate change resilience in policies. Support the institutional strengthening for intersectoral coordination and regulation, recently strengthened by EPA and MWR that will move to the districts and communities. The policy, planning and capacity building needs: The Local councils (LCs) provide oversight to MWR activities at District level. They plan district water need together. As such, the District Engineers are accountable and report to the Local councils. Same report is also shared with MWR management. Also, part of the funds received by MWR at District level passes through the LCs. During the Presidential Retreat held in March this year, the need for institutional capacity building and in particular around the devolved monitoring and regulatory work was discussed and flagged. Training and provision of water treatment kits and chemicals are required. There is a need to upgrade training sessions, supply chemicals, and reagents for treatment and testing for water quality. This is the basis of a follow won project. UNDP is well positioned and has best capacity to support this effort.	UNDP CO, UNDP RTA GOSL
2	NWT, Technologies and Water Quality Monitoring	While water harvested from rooftops is a useful supplement to regular water supplies, it is important for the government to ensure, through the relevant ministries, that care is taken and the water is portable as it is collected from open sources. It is necessary that the government monitor water quality from such sources and ensure that rainwater was properly treated before communities consume it. This was done by lab technicians attached to the MWR. The technicians would collect water sample and subject it to testing in the lab. This was carried out in all of the sites were the project was implemented.	GOSL

#	Recommendation	Description	Responsible Party
		There is need to provide capacity development to laboratory technicians and provide equipment/chemicals such as chlorine, tabs for PH and Nitrite to improve water quality.	
3	Handover new NWT Project Investments	MWR and UNDP supported relevant local authorities and had them take over the project investments and incorporate them into their water resources development plans. WASH committees have been established by the project in all of the districts and communities where the project have been implemented. The WASH committee is tasked with the responsibility to manage the project at that level and collect money paid (weekly, per household, individually, monthly as the case may be) for the provision of safe drinking water. The monies collected are put into the VSLA, which serves as a bank for to be used to undertake minor repairs and also give out loans to members. VSLA basically takes over the component. Training sessions are organized by the MWR for engineers and later skills are transferred to the local councils in the management of the facilities.	MWR-UNDP
4	Policy Subsidies	Government of Sierra Leone must reduce or waive import duties and taxes on components that are imported for the development of water supply facilities targeting rural and poor urban communities. The government of Sierra Leone waived taxes on all of the equipment procured by UNDP for this project. Project equipment procured was cleared at the sea port under the tax waiver regime. This project benefitted from that	GOSL
5	PPPs	Private Public Partnership arrangements should be put in place to support the development of effective water supply and harvesting mechanisms in Sierra Leone. There is PPP arrangement with the private sector particularly with EFA, Itegem and Pikin to Pikin organizations. These organizations would be contracted to carry out, for instance, sensitization sessions with the citizens; teach people on the issues of climate change effects, prevention and how to safeguard the environment. These groups had this severally for the project.	GOSL
6	Policy–Public Spaces have cost effective NWT installed	GOSL should make it mandatory for public institutions, such as military bases, hospitals and schools, to have rainwater harvesting systems in place. The evaluators found that in Kambia, for example, UNDP put in place a rain water harvesting at the health care center in Makpoloh community. The same was the case with ADB in the same district for some schools in the district. No proof that this has been made mandatory.	GOSL
7	Knowledge Management-Knowledge Sharing	Continue to consolidate all the knowledge inputs executed and lesson gained through the experimentation for future sharing. Upload on a shared data base and hand it over to the MWR. The government should spearhead the **creation of dialogue forums where experiences with the implementation of water service projects are shared and policies to promote them are formulated**. This policy recommendation applies to all three technology choices tried out under the project. There is proof of knowledge management and experience sharing especially at the district and community levels where people would meet and are taught what to do with the facilities/new technologies, how to provide minor maintenance on the facility for sustainability. WASH committees' capacity is built through this process.	UNDP GOSL

- **Lessons learned**

DESIGN	
	Targeting and cross-pilot learning goals: The dual rural and urban and targeted focus was great to demonstrate the benefit of an intersectoral climate risk and WASH operationalization approach at the local levels and to address those most vulnerable and needy. The

	project demonstrated the need for targeting basic services to the neediest and most at risk by using climate risk information in urban and rural settings.
	Pilot projects involving science can also build into them scientific assessment for rigor and results as well as for sustainability measures. This pilot project required constants scientific monitoring and oversight. The project might have had a stronger element on monitoring water quality built into the design for its sustainability.
	The capacity building approach for introducing, pilot testing and sustaining new water technologies NWT in the most vulnerable and at-risk communities through pilots for results should include vocational training for maintaining those new technologies. Projects that introduce new technologies to rural communities should include the provision of resources for basic training of beneficiary communities on how to manage these technologies. At a minimum, new project design, should build in the sustainable learning linkages to the communities and with the companies commissioned to install, for example, the solar pumping systems or the borehole or water gravity system, to train focal persons for the maintenance and repair of the facilities in the event of equipment failure. These arrangements would go a long way in promoting public-private sector partnerships in the delivery and supply of water to community groups around the country.
	Planning for results about implementing NWT with communities should include traditional knowledge: Traditional knowledge and modern scientific approaches a*re* complementary and should be used in conjunction in water and sanitation and ecological restoration projects. In light of increasing vulnerability to climate impacts, there is need to promote use of traditional knowledge and practices to complement scientific knowledge, recognizing that indigenous peoples, through their experience and traditional knowledge, provide an important contribution to the development and implementation of plans. While there is no empirical evidence that these traditional beliefs are true, it is important that the community has used these traditional knowledge systems to protect this water source against misuse and pollution. Therefore, new water resources management approaches that are introduced to traditional communities must take into account such systems, which are more easily understood by these communities.
	Inclusive design and planning : The pilot project design intended to build bridges between local people and the district councils for planning most relevant water infrastructure: Local authorities such as District Councils should be directly involved in the planning and development of community-level projects as this will facilitate continued support for the participating communities after project support comes to an end.
	Partnering and approach with stimulating the private sector: While partnering with local private sector contractors was clearly intended in the design, it was not how the project worked or engaged with the local contractor's i.e. as true partners in development. It was more of a client-contractor agreement, counter to the intention for learning with the new contracts all together. The project was not implemented with a strategy for engagement of private sector although it was designed for this. It was a lost opportunity and a lesson learned. Having a robust knowledge sharing platform would have supported these goals. The project might for example had a more flexible approach to the contracts especially where the costs of installing rural infrastructure were so uncertain and also provided a learning platform for private contractors to learn from each other. This lesson is linked to the project management and implementation approach with only a small PIU.
	Counterparts and implementing partners for scaling up While the project represented a partnership between UNDP /LCDF, MWR AND EPA, the main implementing agencies included MWR, SALWACOWRALC and Guma Valley Water Company. For a scaled up version of this project and in particular, for implementing the proven technologies and practices for local water and sanitation and climate change governance across the country, these agencies should be represented more in the project design and given more weight as implementing partners.
IMPLEMENTATION	**Approach to building capacity** through doing is an implementation approach but to get results such an approach needs strong monitoring and learning (knowledge management and communication) approaches for documentation of results including learning, policy goals and scale up potential.
	Knowledge Management and Learning (KM and L): There was a missed opportunity to use KM and L as an implementation of cross-cutting the two-component implementation approach. Such cross-cutting work on knowledge management, capacity building and learning, communication and results based monitoring would have supported coordination and policy sustainability learning goals of this project. See above.
	Results monitoring and adaptive management, NEX and staffing PIU: The lack of strong monitoring capability, either through staffing and engaging mechanism for broader sectoral representation in work planning, led to the underreporting of the process-type results and limited policy level results in general. Additionally, having the implementation done strictly by one project coordinator in one ministry led to an underrepresentation of the other stakeholder and sectors in the implementation and as such a weakened implementation approach for learning while doing especially with the private sector and other stakeholders . The work planning was biased in favor of water engineering while this project also had cross-sectoral and integrative "resilience" policy goals. In hindsight, only small efforts were needed to move the project toward its policy-level results. That said, the project did very strategic things, including work on supporting the information management system at the new water authority. This is a system that supports the dissemination of the climate information, i.e. water flow, to a broader sectoral audience and is useful for planning. Managment held a successful policy forum at the end of the project. More dynamic knowledge and learning work was needed as was more inclusive sectoral /stakeholder monitoring of community pilots together with local authorities.
	Stimulating Private Public Partnerships PPPs with co-financing and local education and scaling resources through small grants UNDP comparative role in co-financing key aspects of model programme. Provision of track co-financing and access to small grants for funding educational inputs (plumbing infrastructure and education) has been a good input to support the fund to stimulate the PPP work with government. The provision of track funds to create the business kiosks for purchasing clean water –and changing water access practices while stimulating a market for clean water has been a good lesson learned and support to results input.
	Social Norms Work is needed for PPP People think water is a gift from God. Buying water, a natural resource is not the norm. Work on changing norms is key in the changes and the idea of kiosk help. More work needed with the sector education is a lesson learned
RESULTS	
Component one	**Upstream Results.** National- and subnational-level results (cross-sector coordination work, budgets and policy) require more inclusive design approaches and joint monitoring involving sectors and policymaker. The policy influence work in a pilot project needs more rigor in design on methods for testing efficacy of results. This project needed better design and methods for assessing the cost benefit of the new water technologies for policy. This was left up to monitoring chance and the evidence is mostly antidotal.

Component two	*Lesson from NGOs* • NGOs are good implementing partners and have supported the setup of WASH committees. *Lesson from Working with Communities and Districts and Private Sector Water Governance/Management Systems* • There is a need to set up a platform for planning and sharing lesson during piloting and the design phase. Another important lesson with respect to the participation of the private sector in the development and delivery of water services is that of sharing of experiences with work at the various levels of intervention. This is best conducted through dialogue forums involving a broad range of stakeholders, including decision and policymakers, local authorities, local community representatives and programme support agencies. • Work was strictly based on contracts rather than implementing more flexible *patterns in the development approach*. The implementation needs a more collaborative approach to facilitate the smooth implementation and acceptance that could be cost overruns in implementing new technologies in rural areas. • The NIM approach taken in working with districts allowed for monitoring work as planned. It was implemented by the Ministry through the Local Councils. District engineers assigned to Councils directly monitored the implementation of these activities in the districts Completed facilities are handed to UNDP by the contractors, not to communities directly. UNDP does the handing over to the Communities, involving Local Councils, the MWRs and other relevant stakeholders including the Ministry of Water Resource. Therefore, monitoring of these facilities has been by local councils and the Ministry of Water Resources. *Lesson from Pilots* *New rainwater harvesting technologies* • The pilot rooftop rainwater harvesting project demonstrated that rooftop rainwater harvesting technologies have the potential to increase water availability for domestic and institutional use in Sierra Leone. • Major buildings were not designed to collect rainwater. The types of material and angle used in roofing for most of the buildings and houses in cities such as Freetown were not constructed with the foresight to collect rainwater. Innovations for roofing toward rainwater harvesting are important for creating a collecting mechanism for clean water. • Rooftop rainwater harvesting technologies have the potential to reduce the specific vulnerabilities of women in key institutions. Increased water supply improves personal hygiene for women and girls. *Potential for upscaling* • The technologies can easily be upscaled and introduced to other regions of the country where community groups depend on water sources that dry up during the dry seasons. Rooftop rainwater harvesting is one of the most appropriate climate-resilient adaptation techniques that can be adopted in the water sector. The type of technology used should be governed by the need and context and for the practical means employed for its maintenance and cost effectiveness. • While water harvested from rooftops can be a useful supplement to regular water supplies, care should be taken to ensure that it is portable as it is collected from open sources. This is usually done through chlorination of the water in the reservoir. *Management of protected spring box and water tower and reticulation in the Kortumahun Community* • Many lessons arise concerning the use of traditional knowledge systems to manage and protect water resources in Kortumahun Community, Panga Krim Chiefdom, Pujehun District, Sierra Leone. • While there is no empirical evidence that these traditional beliefs are true, it is important that the community has used these traditional knowledge systems to protect this water source against misuse and pollution. It is therefore important that new water resources management approaches introduced to traditional communities take into account such systems, which are more easily understood by these communities. That way, full buy-in to new developments will be realized and readily assimilated into sustainable community water resources management practices and strategies. • Programmes that seek to address water management challenges should be sensitive to and take into account community beliefs and practices. • There is need to engage community leadership when implementing water management projects. *Use of Solar Pumps* • Introduction of solar pumping technology through the project is a new intervention for the Kargboto community. As such, community members have no experience in using and managing it and have no capacity to maintain the system. For example, the pump was rendered dysfunctional following a lightning induced breakdown in 2019. As a result, there has not been any water supplied through the system.

	• The committee requested the assistance of a local radio repair technician who took away the transistor to his workshop for repairs. At the time of the team visit in October, the technician had not returned the component he took for repairs and the water facility was still not working. The lesson from this experience is that the project should have provided resources for **basic training of beneficiary communities on how to manage the technology that was provided to them**. At the minimum, the project should link the communities with the companies commissioned to install the solar pumping systems so that they can **train focal persons for the maintenance and repair of the facilities** in the event of equipment failure. • Solar water pumping technologies are costly interventions because most of the components used in the systems, including solar pumps and control equipment, solar panels and the water pipes are imported. Private sector companies that were engaged in the project passed on the full costs of these components plus duties and taxes to the project. It is doubtful that community groups will be able to replace any of these components should the need arise. Consideration should therefore be given to reducing or waiving import duties and taxes on components imported specifically for rural water supply projects. These arrangements would go a long way in promoting public and private sector partnerships in the delivery and supply of water to community groups around the country.

III. ACRONYMS AND ABBREVIATIONS

ACF	Action Contre la Faim (Action Aid Sierra Leone)
AFDB	African Development Bank
AMAT	Adaptation Monitoring and Assessment Tool
ARR	Annual Performance Report
AWP	Annual Work Plan
BTOR	Back to Office Report
CC	Climate Change
CCA	Climate Change Adaptation
CCM	Climate Change Management
CCRM	Climate Change Risk Management
CBO	Community Based Organization
CDA	County Development Agendas
CHO	Community Health Officer
CO	Country Office
CP	Country Program
CPAP	Country Programme Action Plan
CRM	Climate Risk Management
DFID	Department for International Development
DEX	Direct Execution
EC	European Commission
EDF	European Development Fund
ENSO	El Nino Southern Oscillation
EPA	Sierra Leone Environmental Protection Agency
ERC	Evaluation Resource Center
EWS	Early Warning System
FACE	Fund Authorization and Certificate of Expenditures
FAO	Food Agriculture Organization
FAOSTAT	Food Agriculture Organization – Statistics
GB	Great Britain
GDP	Gross Domestic Product
GEF	Global Environmental Facility
GCM	General Circulation Models
GoSL	Government of Sierra Leone
GIZ	German International Cooperation
GVWC	Guma Valley Water Company
ICRC	International Committee of the Red Cross
IDPs	Internally Displaced Persons
IRC	International Rescue Committee
IPCC	Intergovernmental Panel on Climate Change

ITCZ	Inter-Tropical Conversion Zone
JICA	Japan International Cooperation Agency
KM	Knowledge Management
LVIPs	Kumasi Ventilated Improved Pit Latrines
LDC	Least Developed Country
LDCF	Least Developed Countries Fund
LFA	
M&E	Monitoring and Evaluation
MEAs	Multilateral Environmental Agreements
MDGs	Millennium Development Goals
MAF	Ministry of Agriculture and Forestry
MoWR	Ministry of Water Resources
MoFED	Ministry of Finance and Economic Development
MoHS	Ministry of Health and Sanitation
MLGRD	Ministry of Local Government and Rural Development
MSF	Médecins San Frontieres
NCCS	National Climate Change Secretariat
NAPA	National Adaptation Program of Action
NDP	National Development Plan
NEWPPCU	National Energy, Water Policy Planning and Coordinating Unit
NDSAP	National Sustainable Agriculture Development Plan
NGO	Non-governmental Organization
NWSP	National Water Supply Policy
NPRS	National Poverty Reduction Strategy
PAC	Project Appraisal Committee
PC	Project Coordinator
PHU	Peripheral Health Unit
PIF	Project Identification Form
PIU	Project Implementation Unit
PIR	Project Implementation Report
PPG	Project Preparation Grants
PPPs	Public-Private Partnerships
	Provincial Water Company (formerly called SALWACO)
PRS	Poverty Reduction Strategy
PS	
PRSP	Poverty Reduction Strategy Papers
PWJ	Peace Winds Japan
RBM	Result Based Management
RUF	Revolutionary United Front
SALWACO	Sierra Leone Water Company (now PROWACO)
SBAA	Standard Basic Assistance Agreement
SCCF	Special Climate Change Fund
SLBF	Sierra Leone Business Forum
TAR	Third Assessment Report
TBD	To Be Done
ToRs	Terms of Reference
UN	United Nations
UNHRC	United Nations High Commissioner for Refugees
UNICEF	United Nations Children's Fund
UNDAF	United Nations Development Assistance Framework
UNDP	United Nations Development Program
UNDP CO	United Nations Development Program Country Office

UNDP EEG	United Nations Development Program Environment and Energy Group
UNDP RCU	United Nations Development Program Regional Coordination Unit
UNDP RTA	United Nations Development Program Regional Technical Advisor
UNFCCC	United Nations Framework Convention on Climate Change
USAID	United States Agency for International Development
USD	United States Dollars
WASH	Water, Sanitation and Hygiene Policy
WD	Water Department
WPPCU	Water Policy Planning and Coordination Unit

1. INTRODUCTION

1.1. Purpose of the evaluation

Implementation of the project was completed in December 2019. In accordance with UNDP and GEF Monitoring and Evaluation Procedures, all full- and medium-sized UNDP support- and GEF-financed projects are required to undergo a terminal evaluation upon completion of implementation. These terms of reference set out the expectations for the terminal evaluation of "Building Adaptive Capacity to Catalyze Active Public and Private Sector Participation to Manage the Exposure and Sensitivity of Water Supply Services to Climate Change in Sierra Leone."

On request of the MWR rainwater-harvesting (RWH), innovations were established as learning experiments, capturing and storing drinking water quality rainwater during the rainy season and saving it for use in the dry season. In Freetown, existing springs that were already being developed by Guma Water Company to supplement water sources were protected from degradation. Rainwater harvesting for supplementation of the sources will be attempted through construction of a stand-alone RWH infrastructure. Innovative designs of collective "rooftops" for water capture in high density living areas were tested. In Pujehun, Kono and Kambia districts, the focal areas for planned African Development Bank (AfDB) water supply investments, this project contributed to the building of capacities of district level water professionals for climate resilient planning and decision-making.

1.2. Scope & Methodology

An overall approach and method for conducting project terminal evaluations of UNDP-supported GEF financed projects has developed over time. The evaluator is expected to frame the evaluation effort using the criteria of **relevance, effectiveness, efficiency, sustainability and impact,** as defined and explained in the "UNDP Guidance for Conducting Terminal Evaluations of UNDP-supported, GEF-financed Projects." A set of questions covering each of these criteria has been drafted and refined in an evaluation matrix (see attached). Based on the desk study and discussion with stakeholders about evaluation utility and forward orientation, a set of strategic question was determined in order to frame the evaluation findings and report. They are the following:

Outcome 1. What changes in public policies have been achieved through the intervention approach? How can the policy and capacity building work be scaled?

Outcome 2. How successful has the project approach been to instill resilient infrastructure in the four districts? What have been the benefits and the costs? Include the fiscal externalities to government programming. What can and should be scaled and why (lessons learned)?

Relevance and Design

1. Was the project relevant to the stated and actual demand and priorities of Sierra Leone, to UNDP, To GEF? Why and or why not?

- How are the climate change impacts being felt by the users?
- How does the project support improve democratic water access to rural communities in four districts in Sierra Leone?

- Was the pilot approach of different technologies involving private sector contracts useful for engaging the private sector in supporting constant supply? Will such an approach continue to meet demand?

2. What are key lessons learned based on the pilot project design that might be incorporated into a scaled-up programme? Why scale this pilot up? How?

- Was the pilot approach of the improved water governance arrangements, i.e. community management committees, WASH committees and the different technologies, backed up with science, social economic baseline and analysis for pilot testing the different technologies for each district?
- What kind of water supply systems were adopted? Why? What were the lessons, including challenges and opportunities?
- How has the national and local water governance been improved by this approach? How will local community groups continue to receive the scientific information for continued dynamic risk management and decision-making?
- What are the cost and benefits of the different technologies pilot tested as felt and told by the local people?
- Was the capacity building approach effective as it relates to the supply and longer-term maintenance of the technologies, the government officials and the village groups?
- What were the lessons and nuances of the building of community village management groups for using the technologies? How might this be scaled and or improved?
- Did the approach to involving the government in working with the private sector work or not and why? How might this be improved moving forward?

Results and Effectiveness

Has the project contributed to strengthening adaptive capacity country wide? How?
Did the project meet its expected outcome goals? Why or why not? Did the project provide access to clean and safe water? Is it socially, financially, economically and institutionally sustainable?

Policy, Institutional Capacity and Enabling Environment including at the local, subnational and national level.

Did the project contribute to changes in government policies toward resilience, I.e. work with the communities on managing water access, departments of water and meteorological for improving science-based decision-making processes for effective water governance at all levels? How? How did the project support these policy level changes? Give evidence.

- Did water governance arrangements at the local level improve? How?
- How did the project's contribution to the water and change to science and risk assessment support the decision-making process at all levels?

Factors influencing implementation

- Dynamic political context?
- How was this project monitored for results? Was RTA/CTA-UNDP day-to-day support, oversight and coordination done well? How did the inclusion of district engineers in monitoring support the project results?
- How functional was the steering committee?
- How functional was the technical committee?
- UNDP administrative support?

An evaluation matrix (Annex) was developed to guide the interview process. The questions above were developed to guide the overall review from a utility perspective. These are listed above and represented in the evaluation matrix in an annex of this report. These strategic-level questions were developed based on the desk study of the key documents and were directly in line with the idea to document lesson from the pilot process for future initiatives and for scaling if viable.

The field work was executed by the national consultant. The national consultant carried out travel from July 25 to 31, 2020 visiting communities where the project has been implemented in Freetown, Kambia, Pujehun and Kono districts. The evaluation chooses a random sampling to choose communities to be visited. Some of the target communities were deemed hard-to-reach due to the incessant rainfall experienced in the country at the time of the field work. COVID 19 also prevented the consultant from holding FGDs in many of the evaluation planned cases. The field work has resulted in four case studies (annex) based on the critical questions developed for policy inputs in order to show what worked, what did not work and what can be scaled and why. The questions for the field study were developed before travel was conducted. The case studies included a review

of the involvement of the district planners, engineers and communities. The national consultant also undertook a cost-benefit analysis of the new water technologies experimented with and an analysis of the fiscal externalities.

The one-on-one and focus group interviews were conducted with key informants. The list of interviews is attached in the annex and in the case studies. The national and international consultants completed the analysis, developed this final report jointly and submitted it to the clients for feedback after which the comments from key stakeholder have been included.

1.3. Structure of the evaluation report

The review was undertaken in accordance with the UNDP guidelines for mid-term reviews (UNDP, 2014)[iv] as well as new criteria of UNDP evaluations under Covid-19 (see link). This report is structured according to the table of contents in the Terms of Reference for the TR issued by UNDP Sierra Leone Country Office. An Executive Summary is provided at the beginning of the report. Chapter 1 provides an introduction to the project and Chapter 2 covers the project description and background context. The main findings are reported in four separate chapters: project strategy in Chapter 3, progress toward results in Chapter 4, project implementation in Chapter 5 and sustainability in Chapter 6. The conclusions and recommendations are stated in Chapter 7 and key documents/information are included in the annexes.

2. PROJECT DESCRIPTION AND DEVELOPMENT CONTEXT

2.1. Project amount, start and duration

The project is funded from GEF with resources from the Least Developed Country Fund. The total project budget is USD 13,090,000. Of this, USD 2,940,000 was a grant from GEF, USD 1,150,000 was from UNDP TRAC and USD 9,000,000 was an in-kind contribution from the Government of the Republic of Sierra Leone.

The period of project implementation was from January 2013 to 2017. This was disrupted by the outbreak of the Ebola epidemic from 2014-2015. Project implementation started again in 2015/2016 with an eighteen-month no-cost extension from June 2018 to December 2019, granted by GEF to compensate for the delays experienced. The executing agency in Sierra Leone is the MWR. The project was expected to be executed in close collaboration with EPA, the AfDB-financed-baseline project, and the selected pilot communities responsible for the local-level pilot interventions of the project.

2.2. Problems that the project sought to address

Although Sierra Leone receives more than 2000 mm of rainfall per year, the country's population experiences water shortages in the dry season, generally referred to as the "dries." This apparent contradiction is due to a number of factors. Although efforts had been made at developing infrastructure for water supply to Freetown and most major villages around the country in the colonial era, these achievements were undone by the civil war that engulfed the country from 1991 to 2002. Institutions that had been set up to manage the supply water to towns like Freetown became largely dysfunctional due to "skills flight" and low capital investment while most of the infrastructure that had been developed was destroyed during this period. The majority of the population is now dependent upon a basic water supply infrastructure like hand-dug wells for primary water supply while the water supplied by institutions like Guma Valley Water Company is not portable. These institutional and infrastructural constraints to water supply are also now compounded by climate change and variability.

Since the end of the civil war, successive Government administrations of Sierra Leone have prioritized the improvement of water and sanitation delivery systems across the country. With assistance from international governmental and nongovernmental cooperating partners, Sierra Leone has invested in the enhancement of human and institutional capacities for managing water resources and improving infrastructure for water and sanitation services delivery across the country. It is against this background that the project, "Building Adaptive Capacity to Catalyze Active Public and Private Sector Participation to Manage the Exposure and Sensitivity of

Water Supply Services to Climate Change," was developed to address these concerns as well as the impacts of climate change-induced impacts on the water sector in Sierra Leone.

Key barriers identified to equitable access to water in the face of climate change in the project document follow:

Difficulty to react to uncertainty of climate risk
Climate change is a hard issue to address and manage: (1) effects may take a long time to be felt; (2) it is still not clear what they will be; and (3) the best way to manage them cannot be predicted with any precision. Above all, there is a complex interrelationship with the impacts of environmental destruction because of human action that leaves many societies vulnerable to the slightest change in weather regimes that are so important for their access to clean and safe water. The increase in variability and unpredictability of global climate will have impacts across the world. In West Africa, rainfall patterns will be disrupted and temperatures will increase, but the details of these effects cannot be accurately predicted and the effects of climate change at country level are similarly poorly understood. Sierra Leone needs to formulate and start to implement responses to the likely future global changes in climate.

Absence of reliable/up-to-date information on climate impacts on key sectors, including gender specificities
The decade-old civil war limited the institutional capacity to systematically collect and analyze data to inform climate resilient policy formulation. Inadequate staff and poor facilities for weather forecasting and related activities have undermined the ability of the Meteorological Department to provide adequate support information to other sectors of the economy so that they can better adapt to the impacts of climate change. While some targeted efforts are underway by institutions such as the UK Met Services through funding by UNDP and others to systematically strengthen the Meteorological Department's capacity, there are major gaps in technical skills for generation of information on climate change (e.g. downscaled or long-term forecasts are nonexistent and/or not utilized). There is limited dissemination of available forecasts, and forecasts are not packaged in a format that is accessible to end-users such as sector specific technocrats, district planners or policymakers.

No specific climate risk analysis for any sector has been undertaken in Sierra Leone so far. Although the First and Second National Communications to the UNFCCC include initial assessment of the water sector, it is clear that this was just the beginning of a process. Further efforts have to be made to improve the information base. One key consideration in the water sector must be that gender sensitive analysis and planning must be undertaken to ensure that the water supply and management will be effectively more climate resilient in the future.

Currently there is limited access to reliable information for effective climate risk management. The lack of a climate information communication system heightens the country's vulnerability. Without appropriate information and climate risk management tools, policies will lack the correct navigation to govern climate risks in the water sector. In turn, neither appropriate monitoring systems are in place to monitor the largest water reserve (Guma) on which Freetown depends nor are climate risk assessments and contingency plans operational.

Weak national and local knowledge base on climate impacts, risks and opportunities and insufficient sharing and learning mechanisms on climate change
As a result of the war, desegregation of communities due to migration has severely weakened the local knowledge base with limited transfer of indigenous skills between and within communities. The use of the available global and other external knowledge bases is also limited for several reasons that span from awareness that various tools exist and are available to knowing what to do with the information once it is secured. This knowledge gap is evident for innovations and actions in the water supply sector per se and is even more pronounced in terms of public awareness of (a) climate change impacts, (b) possible adaptation measures and (c) how human interaction can either diminish (through adaptation and preparedness) or exacerbate climate change impacts. During local-level consultations, some existing coping strategies were identified, but overall the communities still seemed too overburdened to deal with the detrimental effects of the long war on their daily livelihoods. It is evident in Sierra Leone that very limited consideration of gender specific vulnerabilities, needs and possible solutions are included in decision-making. So far, gender-specific climate risk and opportunities have not been systematically addressed generally or specifically in the water sector.

Climate risk information, adaptation options and knowledge are not shared and disseminated as widely as needed to enable communities to cope with the adverse climate impacts. There is no learning system in place

to capture, codify and inform scaling-up methods. In addition, there is no regular flow of information and dialogue on climate change between parliamentarians, local council members, traditional authorities, NGOs/CBOs and the private sector.

Current policies, strategies and regulatory mechanism have limited or no consideration of climate change issues

Key institutions such as the Water Policy Planning and Coordination Unit (WPPCU) and the Sierra Leone Environmental Protection Agency (EPA) are severely constrained by human resources with the appropriate scientific and technical capacities necessary to internalize climate change issues into policies, strategies and regulatory mechanisms. Although Sierra Leone recently established its National Climate Change Secretariat (NCCS) successfully, it is clear that without dynamic and sustainable systems, including local competencies to generate and use relevant information on climate change risks (and associated economic impacts), integrated climate resilient policy formulation is severely constrained, if at all possible. The Water Act of 2012 was considered a major achievement and was strongly supported by the targeted donor support to the Water, Sanitation and Hygiene (WASH) cluster. Currently, the Act is not underpinned with relevant regulations, and it contains only basic climate change risk considerations.

Public financing shortfalls lead to overall infrastructure challenges and insufficient coverage of climate resilient water supply

Since the war, only some of the basic water infrastructure has been rehabilitated or newly established. Investments into the development of new or old water infrastructure are being made by several donors both for urban water supply in Freetown and in the various districts. This specific project is designed to assist such donor-supported investments in building climate resilience in their project work. However, it is recognized that the overall infrastructure challenges are still a major concern and barrier to achieving the overall solution.

Since 2008, local councils have been required to manage all urban water supply activities (except in Freetown) and peri-urban water supply schemes. Unfortunately, these decentralized public bodies are frequently unprepared for the task, lacking finances, capacity and institutional authority to respond effectively to the demands of the population, specifically on climate-resilient water supply systems. Scarce public finance needs to be used to catalyze and leverage additional resources for the necessary investments for the operation, maintenance and management of vulnerable infrastructure.

Outreach to the community level is particularly weak. Although the Water Act makes specific provisions for rural water supply and establishment of WASH committees, no significant rollout has commenced. The so-called WASH consortium of NGOs has pioneered some innovative and locally applicable approaches to rural capacity support, but especially for recurring financial and human resource bottlenecks at district level, they hamper a more speedy service provision to the rural areas.

Limited technical capacities and limited innovations, especially to react to impeding climate risks

Similarly, it is recognized that in Sierra Leone the technical capacities are very limited, mostly as an entire generation of (young) professionals is missing due to the war. One key barrier is the lack of technocrats and practitioners in the water sector, including water engineers and others. Another is that those professionals who are employed often lack the opportunity for professional updating on emerging issues, such as climate risks and adaptation options and solutions in the water sector. There is a serious underrepresentation of female professionals as well in all water-related jobs. Special gender support policies must be implemented.[v]

2.3. Immediate and development objectives of the project

The project objective is to enhance the adaptive capacity of decision-makers in the public and private sector involved in water provision to plan for and respond to climate change risks on water resources.

2.4. Baseline Indicators established

	Indicator	**Baseline**	**Targets** **End of Project**
Project Objective: Enhance the adaptive capacity of decision-makers in the public and private sector involved in water provision to plan for and	Indicator 2.2.1: Number and type of targeted institutions with increased adaptive	• Technocrats from MWR and EPA in Freetown, but particularly regional technical staff, have extremely limited opportunity for professional updating and usually find it difficult to address	• At least capacities of 2 line ministries and 2 District Councils to mainstream adaptation concerns within water policies and local

respond to climate change risks on water resources.	capacity to reduce risks of and responses to climate variability.	newly emerging technical issues and practices into their ongoing work. • One of the major limitations is the lack of capacity to deal with climate risks and understanding of managing these risks in the water sector.	development plans are strengthened • Capacities of two research/ training centers to deliver relevant training on climate change issues are strengthened
Outcome 1: Critical public policies governing the management of water resources revised to incentivize climate smart investment by the private sector.	Indicator 1.1.1: Adaptation concerns and actions mainstreamed within at least the Guma Reservoir Management process	• The overall risk that climate change may pose on the sustainability of water supply to the capital is not well integrated into Guma Reservoir management	• CC resilience plan for Guma reservoir established
	Indicator 2.2.1: Number and type of targeted institutions with increased adaptive capacity to reduce risks of and responses to climate variability.	• Key decision-makers who are supposed to lead implementation of the policy have limited knowledge of climate change impacts or adaptation responses. • Information, including inventory and mapping, is inadequate, and staffs from MWR have limited expertise to internalize climate changes into existing local development plan. • Low interplay exists between public and private sector on adaptation strategies investment. • Existing coping strategies and adaptation action are not documented at all, including for the water sector.	• 15% of staff from targeted institutions aware of predicted impacts of climate change and appropriate responses • 60% of targeted stakeholders have access to relevant disseminated adaption experiences from the project
Outcome 2: Water supply infrastructure in Freetown and Pujehun, Kambia and Kono districts made resilient against climate change-induced risks	Indicator 1.2.3: Number of additional people provided with access to safe water supply and basic sanitation services given existing and projected climate change	• Type and level: 0 (aside from already existing local coping mechanism)	• 5,000 at intervention sites in Freetown and three districts

2.5. Main stakeholders

An extensive mapping of key stakeholders involved in WASH was conducted during the project design phase; however, during implementation, the expected collaboration among stakeholders was less than anticipated. The project implementation and coordination approach focused less on collaboration, upstream and partner work and more on outcome two, getting the appropriate infrastructure in place in the most rural areas and building community management groups. NGO had supported this.

Sierra Leone Government level

As elaborated in the institutional section of the ProDoc, the Ministry of Water Resources (MWR) is the main institution dealing with water in Sierra Leone. The implementation of project proposed policy falls under the remit of four government ministries, namely MoWR, the Ministry of Finance and Economic Development (MoFED), the Ministry of Health and Sanitation (MoHS) and the Ministry of Local Government and Rural Development (MLGRD), and the local councils. The MoWR is the line Ministry with overall responsibility for water policy formulation, regulation and implementation supervision. The MoWR hosts and provides leadership for the multi-donor funded Sierra Leone WASH Programme which aims to enhance the country's capacity for achieving the MDG targets for water and sanitation.

The EPA hosts the Steering Committee Chair of the project. Generally, the EPA is mandated to harmonize legislative, policy and institutional framework with regard to natural resource management in Sierra Leone. With European Union support under the 10 EDF, substantial funding is given to EPA to improve environmental governance. Under this project, EPA has already established coordination mechanisms between key ministries and technical support is in place to define modalities for the mainstreaming of the environment and Multilateral

Environmental Agreements (MEAs) into key policy development. A strategic partnership with this EU project on environmental governance will be executed by EPA for policy development activities.

In the same context, Sierra Leone had established its National Climate Change Committee (NCCS) housed at EPA. The NCCS was envisaged to be an integral partner with regard to guiding and informing the process in terms of demand-led increased knowledge and information on climate risks integrated effectively into climate-resilient policy formation and other relevant decision-making. The MoFED is responsible for government finances and development planning, including providing strategic guidance to planning and financial management and funding for WASH sector development activities. MoHS is now mainly responsible for policy formulation and providing oversight for delivery of health and environmental sanitation (solid waste) services. Primary health care services (including environmental health) are devolved to the local councils, which makes the actual delivery of solid waste management the responsibility of local councils.

The MLGRD is responsible for the decentralization drive in Sierra Leone and the local councils are governed through this Ministry. Each district council of the three project districts outside of Freetown, Pujehun, Kambia and Kono (see more details below), has its own development plans. These are in many ways directly linked to the activities in this project. In accordance with these development plans, as all of them have a strong focus on working toward ensuring a clean water supply to the people, the district councils will form an active part of the project site implementation. Many project activities are in harmony with the activities of the development plans (e.g. construction of water infrastructure and training of water supply staff). District councils are envisaged to form an integral partner and implementer (as well as project beneficiary) to the local-level piloting in terms of the protection of existing streams, rainwater harvesting innovations and maintenance trainings.

International Agencies and donor community in Sierra Leone

United Nations agencies and multilateral donors, including the World Bank, EC, JICA, USAID, DFID and others, maintain an active presence in Sierra Leone and play influential roles in determining national priorities and mechanisms for their implementation in Sierra Leone's postwar reconstruction.

Programs funded by the World Bank, EC, USAID, DFID and United Nations agencies have emphasized environmental impact assessments, but not many were holding their implementing agencies accountable for integrating climate change adaptation into the design and implementation of these programs.

The AfDB developed a project in the water and sanitation sector focused on water supply and sanitation infrastructure, rural water supply and sanitation programme development and capacity building. It will include, among others, water monitoring, research and adaptation mechanisms at rural level. The design of the AfDB project is being coordinated with this project. AfDB also developed a project request to GEF for a climate resilience intervention, incorporating the good practices and expanding the geographical range by implementing five additional districts not covered by this project.

Non-Government Organizations

Several international NGOs, as part of the WASH consortium, were to form a strong part of the stakeholder process, especially regarding the work done on community water harvesting conducted in and around Freetown. These include Action Aid Sierra Leone, Action Contre la Faim (ACF), Concern International, GOAL Ireland, Oxfam GB and Save the Children UK. A breakdown of various NGO activities is given in Table 1 below. This includes several local NGOs that work in the WASH sector in Sierra Leone on the district level. Overall the local NGO capacity is still considered to be relatively weak but worthy of specific support.

The Environmental Foundation for Africa (EFA) is an exceptional local NGO with a long-standing track record of environmental advocacy, project implementation and capacity building experience in Sierra Leone, Liberia and the region. EFA is currently developing an innovative "Environmental and Sustainability Learning Centre" in the outskirts of Freetown. The center offers a modern and inspiring location for learning, policy dialogue and other demonstrations of resource use efficiency and innovation on site. They have an established track records in

NGO	Geographical areas of activity	Sectors of activity	Year when work started in Sierra Leone
ACF (Action Contre La Faim)	Currently closing offices in rural areas but remaining in Freetown	Has been rural water supply and sanitation but will refocus on cholera threats in Freetown	
ActionAid	Throughout Sierra Leone, but with activities concentrated around Bo, and in Kambia and Womba Districts.	Rural water supply, water supply to schools and health centres, Rural sanitation, Sanitation in schools and health centres, capacity development	1988
Africare	Kailahun District	Rural water supply, Rural sanitation, hygiene promotion, improving livelihoods.	
CARE	Koinadugu, Bombali, Bo, Tonkolili, Kailahun Districts	Rural water supply, Rural sanitation, hygiene promotion, improved nutrition (in Koinadugu District)	2003 (in Koinadugu District)
Concern	Mainly in Tonkolili District, support for a clinic in a Freetown slum.	Rural water supply, Rural sanitation, School sanitation, hygiene promotion, improving access to primary health care.	
GOAL	Freetown and Kenema District	Child protection and work with street children in Freetown. Rural water supply, Rural sanitation, Water supply and sanitation to clinics, hygiene promotion, improved nutrition in Kenema District.	1999
GTZ	Freetown and Kailahun District	Solid waste management in Freetown. Details not collected of work in Kailahun District.	
JICA	Kambia District	Rural water supply, and rehabilitation of water supplies to small towns, capacity development.	
Oxfam	Mainly in Kailahun District. Work in some Freetown slums is planned	Rural water supply, Rural sanitation, rehabilitation of wells and springs, hygiene promotion, capacity development	
Plan International	Kailahun District		
Save the Children	Kailahun District		
Spanish Red Cross	Kono, Koinadugu, Tonkolili and Bombali Districts	Rural water supply, Rural sanitation, capacity development	

learning and capacity material and approach development and implementation through strong regional and global linkages.

Private Sector

The private sector was already involved in the project development phase and will play a large role toward the project's success in terms of water infrastructure investment and of improving water society capacity as a result of the implementation of various capacity-building project initiatives. The Guma Valley Water Company (GVWC), a parastatal entity, is responsible for Freetown's water supply. Guma is governed by its key shareholder, the MWR. The Provincial Water Company (PROWACO), formerly known as SALWACO, is legally mandated to perform various responsibilities, including the provision of water supply to all urban centers (except Freetown) and rural areas. Thus, their participation at the local level will be vital.

Numerous water consumers from the private sector are important target groups and stakeholders of this project. There is an established industry that uses water from various sources for treatment and bottling of drinking water as well as industries that are considered water intense, i.e. mining and food production.

Stakeholder groups and envisioned role during the project stage in Project Document

Stakeholder groups	Potential role during the project
Water Department, Ministry of Water Resources	Overall project implementation. A Project Implementation Unit (PIU), attached to WD, will be set up to coordinate and direct project execution in Freetown. District

Stakeholder groups	Potential role during the project
	WASH coordination officers and support staff will be the key executers of the district and local level activities with relevant NGOs and individuals.
Environnant Protection Agency, Sierra Leone	Parts Component 1 coordination in partnership with Ministry of Water Resources GEF and UNFCCC focal point, Steering Committee Chair of Project Implementation
National Climate Change Committee	Partnerships with EPA on various components, project beneficiaries in terms of knowledge and information portals created
Ministry of Economy, Planning and Cooperation	Aims to assist mainstreaming climate considerations into relevant policies and other country key planning documents and strengthen competency in resources mobilization
Ministry of Finance	Responsible for coordination of cooperation initiatives
Meteorological Department	Partner for EWS and information/knowledge generation activities under component 1.
Local government in Freetown, District Councils in Kambia, Kono and Pujehun	Contribution to the implementation of project activities in at least two villages per district; overall strategic guidance Beneficiaries from capacity support activities, building district level capacities in dealing with climate change
Environmental Foundation for Africa (EFA)	EFA has recently set up an environmental and sustainability learning center near Lakka in Freetown. The modern and inspiring infrastructure is available for hosting trainings, demonstrations of technologies and political dialogues. Capacities for developing cutting-edge learning approaches for a suite of stakeholders through a strategic partnership with the IUCN Commission on Education and Communication exist. This can support content development for modules.
Sierra Leone Business Forum (SBLF)	Platform for policy dialogues, especially with the private sector under component 1
Innovation training centers at Grafting and Kenema	Demonstrations of water supply and management innovations; pioneering for adaptation additions; training of replicators from the local communities in the three project districts
Local NGOs and consulting services, especially at the district level	Support to project implementation in all districts
Pilot sites: Pujehun: Bandajuma Sowa, Gbondapi, Kono; Koeyor community Jaima Sewafe Chiefdom, Kambia; Mambolo Chiefdom, Malambay	Primary beneficiaries and partners in local-level testing and implementation of climate change-resilient rainwater harvesting technologies, storage and management.
Communities, Women and Youth Associations, CBOs	Beneficiaries of adaptation measures and contribution to the design and managing of small-scale water supply systems. Forms part of policy formulation
Private sector (the Guma Valley Water Company, Provincial Water Company (PROWACO), Small Water providers)	Supports the establishment of framework for policies and supports in promoting investment and entrepreneurship development on adaptation, designing of climate resilient design and building climate resilient water harvesting schemes. Guma Valley Company to benefit from improved monitoring system.

2.6. Expected Results (Original ProDoc Log Frame, See Annex)

The project, "Building Adaptive Capacity to Catalyze Active Public and Private Sector Participation to Manage the Exposure and Sensitivity of Water Supply Services to Climate Change," is expected to address climate change induced impacts on the water sector in Sierra Leone. The project has a focus on **capacity building for climate resilient decision-making in the water sector and pilot intervention on the ground at four locations within the country**. The two planned Outcomes of the project are as follows:

Outcome 1: "Critical public policies governing the management of water resources revised to incentivize climate smart investment by the private sector"[vi] was to be achieved through specific technical capacity development activities and igniting informed public and private sector dialogues. Based on focused capacity needs assessments, a suite of professional updating activities will be designed especially for staff of the newly formed Ministry of Water Resources, the Guma Valley Corporation and other specified key target groups.

Outcome 2: "Water supply infrastructure in Freetown and Pujehun, Kambia and Kono districts made resilient against climate change induced risks" focused on pioneering innovations that particularly address the dry season water supply problems, which are likely worsened by anticipated climate change impacts.

The project, "Building Adaptive Capacity to Catalyze Active Public and Private Sector Participation to Manage the Exposure and Sensitivity of Water Supply Services to Climate Change," is expected to address climate change induced impacts on the water sector in Sierra Leone. Due to the impacts of climate change, the availability of water (particularly during summer) is reduced. The project has an overall focus on capacity building for climate resilient decision-making in the water sector and pilot intervention on the ground at the four locations. The

project aims to support infrastructure and capacity building in the urban setting (Freetown and Guma Valley Reservoir) and in the rural setting (Southern, Northern and Eastern regions). In the rural settings, the intervention districts are Pujehun, Kambia and Kono. Two sites and communities have been identified per district for the pilots.

Table below gives details of the geographic locations where interventions under the projects are being carried out.

Table: Geographical Location of Project Interventions and the Ground Situation

Urban / Rural	District	Locations of Pilots
Urban Areas	Area 1: Freetown and Guma Valley Reservoir	
Rural Areas	Area 2: Pujehun district (Southern Province)	Location 1: Bandajuma Sowa Location 2: Gbondapi areas
Rural Areas	Area 3: Kambia district (Northern Province)	Location 1: Mambolo Chiefdom Location 2: Malambay
Rural Areas	Area 4: Kono district (Eastern Province)	Location 1: Koeyor Chiefdom Location 2: Jaima Sewafe Chiefdom

Table x provides the details (as per project document) of objectives and outcomes of the project. Also given in the table are the indicators to determine the achievement of the results along with the target values for the indicators.

Table x: Project Results Framework (as per Project Document)

	Indicator	Baseline	Targets End of Project
Project Objective: Enhance the adaptive capacity of decision-makers in the public and private sector involved in water provision to plan for and respond to climate change risks on water resources.	Indicator 2.2.1: Number and type of targeted institutions with increased adaptive capacity to reduce risks of and responses to climate variability	• Technocrats from MWR and EPA in Freetown, but particularly regional technical staff, have extremely limited opportunity for professional updating and usually find it difficult to address newly emerging technical issues and practices into their ongoing work. • One of the major limitations is the lack of capacity to deal with climate risks and understanding of managing these risks in the water sector.	• At least capacities of 2 line ministries and 2 District Councils to mainstream adaptation concerns within water policies and where local development plans are strengthened • Capacities of two research training centers to deliver relevant training on climate change issues are strengthened
Outcome 1: Critical public policies governing the management of water resources revised to incentivize climate smart investment by the private sector.	Indicator 1.1.1: Adaptation concerns and actions mainstreamed within at least the Guma Reservoir Management process	• The overall risk that climate change may pose on the sustainability of water supply to the capital is not well integrated into Guma Reservoir management.	• CC resilience plan for Guma reservoir established
	Indicator 2.2.1: Number and type of targeted institutions with increased adaptive capacity to reduce risks of and responses to climate variability.	• Key decision-makers who are supposed to lead implementation of the policy have limited knowledge of climate change impacts or adaptation responses. • Information, including inventory and mapping, is inadequate and staff from MWR have limited expertise to internalize climate changes into existing local development plan. • Low interplay exists between public and private sector on adaptation strategies investment. • Existing coping strategies and adaptation action are not documented at all, including for the water sector.	• 15% of staff from targeted institutions are aware of predicted impacts of climate change and appropriate responses • 60% of targeted stakeholders have access to relevant disseminated adaption experiences from the project

Outcome 2: Water supply infrastructure in Freetown and Pujehun, Kambia and Kono districts made resilient against climate change induced risks	Indicator 1.2.3: Number of additional people provided with access to safe water supply and basic sanitation services given existing and projected climate change	• Type and level: 0 (aside from already existing local coping mechanism)	• 5,000 at intervention sites in Freetown and three districts

Table Indicative Activities

Component/Outcome/Output	Suggested Activities
COMPONENT 1: Integrating climate change considerations into water policies **OUTCOME 1: Critical public policies governing the management of water resources revised to incentivize climate-smart investment by the private sector**	
Output 1.a: More than 50 officers from the Ministry of Water Resources, especially the Water Policy Planning Coordinating Unit (WPPCU), the Sierra Leone Environmental Protection Agency (EPA) and district leaders provided with relevant climate risk management guidelines/tools and trained on how the results of the climate risk/vulnerability assessments should be used to adjust regulations and policies governing the water sector at national (NWSP, RWSS) and local level (district development plans)	1.a.1 **Undertake a Climate Change Risk Management (CCRM) capacity assessment of MWR-EPA** and district staff and profile their professional updating needs. This includes the assessment of required tools for climate risk management, including vulnerability maps, climate scenarios, extreme event forecasts, indicators of vulnerability and monitoring systems. 1.a.2 Based on the assessment, **develop climate risk tools and learning programme (i.e. including modules on generating, analyzing and integrating climate risk information).** The Center for International Earth Science Information Networks (CIESIN) based at the Sierra Leone Environmental Protection Agency (EPA) and Met Department will support the **production of climate risk/vulnerability assessments for decision-making.** 1.a.3 Conduct at **least four trainings at the Lakka Centre** or other relevant learning centers. 1.a.4 Set up and test an **on-the-job learning approach to ensure that learning objectives are directly applied** to daily responsibilities. 1.a.5 Update the **waterpoint and groundwater mapping tools** to adapt them to new aspects of climate change developments. 1.a.6 Establish participatory roadmap to guide the adjustment of regulations and policies governing the water sector for the inclusion and the provision of climate-smart finance. 1.a.7 Monitor **learning impacts and applications**.
Output 1.b: Climate change resilience plan and emergency contingency plan for the **Guma Reservoir**	1.b.1 Undertake a Climate Change Risk Management (CCRM) capacity assessment of Guma reservoir and prepare ToR for the selection of consultant. 1.b.2 Commission a climate change resilience plan and emergency contingency plan for the Guma Reservoir based on large consultation process engaging GVWC, Met Department and communities surrounding the reservoir. 1.b.3 Train GVWC staff to run the climate resilience and emergency contingency plan. 1.b.4 Establish processes for review, reassessment and evaluation of the climate resilience and emergency contingency plan.

Component/Outcome/Output	Suggested Activities
Output 1.c: Regular dialogues established between parliamentarians, local council members, traditional authorities, NGOs/CBOs and private sector (WASH committees) on the impacts of climate change on water supply in Pujehun, Kambia and Kono districts	1.c.1 Conduct Participatory Rural Appraisals (PRA) for relevant national and district level stakeholders Freetown, Kambia, Kono and Pujehun (parliamentarians, local council members, traditional authorities, NGOs/CBOs and private sector (WASH committees) to determine existing capacities and training needs on longer-term climatic and environmental changes. 1.c.2 Design and conduct a community awareness campaign on climate change risks using culturally appropriate tools and aimed at all genders, including information packs that comprise examples of community-based adaptation measures in the water sector. Key lessons learned from the various project activities (especially the demonstrations under component 2) will be distilled and integrated into the agenda of the dialogues as relevant for the target groups. 1.c.3 Train at least 10 WASH committee representatives to assess climate change issues, community-based adaptation planning and household-level risk reduction interventions. Climate risk management and training tools developed under Output 1.a will be adapted to WASH committee's needs. 1.c.4 Create a sustainable communications platform in which a dialogue can ensure that further friendly communications can take place to inform a bottom-up decision-making process. 1.c.5 Monitor the effectiveness of awareness programs and improve quality of local capacity building efforts based on monitoring results.
Output 1.d: At least two dialogues under the Sierra Leone Business Forum and WASH Donors Investment Platform initiated on managing climate change risks on water provision and usage	1.d.1 Undertake strategic stakeholder analysis and target group specific information and communication needs and strategic responses (e.g. communication plans) as they relate to climate change resilience in the water sector. This could include the identification of target group's engagements in addressing climate change risks and establishing relevant adaptation strategies. 1.d.2 Conduct two dialogues on selected priorities. 1.d.3 Create and put into action a functional water engineering platform to support design of resilient water supply systems. 1.d.4 Develop a functional knowledge management system that documents such policy-level dialogues to ensure that the outcomes find their way into national development planning and negotiation with investment partners.
Output 1.e: Relevant experiences/lessons from community-oriented climate resilient water infrastructure and management practices (including gender differentiated issues) identified, and widely shared/disseminated to facilitate replication in other vulnerable areas	1.e.1 Develop a catalogue of best practices of community-oriented climate-resilient water infrastructure and management practices for wider dissemination. 1.e.2 Add to the catalogue, as part of the project evaluation, any addition lessons learned and best practices based on the successes of the project sites. 1.e.3 Develop participatory video and community radio shows on successful community-based adaptation approaches. 1.e.4 Organize at least two exposure visits to bring decision-makers and planners at the national, district and chiefdom levels and WASH donor investments platform to demonstrate successful experience adaptation measures. 1.e.5 Inject such learning into policy-level components of outcome 1, as well as through learning and training outputs under outcome 2. 1.e.6 Develop and implement knowledge sharing and management mechanisms related to this project and climate change management.
COMPONENT 2: Strengthening the resilience of water supply systems to anticipated climate change risks **OUTCOME 2:** Water supply infrastructure in Freetown and Pujehun, Kambia and Kono districts made resilient against climate change induced risks	

Component/Outcome/Output	Suggested Activities
Output 2.a: Pilot demonstrations of innovative climate resilient rainwater collection in at least 3 public buildings with reservoirs established to alleviate the bottleneck of drink water supply in the dry season	2.a.1 Conduct relevant assessments to determine feasibility, cost-effectiveness and due diligence with respect to environmental and other standards. 2.a.2 Commission design of innovation technologies and infrastructure. 2.a.3 Construct the rooftop rainwater collection with reservoirs in MRW, Murray Town Hospital and EFA buildings. The system will consist of three basic elements: (i) a collection area which is the effective roof area, (ii) a conveyance system that usually consists of gutters or pipes that deliver rainwater falling on the rooftop to cisterns or other storage vessels and (iii) a storage tank or cistern. 2.a.4 Establish procedures of maintenance, including (i) the procedure for eliminating the "foul flush" after a long dry spell, (ii) the periodic cleaning of the tank, (iii) the covering of the rainfall collection surfaces to reduce the likelihood of frogs, lizards, mosquitoes and other pests using the cistern as a breeding ground and (iv) the chlorination of the cisterns or storage tanks. 2.a.5 Evaluate and map potential sites for replication in large communities in Freetown.
Output 2.b: Spring water improvement designed, tested and demonstrated in high density area in Freetown (benefiting at least 200 households)	2.b.1 Commission design of innovation technologies and infrastructure and undertake independent feasibility assessment. Identify/confirm intervention sites. 2.b.2 Build and implement innovation demonstrations on spring box improvement (at least five demo sites). 2.b.3 Design and run community training programmes for relevant communities. 2.b.4 Document lessons learned from this output and inject learning into policy debates and development (component 1).
Output 2.c: Sustainable community reservoirs with 9 stand-alone rooftop rainwater harvesting systems (in 3 hospitals and 6 schools) as well as 5 resilient gravity-fed water distribution systems designed and pioneered in Kono, Kambia and Pujehun	2.c.1 Conduct relevant assessments to determine feasibility, cost-effectiveness and due diligence with respect to environmental and other standards. 2.c.2 Construct the sustainable community reservoirs with stand-alone rooftop rainwater harvesting systems, as well as gravity-fed water distribution mechanisms. 2.c.3 Establish and train WASH management committees of at least five members, participation of women/girls ensured, to maintain community reservoirs.
Output 2.d: At least 100 households provided with water storage and treatment systems for drinking water usage in times of prolonged dry-spells and drought in Kono, Kambia and Pujehun	2.d.1 Assess the current condition of water storage and distribution mechanisms and investigate solutions (e.g. community systems pioneered by the Welthungerhilfe) and make recommendations on the upscaling of the most appropriate water storage and distribution at community level. 2.d.2 Provide water storage and treatment systems to at least 100 households. 2.d.3 Set-up WASH committees and a training programme to support self-promotion of entrepreneurs who would be able to disseminate the climate resilient community water rainwater harvesting, supply and storage infrastructure. 2.d.4 Track successes and failures and adjust support programme to communities accordingly and in an adaptive manner to ensure long-term sustainability of the investments and climate resilience impacts.

3. FINDINGS (vii)

3.1. PROJECT DESIGN FORMULATION

3.1.1. Analysis of LFA/Results Framework (Project logic/strategy, Indicators)

Design was strong with a dual rural/urban demonstration of targeting work with climate-risky communities. Log Frame issues for policy learning work were not logical and the theory of change, especially for policy work, was a deficit. The log frame issue was identified to some degree as an issue at MTR. The project was unable to use the results framework as a management tool due to the problems with the results framework itself and lack of staff responsible for document and monitoring results. There were no Outputs/activities for creation of the conducive policy and regulatory environment to attract private sector investment. Component 1 work was restricted to the capacity building of the government officials. Component 2 the project has been restricted to establishment of pilot projects at targeted project locations, without any strong monitoring activity to capture the practices, results and disseminate them. So it seems the project had two interlinked design components but lacked a cross-cutting component to guide and support the linkages in the implementation, i.e. KM Monitoring and capacity building and implementation strategies, including PS and a KM learning approach. The original document lack of pathways or strategies towards the private sector stated outcomes left up to interpretation how to implement towards these expected private sector outcomes to the project manager. The result was an inflexible contract client approach with private sector rather than a more of a partner in the development approach. There was no platform for sharing the work experiences and the learning between contractors. The finding was that they did learn, but such an inflexible implementation approach was difficult for relationship building, learning and getting policy level results. This was not a collaborative approach with PS. UNDP tried to mitigate the issue and played the mediator.

For the move to implementation, the log frame was not used as a useful results monitoring tool. The Logical Framework not logical, led to underreporting of process and learning results with poor documentation of the steering committee minutes or decisions. Much more could have been achieved with more effective design of implementation strategies and monitoring in a cost-effective way, e.g. partnering with GCF work made sense for the science monitoring priorities.

3.1.2. Assumptions and Risks

The assumptions underlying the project design as per project document included (1) Implementation will follow a bottom-up approach from needs of communities to policy planning and infrastructure upgrading and rehabilitation; (2) Willingness of all stakeholders to participate fully, develop capacities and improve water access in selected areas; (3) Project management and execution were made up of a capacitated team of people. A complete Risk Log was included in Annex 1 of the project document. It included risks identified in the PIF (see below) as well as newly identified risks. Additional barriers as included in the barrier section above were generally represented by the risks specified below. Most risks are organizational or strategic in nature and mainly relate to relatively low current institutional and individual capacities of the public service structure in terms of adaptation. In addition, the following key risks were identified:

- Social resistance hinders the adoption of new resilient practices (PIF),
- Duplication and lack of coordination with other initiatives, resulting in inefficient use of resources and a loss of opportunity for building climate change resilience in Sierra Leone (PIF),
- Limited capacity of local and national institutions (PIF),
- Reluctance of key stakeholders to endorse and participate in project activities (PIF),
- Too many different/divergent stakeholder interests in target sites may prevent efficient consensual decision-making (PIF),
- Stakeholder relations (PPG),
- Natural disasters or unusual and catastrophic climatic events during project implementation (PPG).

Mitigation measures for each risk were specified in the project Risk Log and systematically addressed in the project design and monitoring (see monitoring section).

Making good synergies with the AfDB and EU projects that environmental governance was viewed as a vehicle for mainstreaming climate change considerations into the WASH policy as a prerequisite for enabling more climate-smart investment was also assumed. While there was collaboration and coordination on all projects through the Water Department, more might have been done to ensure learning and knowledge sharing. The project included strategies for a platform for knowledge sharing in the outputs; however, this softer work was not developed and is a lesson learned. As part of advancing this key result, LDCF resources are dedicated in part to finance the provision of relevant climate information and train government agencies to scale up efforts to address climate change in water policies. The Meteorological Department plays an important role as a data provider, and LDCF resources also put in place the software (skills, competencies, mandates, process mechanisms) and hardware (tools) that are necessary to support policy formulation informed by relevant

climate change information. TE reviewed the results of this, which have been impressive. The online NWRMA-MWR Hydrological Information Management System (HIMS) can be viewed at https://www.nwrma.com/.

3.1.3. Lessons from other relevant projects (i.e. same focal area) incorporated into project design

A nationwide waterpoint mapping exercise was completed in April 2012 to suport the planning process and investment decision-making on the water supply and sanitation for planning. It provided a good picture of the number of facilities available to the people as well as their functionality. It identified 28,000 waterpoints, of which 63% (18,086) were functional, 32% (9,290) were impaired and 5% (1,479) were under construction. On the average, 40% were seasonal waterpoints (functional during rainy season only). The AfDB support to the MWR foresaw the development of a groundwater map for Sierra Leone, based on an extensive survey design. However, the waterpoint technologies were not assessed according to their climate change resilience, taking account of both vulnerability to climate changes (determined by engineering and environment) and adaptive capacity (ability to be adjusted or managed so as to cope in response to different climate conditions). No specific climate risk assessment of future groundwater availability was planned as part of AfDB intervention.

Water supply to Freetown and its environs was done by the Guma Valley reservoir, which supplied 90% of Freetown's water by gravity feed around the peninsula from the west (where it is situated) to the east of the city. Freetown was wholly dependent on the Guma Dam and with no appreciable alternative sources should the dam fail. Guma Valley Company (GVWC), managed under MWR as a parastatal, lacked significant technical information, i.e. on climate risks, on their main water supply reservoir for Freetown. The Guma climate station had an Automatic Daily Chart for rainfall recording. It also had an evaporation measuring means through three pans. This equipment was not only very old, but there was no backup for it. In case of a breakdown of this equipment or, in the worst case, vandalism or theft, gaps would immediately occur in the recordings. The availability of records from many of the stations used to develop the isohyetals were no longer in place . Through the UNDP EWS project, which was under preparation, a monitoring system for Guma Reservoir would be established. However, interpretation of such EWS information was not integrated into risk management contigency plans nor was the overall risk that climate change may pose on the sustainability of water supply to the capital known and debated by policymakers.

In March 2012, Environmental Protection Agency Sierra Leone (EPA) and the European Commission (EU) launched the "*Environmental Governance and Mainstreaming Project"* (4,000,000 euros for four years) in the form of a grant from the Tenth European Development Fund to ensure the effective implementation of the project. EPA would lead the development of coherent environmental policies, regulations and standards on environment and climate change. Under this project, EPA had already established coordination mechanisms between key Ministries and technical support was in place to define modalities for the mainstreaming of the environment and Multilateral Environmental Agreements (MEAs) into key policy development. However, EPA had limited capacity and tools to guide key ministers through the steps of mainstreaming climate adaptation. National stakeholders could benefit from a training programme and material on IWRM as a Tool for Adaptation to Climate Change developed by UNDP Cap Net.

Donor investments, including those in the water sector were being driven by business-as-usual climatic models, and few such investments were mindful of newly emerging climate risks and opportunities. This specific output will analyze lessons learned from project component 2, which adds climate additionality to ongoing water sector infrastructure and management interventions supported by the WASH consortium. It is clear that investments by other cooperation partners, e.g. Jica, DFID, EU, at this point focus on delivery of infrastructure with limited cognizance of climate-related issues impacting such developments.

There are major private-sector water users, including water provision-related industries, such as fresh water bottling, but also water-intense industries such as mining and agriculture/food production through irrigation. Climate change will have a range of impacts on businesses such as the following:

Physical risks: Extreme weather events increase physical risks to business operations. Resource extraction could be limited by water availability.

Supply chain and raw material risks: Water scarcity affects production.

The establishment of the Sierra Leone Business Forum (SLBF) was also viewed as the opportunity to engage the private sector in adaptation. The SLBF provides a platform for the government and private sector to engage in constructive dialogue aimed at identifying, prioritizing and resolving key constraints of private sector

development. The Forum has various working groups, including trade and industry and tax reform. Given the risks and vulnerabilities across all industry sectors and the significance of expected climate change impacts on businesses, dialogues need to be engaged in the water sector to provide a better understanding of the interplay between public and private sector adaptation strategies/investment and of possible synergies or conflicts between them.

Interviewees reported that the linkages were coordinated by the national project manager located in the Ministry of Water Resources - Water Directorate which was responsible for public water works and cross referenced with the water master plan. The AfDB was an essential partner in supporting the security around the solar technology works at key sites. This coordination and spirit of collaboration with major donors involved in the climate and WASH sectors is a good practice that can continue.

3.1.4. Replication approach

The design principles outlined in Section 2.3 ProDoc were specifically set out to foster replicability through up-scaling of adaptation learning and mainstreaming into policy processes. The project was to be embedded within the MWR, the Ministry directly responsible for water and water infrastructure management throughout Sierra Leone. A high degree of ownership for the outcomes from this project was expected as a good foundation for replication.

Overall, the design focused on piloting climate change adaptation options to be replicated in terms of approach and technologies tested in other communities and districts. The systematic documentation of adaptation learning, as well as the tracking of impacts of project outputs and activities is a key to establishing a knowledge basis from which replication can take place. Knowledge management is a key component of the design and should be carefully followed through during project implementation. The focus on capacity building was expected to generate a pool of technical experts that can be utilized for future replication in other parts of the country. Adaptation learning approaches applied to this sector-specific project can be replicated in other sectors as well. The more generic learning and knowledge management components are included as principle approaches in this LDCF project, the more they can be applied more broadly.

Interviewees say there were issues with monitoring caused by the log frame design, especially as the implementation was led by one staff member of MWR, an engineer in the water department, who used the document closely to implement but did not focus on the broader sector collaboration and policy change or key elements of component one which were concerned with sustainability and replication but rather focussed on implementing the water and related infrastructure elements in Component Two.
Issues were flagged with the project log frame design at MTR as follows: “The two Outcomes of the projects are not supporting each other and the project objective. For example, Outcome 2 of the project was to demonstrate the technologies, while the Outcome 1 was to create conducive conditions to attract the private sector investment in the water sector including policy elements i.e. subsidies. Good implementation of Outcome 1 and Outcome 2 put together should have led to the replication (due to results dissemination, case studies promotions, etc.) to achieve the project objective of provision of water to the communities during the prolonged dry seasons and shortage of water due to the impacts climate change.” The indicators and the corresponding strategies thus needed to be considering the cross-cutting elements of capacity building, knowledge management and policy learning, including the monitoring of the lessons on gender coming from the downstream elements. In retrospect interviewees stated a third component focus on the cross elements in the design might have prevented this singular work planning focus. This is a lesson learned. The projected outputs (for the two outcomes) and the corresponding indicative activities provided in the project document may be effectively used to do so, but they required more collaborative thinking and related work planning, cross sectoral monitoring and joint sectoral management approaches.

3.1.5. UNDP comparative advantage

UNDP has a comparative advantage in designing and supporting LDCF projects. UNDP is particularly strong on designing resilience project and because of its experience implementing institutional capacity building project as well as its ability to provide day-to-day operational support to national execution. UNDP has strong mandates and capacities to develop national capacities for integrating climate change risks/opportunities into social equity, economic growth and environmental protection issues at all levels of development decision-making.

Integrating climate change risks into sustainable management of environment and natural resources and into Poverty Reduction Strategies, key national development frameworks and sector strategies is the key business of UNDP in Sierra Leone as set out in the Transitional Joint Vision for Sierra Leone of the United Nations Family.

3.1.6. Management and implementation arrangements

NEX: Weak PIU staffing—UNDP had to support the implementation more than normal

According to the project document, the project would be implemented by the UNDP under its National Execution (NEX) Modality and Harmonized Approach to Cash Transfer (HACT) procedures. The MWR was the competent execution partner, with the country's major water management mandate. The Ministry has a track record of successfully implementing programmes, such as large support from DFID, JICA and other donor support programmes in the water sector. The EPA has the major mandate for coordinating climate change-related programmes and policies, and as such will execute relevant outputs under the policy-focused component 1 of the project. EPA chaired the Steering Committee of the project. It was envisioned that the full project team in the form of a project implementation unit PIU would be housed at MWR. The Project Support role was to provide project administration, management and technical support to the Project Manager as required by the needs of the individual project or Project Manager. The project unit was expected to be staffed by a project coordinator, a Chief Technical Advisor and an M&E expert. The original documents stated UNDP was investigating possibilities to additionally source the support of one UNV, who would support the district level project activities. A full-time Finance and Administrative Manager was also to be hired, as well as a driver. So, while the original document indicated that a full Project Implementation Unit (PIU) with a Project Manager, a Chief Technical Advisor and a Project Officer would be established to facilitate project implementation, it was never done. It was reported through interviews at TE as resulting in an inadequately staffed PIU made up of only the Project Manager who was housed at UNDP-CO. This situation adversely affected the project implementation as there was little or no UNDP /GEF monitoring of activities until a CTA was engaged toward the end of the project when it became clear that the project would not achieve its intended objectives. Thus, the experience with the engagement of implementation partners under this project is judged to have been weak as the Project Management Unit was never fully established. Both the Project Manager and Chief Technical Advisor positions were never filled, leaving the Project Coordinator to assume the role of Project Manager and the responsibility for project implementation single-handedly. A day to day manager was also housed at UNDP and not at MWR, a situation that detracted from full country ownership of the project implementation processes. Although there was initial consultation with the local authorities in the selection of beneficiary communities in the three pilot districts. The local authorities remain engaged, in that it was them who assisted the project with site for construction of water facilities and they have been responsible for providing security and management of completed facilities. UNDP has also engaged with the local authorities in the post-project implementation phase to have them take over responsibilities for the project.

3.2. PROJECT IMPLEMENTATION

3.2.1. Adaptive management (changes to the project design and project outputs during implementation)

The project document stipulated that a Project Board[viii] would be **r**esponsible for making management decisions particularly when guidance was required by the Project Manager (PM). TE learned the PB function was merged with the steering committee. The steering committee was active and involved in monitoring field work (see case studies in annex). It was the main mechanism used for gaining input of UNDP and the various technical sectors involved in quality assuring processes and products. The EPA chaired this committee. The Project Manager served as Secretary to the SC. The composition of the SC was inclusive of public and private sector representatives, representatives of research institutions, University, NGOs and civil society, as well as interested donors. Where appropriate, members of the National Climate Change Committee would be part of the Project Board and or PSC.[2] As the management of the project is overall overseen by the Project Board, was ere expected to be technical-and management-oriented. This was really merged. UNDP played an especially important role in the project's implementation and support to implementation. The PM was supported with day-to-day backstopping and providing implementation guidance.

[2] These terms are used interchangeably.

UNDP supported the SC meetings and oversaw all the external project evaluations and audit processes for performance improvement, accountability and learning. Based on the approved Annual Work Plan, the steering committee considered and approved quarterly plans (if applicable) and approved all essential deviations from the original plans.

The PM had the authority to run the project on a day-to-day basis on behalf of the implementing partner within the constraints laid down by the Board. The PM's prime responsibility was to ensure that the project produced the results specified in the project document to the required standard of quality and within the specified constraints of time and cost. The Ministry of Water Resources, Sierra Leone, was the key implementing partner for the project. On the ground, execution of the pilot project was led by the WASH engineers (see case studies in annex) (reporting to the Ministry of Water Resources) of the respective districts. As per the provisions made in the project document, the Project Board/Steering Committee (SC) was responsible for making management decisions for the project. SC was supposed to play a critical role in project monitoring and evaluations by ensuring quality in these processes and products and using evaluations for performance improvement, accountability and learning. However, in actual practice, this is not happening as planned. Post-MTR, the management and oversight arrangements were improved, and a CTA was brought on board for acceleration toward results. Several implementation issues were experienced in this project's lifespan (documented since MTR). Additionally, there was limited participation by the Government of Sierra Leone Officials. Although the project design indicated that the project was to be implemented through the National Execution modality with the Ministry of Water Resources as the Executing Agency, in reality the project was implemented through UNDP as the Project Coordinator was housed at UNDP-CO and not at the Ministry of Water Resources. The MTR stated the relevant implementing staff at the Government of Sierra Leone were involved minimally in the initial phases of the project including the District Engineers and WASH focal persons at District level who were involved in this project are staff of Government of Sierra Leone. This is also true for Local council staff. In the latter stages of the project, the situation was improved with implementation of the infrastructure and community units but the same situation was experienced with representatives of the local authorities when pilot projects were implemented with little involvement of local councils. This issue was flagged at the Mid-term Review stage, but it was not addressed until the end of project with recruitment of the CTA.

3.2.2. Planned vs stakeholder participation and partnerships

Stakeholder	Roles and Responsibilities
Water Directorate, Ministry of Water Resources	Overall Project Implementation: A Project Implementation Unit (PIU), attached to the Water Directorate, was set up to coordinate and direct project execution in Freetown. District WASH coordination officers and support staff will be the key executers of the district and local level activities with relevant NGOs and individuals.
Sierra Leone Environnent Protection Agency	Parts: Component 1 coordination in partnership with Ministry of Water Resources, GEF and UNFCCC Focal Point. Steering Committee Chair of Project Implementation
National Climate Change Committee	Partnerships with EPA on various components, project beneficiaries, in terms of knowledge and information portals created
Ministry of Planning and Economic Development	Aims to assist mainstreaming climate considerations into relevant policies and other country key planning documents and strengthen competency in resource mobilization
Ministry of Finance	Responsible for coordination of cooperation initiatives
Meteorological Department	Partner for EWS and information/knowledge generation activities under component 1.
Local councils in Freetown, Kambia, Kono and Pujehun get their mandate from the Local Government Ministry[3]	Contribution to the implementation of project activities at least at two villages per district; overall strategic guidance Beneficiaries from capacity support activities, building district-level capacities in dealing with climate change
Environmental Foundation for Africa (EFA)	EFA has recently set up an environmental and sustainability learning center near Lakka in Freetown. A modern and inspiring infrastructure is available for hosting training, demonstration of technologies and political dialogues. Capacities exist for developing cutting-edge learning approaches for a suite of stakeholders through a

[3] District or Local Councils are entities of the Local Government Ministry

Stakeholder	Roles and Responsibilities
	strategic partnership with the IUCN Commission on Education and Communication exists, which can support content development for modules.
Sierra Leone Business Forum (SBLF)	Platform for policy dialogues especially with the private sector under component 1
Innovation training centers at Grafting and Kenema	Demonstrations of water supply and management innovations; pioneering for adaptation additions; training of replicators from the local communities in the three project districts
Local NGOs and consulting services esp. at the district level	Support to project implementation in all districts
Communities at pilot sites: Pujehun: Bandajuma Sowa, Gbondapi Kono: Koeyor community, Jaima Sewafe Chiefdom Kambia: Mambolo Chiefdom, Malambay	Primary beneficiaries and partners in local-level testing and implementation of climate change-resilient rainwater harvesting technologies, storage and management
Communities, Women and Youth Associations, CBOs	Beneficiaries of adaptation measures and contribution to the design and managing of small-scale water supply systems, form part of policy formulation.
Private sector (the Guma Valley Water Company, Provincial Water Company (PROWACO), Small Water providers)	Support the establishment of framework for policies and supports in promoting investment and entrepreneurship development on adaptation, designing of climate resilient design, build climate resilient water harvesting schemes), Guma Valley Company to benefit from improved monitoring system

Findings: NGOs, Private Contractors

While most of the above-stated stakeholders were involved either through contracts, the Steering Committee work approval and monitoring process or as implementing partners at the community level, the approach to implementation was rather instrumental, more like a client-contractor and output support than a partner in development arrangement. The collaboration platforms for inclusive work planning and learning together were not developed and implemented through limited participation in key forums rather than project demonstration of "pilot' learning platform throughout. Examples were provided by the private sector contractors, who found the implementation of the rural contracts challenge and did not have good communication or learning from other contractors. Additionally, the stakeholders involved in monitoring were limited to key sectors and not the broader collaboration envisioned.

TE learned that while the project was premised on the idea that implementation and works would be conducted through local contractors and that this would build capacity for the new technologies and also for more engagement of the private sector in the supply of new technologies, in fact, the approach of partners in development was not the way the project was implemented. Based on interviews, it was more through a contractor and client relationship, and this led to issues as the contracts to instill new technology could not be firmly established as things came up, and the works were in the most remote part of Sierra Leone. There were bound to be cost overruns. The lesson is that in an experimental situation, the budget needs some flexibility.

UNICEF

The project had partnered with UNICEF through engagement with UNICEF vetted water resource contractors and engineers in works and for this provided an extra level of quality assurance. UNICEF is also co-convening WASH learning platforms. The UNICEF and UNDP might work together to support GOSL co-convening a platform on resilience in the future. The contractors employed in works were cross referenced with UNICEF workers.

AFDB

TE learned the AFDB has ongoing project. UNDP collaborated with AFDB to maintain the ground and surface water status –procure equipment. There had been reports of issues with stolen solar panels and so the sites

needed fencing to protect facilities. ADB supported the project by supplying fencing for added security and to support completion of the new water stations.

Small Grants Program
UNDP has partnered with the GEF small grants programme. Through coordinated monitoring trips with SGP coordinator and on basis of challenges found, together the project and SGP were able to ascertain proposal to steering committee for a grant of US 50000 dollars for procurement of plumbing tools and for skills development to enable local community members to maintain the infrastructures.

3.2.2. Feedback from M&E activities used for adaptive management

The work planning was carried out on an annual basis but generally led by the project coordinator in the MWR supported by the UNDP. Work planning started each year in November-December. It was done in accordance to the original project document plan. In January, a Steering Committee meeting was called, and a work plan was presented for review and approval. On the monitoring part, based on project progress reports presented in each meeting, a decision was made for the PSC to visit the site. The work plans were reported as prepared based on the outputs (for the two outcomes of the project) and the corresponding set of indicative activities mentioned above and in the project document. The project document stated Outputs came with the corresponding set of activities for each of the two Outcomes of the project. The project design however did not carry these Outputs (and the corresponding activities) to the results framework, and the indicators at the Outcome level did not necessarily line up/reflect the Outputs (and the corresponding activities). The issue of logic was picked up by the MTR, and the PC worked with the outputs for monitoring results, but the work planning was done as per the provisions made in different outputs (see table above). The monitoring of the progress, i.e. in PIR, etc., was done as per the projected Outcomes (and the corresponding set of indicators). Output focused monitoring was less than might have been if the results framework and strategies were stronger and used correctly as a monitoring tool. The lack led a lot up for interpretation by the work planners. A second operational issue noted by the MTR, was a time lag of about three months between the start of the year and the receipt of funds to carry out the activities as per the approved work plan for the year.

3.2.3. Project Finance

The total project budget was US$ 3,090,000 excluding Government in-kind contribution. This total figure was made up of a GEF/LDCF contribution of 2,940,000, UNDP TRAC contribution of US$150,000. UNDP pledged a further US$1000, 000 which Government pledged US$ 9,000,000 bringing the total budget to US$ 13,090,000. Project expenditure on 31 December 2019 stood at more than 80% of this total project budget.

Co-financing (type/source)	UNDP own financing (mill. US$)		Government (mill. US$)		Partner Agency (mill. US$)		Total (mill. US$)	
	Planned	Actual	Planned	Actual	Planned	Actual	Actual	Actual
Grants	150,000	150,000	9,000,000		1,000,000			
Loans/Concessions								
In-kind support								
Other								
Totals	150,000	150,000	9,000,000		1,000,000			

Budget and Sources of Funds for the Project (Figures in USD)

Source of Fund	Outcome 1	Outcome 2	Project Management	Total
GEF LDCF	700,000	2,058,000	182,000	2,940,000
UNDP (Cash)		150,000		150,000
Total	**700,000**	**2,208,000**	**182,000**	**3,090,000**

Summary of phased funding of the project (as per Project Document) (figures in USD)

Source	Year 1	Year 2	Year 3	Year 4	Year 5	Total
GEF/LDCF (Cash)	88,861	332,601	1,049,981	790,822	677,735	2,940,000
UNDP (Cash)	2,300	63,420	31,540	20,700	32,040	150,000
UNDP (In kind, Grant)	-	400,000	300,000	150,000	150,000	1,000,000
MWR (Grants)[4]	360,000	1,350,000	3,060,000	2,430,000	1,800,000	9,000,000
Total	**451,161**	**2,146,021**	**4,441,521**	**3,391,522**	**2,659,775**	**13,090,000**

Financial Utilization

Total Expenditure per Outcome over Project Period (figures in USD)

Total Budget	Outcome 1: Critical public policies governing the management of water resources revised to incentivize climate-smart investment by the private sector	Outcome 2: Water supply infrastructure in Freetown and Pujehun and Kono districts made resilient against climate change induced risks	Project Management	Total Expenditure	Balance
3,090,000	135,292	2,293,598	127,989	2,556,879	553,121

Source: ATLAS 2019

3.2.4. Monitoring and evaluation: design at entry (S), implementation (MS), and overall assessment (MS)

The original ME plan (ProDoc) was generally followed.
As per the standard practice for all UNDP implemented projects, preparation of Project Implementation Reports (PIR) was required for every year. The PIRs for the years 2016, 2017 (June 30, 2017 to July 1, 2017), 2018, 2019 were prepared. As there was not much progress in the year 2015, the PIR for 2015 was not prepared. In accordance with the provisions made in the project document, UNDP CO and the regional office made visits to some of the pilot project sites to assess the project progress firsthand. The project conducted an inception meeting and an MTR and TE as per above. The CTA finalized a report three months before end of project.
The project design had made adequate provision for monitoring of the project (see table below) and budgetary provisions were made for the monitoring and evaluation activities. The M&E framework set out in the Project Results Framework in the project document was also aligned with UNDP M&E frameworks. The M&E provisions made include an Inception Workshop, Quarterly Reports, Annual Project Review/Project Implementation Reports (APR/PIR), Audit (in accordance with UNDP Financial Regulations and Rules) and periodic monitoring through site visits by UNDP CO and the UNDP RCU, MTR and Terminal Evaluation. However, while the monitoring and evaluation activities were being carried out as per the requirements set out in the project document, the **audit activities were restricted to the audit of UNDP at an aggregate level**. No separate audit for the project has been carried out. This issue was flagged during the MTR. While the Project Document articulated a comprehensive monitoring and evaluation plan, the Project Document was not fully followed during project

implementation. A criticism made by interviewees was that the established project implementation structures were generally weak due to the Project Coordinator serving as the Project Manager. The positions of Project Officer and Chief Technical Advisor envisioned during project design were not filled until late in the project implementation (post-MTR). The Project Coordinator reported to have found it difficult to fully monitor all project aspects, which resulted in delays in project implementation. The Project Coordinator based at the MWR and at UNDP was had been reported by MTR as having limited project management skills, a lack that seriously impaired project implementation and monitoring. Most of the infrastructure development projects were completed only toward the end of the project after the UNDP CO engaged the services of a Chief Technical Advisor to assist with project closeout in 2019. TE learned that the actual project implementation and monitoring focused on technical pilot technologies in remote and needy communities. The results monitoring for the coordination and softer policy work, especially work with district's officials, was weak as the early project implementation was focused on getting these concrete technologies to the remote communities at first. Post-MTR, a CTA was hired and conducted policy and coordination-level monitoring as well as checking on the status of the project works.

TE noted that while there was little evidence of project oversight by the Project Steering Committee pre-MTR, which resulted in delays in project execution, monitoring and work planning were actually done by UNDP and the Project Coordinator. This was presented to the PSC, but the work processes were not being reported. Although a project Mid-term Review was conducted in 2018, it was difficult to identify any major contribution the PSC meeting had on project implementation as most of the recommendations from the exercise were not implementable. The need for monitoring and reporting shifted post-MTR and the working arrangements improved, especially after the CTA came onboard in 2019 to provide monitoring support and oversee the exit strategy and final results.

ProDoc implementing strategies were weakly designed with no cross-cutting strategies for implementation and the Results Monitoring Framework had technical gaps around water flow and quality monitoring and which led to monitoring for results issues.

The MTR had picked up the log frame and results monitoring design issue. As highlighted above, these were recorded at MTR in the design of log frame as being a mismatch between outcomes, outputs and indicators. Additionally, the TE learned the cross-cutting areas for project implementation were not spell out in the original document and the document was missing key aspects around water quality testing, among others. Regarding SC meeting minutes—PSC 2016—an important matter arising from the action point of the minutes of the last SC meeting was the absence of Water Quality Testing facilities for the provision of "safe" drinking water as indicated within the project activities. Members of the SC made emphasis on the importance of Water Quality Testing to be included in the Project Activity of 2016 as it is very crucial in any Water Project especially if the project is to provide access to water for communities. It was therefore suggested that at least USD 30,000 should be allocated for Water Quality Testing, including the procurement of the reagents for the three local laboratories in the three districts of Kambia, Kono and Pujehun and the National Laboratory at Water Directorate in Freetown. The project document was thus assessed as being a sower of problems. While technical and good on policy linkages, it was missing key cross-cutting implementation strategies for the two components, i.e. how the component one upstream work would influence the downstream sustainability and upscaling and vice-versa and had a few key technical gaps and a weak log frame. It was weak on aspects of the technical design i.e. water quality monitoring could have been stronger in design.

Per ProDoc:

Type of M&E activity	Responsible Parties	Budget USD *Excluding project team staff time*	Time frame
Inception Workshop and Report	▪ Project Manager (MOA) ▪ PIU ▪ UNDP CO, UNDP GEF	Indicative cost: 10,000	Within first two months of project start up
Measurement of Means of Verification of project results.	▪ UNDP GEF RTA/Project Manager will oversee the hiring of specific studies and institutions and delegate responsibilities to relevant team members. ▪ PIU, especially M&E expert	To be finalized in Inception Phase and Workshop.	Start, middle and end of project (during evaluation cycle) and annually when required.

Type of M&E activity	Responsible Parties	Budget USD *Excluding project team staff time*	Time frame
Measurement of Means of Verification for Project Progress on *output and implementation*	▪ Oversight by Project Manager (MOA) ▪ PIU, esp. M&E expert ▪ Implementation teams	To be determined as part of the Annual Work Plan's preparation. Indicative cost: 20,000	Annually prior to ARR/PIR and to the definition of annual work plans
ARR/PIR	▪ Project manager (MOA) ▪ PIU ▪ UNDP CO ▪ UNDP RTA ▪ UNDP EEG	None	Annually
Periodic status/progress reports	▪ Project manager and team	None	Quarterly
Mid-term Evaluation	▪ Project manager (MOA) ▪ PIU ▪ UNDP CO ▪ UNDP RCU ▪ External Consultants (i.e. evaluation team)	Indicative cost: 30,000	At the mid-point of project implementation
Final Evaluation	▪ Project manager (MOA) ▪ PIU ▪ UNDP CO ▪ UNDP RCU ▪ External Consultants (i.e. evaluation team)	Indicative cost: 45,000	At least three months before the end of project implementation
Project Terminal Report	▪ Project manager ▪ PIU ▪ UNDP CO	None	At least three months before the end of the project
Audit	▪ UNDP CO ▪ Project manager (MOA) ▪ PIU	Indicative cost per year: 3,000 (12,000 total)	Yearly
Visits to field sites	▪ UNDP CO ▪ UNDP RCU (as appropriate) ▪ Government representatives	For GEF supported projects, paid from IA fees and operational budget	Yearly
TOTAL indicative COST Excluding project team's staff time and UNDP staff and travel expenses		USD 117,000 (+/- 5% of total GEF budget)	

3.2.5. Implementing Agency (UNDP) execution (S) and Executing Agency execution (S), overall project implementation/execution (S), coordination, and operational issues

As mentioned in a section above, a brief about the main stakeholders of the project along with their respective roles was provided. The project implementation and the coordination unit were to coordinate closely with public-, private- and community-based stakeholders; however, this was not happening in actual practice. Except with the MWR and district-level WASH engineers (from MWR) and the communities where the pilots are being implemented, there was no involvement of other stakeholders. At MTR, the experience with the engagement of implementation partners under this project is adjudged to have been weak as the Project Management Unit was never fully established. Both the Project Manager and Chief Technical Advisor positions were never filled, leaving the Project Coordinator to assume the role of Project Manager and the responsibility for single-handed project implementation. The Project Coordinator was also housed at UNDP and not at MWR. This detracted from full country ownership of the project implementation processes.

Generally, the project had been implemented and monitored by the water engineering sector, and the focus of the activities represented this reality. UNDP was not able to suggest otherwise, and the idea of having a stronger PIU and a more sectoral representative PIU was not what happened. The project implementing context was also unique with the Ebola crisis as a backdrop during early implementation, so the early designs were focused on the concrete results in the field with the imitation of the new water technologies and the setup of WASH committees. The more upstream work was a second priority according to interviewees. The arrival of the CTA supported the work on policy advance and the showcasing of the proof of consent, but this was late. The lesson was that the policy work can also start at the beginning and getting results in not necessarily in a big investment. It does mean making the effort to engage the different stakeholders as part of the planning process and for adoption of the project to get policy and change-type results. The situation was adjusted, and a Chief Technical Advisor arrived in 2019 to support the reporting, monitoring and documentation of the project results. The late effort, however, was unable to fully capture the processes and the learning that had in fact taken place and or do a proper cost-benefit analysis of the technologies for policy upscaling purposes. In a way, this terminal review is attempting to capture some of this information through late case studies. With the CTA, the project implementation and monitoring/reporting was accelerated and plans to complete the work, including hosting a policy forum, were developed. The ToR included monitoring and supporting the policy-level issues with the development of three policy briefs (these documents were, however, lacking proof in terms of cost-benefit and fiscal externalities to government in terms of scale-up). A full description of the CTA-led monitoring post MTR is provided in the section under monitoring.

3.3. PROJECT RESULTS

3.3.1. Overall results (attainment of objectives) (S)

Satisfactory results occurred although the scope was large and there were new intersectoral areas as well as big capacity needs institutionally to help needy communities. Policy work focus on planning, district-level water quality monitoring and maintenance were needed.

Overall, the project has been successful in bringing the needed hydrologic service to impact the social lives and improve the economic independence of most rural families. The project has contributed to social protection of over 500,000 rural settlements through increasing their spending power on other social welfare issues from savings they have made on buying water for domestic consumption. In Bamoi Loma, Kambia District, the water enterprises in the township are now buying water from the project facility. The school children now spend little time fetching water, and this shortage of time means they now have more time to study and do assignments, thus improving their school performance. The team generally observed that civil works were fully completed at most (85%) of the project sites, and these facilities are supplying water in those communities. The WASH Management Committees established by the project in each location are functioning quite well with some exceptions (see annex, Status of Pilot Activities). TE observed greater community participation, ownership and responsibility for the facilities. The communities have designed local-level sustainability measures by contribution of reasonable weekly and monthly amounts that seems to be working well for them. This is evident in many communities where they have successfully undertaken some form of maintenance and repair on the facility, including replacement of the water pump taps. The WASH Management Committees are willing to perform additional duties to sustain the water facilities.

However, four project locations have serious problems. These include Njagbema Fiama community in Kono District, where the pumping machine has been stolen and nobody has been arrested as a suspect by the police who are investigating the matter and in Kortomahun in Pujehun District, where the contractor still has to complete the reservoir by paving the floor, concreting the cover slab of the reservoir and completing the fence. When these are completed, the solar component will be installed to make the facility functional. The tower has already been built with two (2) Milla water tanks of 5,000 liters capacity each. Kagboto in Tonko Limba chiefdom in Kambia and Koranko Kpaka in Pujehun have defects on their solar equipment which were caused by thunder and lightning. These two communities have not been able to carry out repair because they have no technician to repair the solar component. These communities have been without water for over three months as of the time of the team's visit.

Finally, TE observed that in most communities, the facilities have not been officially handed to communities. The handing over of the said facilities to community stakeholders should be done by UNDP in collaboration with the relevant agency with the involvement of the Local Councils upon completion and UNDP then hands it to the community through District Authorities like the Local Councils. The monitoring of

these facilities is not yet being captured in the annual work plans of both the Local Councils and the Ministry of Rural Water Supply.

3.3.2. Relevance (R)

In line with GEF/LDCF (2006), this project was identified and conceived through the participatory NAPA process in Sierra Leone. Moreover, it was designed to be consistent with, and supportive of, national development strategies, as expressed in the Vision for Sierra Leone 2025, PRSP and related documents (see below). The project also addresses the urgent and immediate activities identified in the NAPA, and it is in line with the priority sectors identified in GEF/LCDF (2006) on a global basis. Notably, this project focuses on urgently needed adaptive capacities in the water sector. It builds local community adaptation capacities and strengthens District and national government services to be able to address adaptation in a well-informed and knowledgeable way. The project design has recognized the fact that, in general, institutional capacity in Sierra Leone is quite weak due to a variety of reasons, which include lack of qualified staff, lack of resources and lack of financing. Implementation of the WASH policy, which is one of the major policies directly related to the project, falls under the remit of five government ministries namely the Ministry of Water Resources, the Ministry of Finance, Ministry of Planning and Economic Development (MoPED), the Ministry of Health and Sanitation (MoHS) and the Ministry of Local Government and Rural Development (MLGRD) and the local councils. All five ministries have been taken on board at the design stage of the project. The country-driven project addresses basic needs in the most remote and vulnerable areas. The United Nations Family in Sierra Leone has also prioritized water access through the past two UNDAFs (2015-2018 and 2020-2023) as well as the Transitional Joint Vision for Sierra Leone and the United Nations Family (2013–2014)[ix] update and highlight the importance of climate resilience.

Additionally, the project is consistent with the government priorities. Institutional and policy framework and development initiatives in Sierra Leone with which the project is aligned are as follows:

- Vision for Sierra Leone 2025 (the long-term development plan of the country) aims to create a prosperous society that cares about the people and the environment. Among the facets toward improved quality of life is the provision of adequate healthcare, water and sanitation for all. This project falls within the domain of the vision in terms of upgrading infrastructure and capacity through donor funding and private investment toward clean water supply to all areas of the country equitably.
- The Poverty Reduction Strategies (PRS): Sierra Leone implemented the first Poverty Reduction Strategy, which focused on consolidating peace, security and economic growth. The country now has a second Poverty Reduction Strategy ("Agenda for Change"). The second strategy's fourth priority includes the increase of the population's access to safe drinking water.
- Country Development Plans: Two relevant development plans include the Financial Sector Development Plan which alludes to the country's inadequate water supplies as one major hindrance to the country's progress and the National Sustainable Agriculture Development Plan (2010–2030) which, among its many features, focuses on the development of a sustainable water management system and water conservation.
- National Adaptation Program of Action: Sierra Leone completed its NAPA in 2007 and the program sets out various priorities in terms of adaptation. The project addresses institutional strengthening of the water resources sector. Another priority the project addresses through NAPA is promotion of rainwater harvesting and development of an integrated management system for freshwater bodies to increase water availability for domestic and commercial use.
- Draft Rural Water Supply Strategy: The strategy document describes an approach for extending and sustaining rural water supply service delivery across Sierra Leone.
- Water, Sanitation and Hygiene (WASH) Policy: The WASH Policy responds to the urgent need for integrated and cross-sectoral approaches to water management and development as well as the provision of safe and adequate drinking water facilities. It provides overall direction for addressing the challenges in the WASH sector and covers five main thematic areas: water resources management, urban water supply and sewage, rural water supply, hygiene and sanitation and the legal regulatory and institutional framework.

3.3.3. Effectiveness (S)

Outcome Level Results

	Indicator	Baseline	Targets End of Project	Justification Met, Partially or Not	Rating
Project Objective: Enhance the adaptive capacity of decision-makers in the public and private sector involved in water provision to plan for and respond to climate change risks on water resources.	Indicator 2.2.1: Number and type of targeted institutions with increased adaptive capacity to reduce risks of and responses to climate variability	• Technocrats from MWR and EPA in Freetown, but particularly regional technical staff, have extremely limited opportunity for professional updating and usually find it difficult to address newly emerging technical issues and practices into their ongoing work. • One of the major limitations is the lack of capacity to deal with climate risks and understanding of managing these risks in the water sector.	• At least capacities of 2 line ministries and 2 District Councils to mainstream adaptation concerns within water policies and local development plans are strengthened • Capacities of two research/ training centers to deliver relevant training on climate change issues are strengthened	• MET Training and learning by doing (contingency planning) completed by project	S
Outcome 1: Critical public policies governing the management of water resources revised to incentivize climate-smart investment by the private sector.	Indicator 1.1.1: Adaptation concerns and actions mainstreamed within at least the Guma Reservoir Management process	• The overall risk that climate change may pose on the sustainability of water supply to the capital is not well integrated into Guma Reservoir management.	• CC resilience plan for Guma reservoir established	Met The recommendations from the Climate Change Resilience Plan included, but were not limited to, the following: (1) The increase in coverage of water distribution by water tanks to the east, in two locations, Central one location and two in the West of the city of Freetown [5]have increased access to safe and clean drinking water in areas with low pipe-borne water. (2) The promotion of rainwater harvesting in public institutions is now being implemented. (3) An annual review of rainfall and temperature data should be undertaken for the Western Peninsula in order to detect long-term trends in terms of average annual temperature and the rainfall patterns and intensity over the duration of the rainy season together with evaporation throughout the year. (4) The existing meteorological stations within Guma Valley catchment are rudimentary and urgently need to be replaced with state-of-the-art equipment. (5) Three additional automatic rain gauges should be installed in different parts of the Guma Valley Reservoir catchment. (6) Automatic rain gauges should also be installed at Kongo Dam, Cemetery/Blue Water, in Kortright Botanic Gardens Catchment and in the Babadori Catchment. Catchments which are selected as having existing or potential use for water supply should be protected with the full rigor of the law. In addressing, the above recommendations, Guma has achieved the following: (1) Access to water through tankers has been increased by 50% in the east.	S

[5] It was established not only in the east (2 locations) of the city, but also in the Central (1 location) and West (2 locations) end of Freetown

				(2) The project has piloted rainwater harvesting in five public institutions. (3) Data collection on rainfall, temperature and evaporation has been uninterrupted since the dam was constructed and analysis of data has always been done. (4) The meteorological station at the Guma Catchment installed in the '60s is inadequate and in a deteriorating state. Currently the GCF funds phase two of the climate information and early warning systems project, which can fund the replacement of the old equipment. (5) No automatic rain gauge is installed, be it additional or otherwise. Funding is being sourced to address this. (6). Same as 4 (7) Priority order is ranked as listed for automatic rain gauge installation: (1) Kongo Dam (2) Babadorie Catchment (3) Kortright Botanical Gardens (4) Cemetery/Blue Water. As stated above, to support this, funding is currently being sourced from GCF.	
	Indicator 2.2.1: Number and type of targeted institutions with increased adaptive capacity to reduce risks of and responses to climate variability.	• Key decision-makers who are supposed to lead implementation of the policy have limited knowledge of climate change impacts or adaptation responses. • Information, including inventory and mapping, is inadequate and staffs from MWR have limited expertise to internalize climate changes into existing local development plan. • Low interplay exists between public and private sector on adaptation strategies investment. • Existing coping strategies and adaptation action are not documented at all, including those for the water sector.	• 15% of staff from targeted institutions aware of predicted impacts of climate change and appropriate responses • 60% of targeted stakeholders have access to relevant disseminated adaption experiences from the project	MET 85 policymakers have been introduced to climate change issues and acquired knowledge on climate change impact and adaptation responses, including the following: - 25 Members of Parliament - 45 Councilors from 3 district Councils and 1 City Council - 15 Civil Society Activists The issue of climate change is relatively new in Sierra Leone, so the policymakers are the first to benefit from this support. - 15 % of staff from targeted institutions (MoWR, EPA, LCs, GVWC, etc.) are now aware of predicted climate change impacts. During the training, technical staff from Ministry of Water Resources (MoWR), GVWC and the 3 district councils supported the development process of climate change risk management tools and guidelines that are to be integrated into the water policies. - 60% of targeted stakeholders have access to relevant disseminated adaptation experiences from the project. Several trainings were conducted during a consultancy by the INTEGEMS, a consultancy firm that was contracted to do the Climate Change Risk Management and Capacity Assessment for the water sector in Sierra Leone. Also, 6 NGOs were contracted: 3 to do village savings and loan scheme training and 2 to do awareness sensitization on climate change in all project locations.	S

				WASH committees as consultancies have been given to the 6 different NGOs to carry out the awareness sensitization on climate change activities in all project locations. The training provided a sustainable communication platform for climate change risk management at community level. These platforms will increase stakeholders' and communities' access to appropriate information and communication on climate change risks and adaptation measures in the water sector. These platforms will also support the mobilization and empowerment of communities (1) through resource mobilization for the continuous maintenance and sustainability of the waterpoints and (2) through the trainings, the communities have been capacitated on climate change issues to enable them participate in the development and implementation of bylaws to effectively integrate local and cultural knowledge in climate change adaptation measures in the water sector with gender consideration. Knowledge products from the project include cases and policy briefs.	

OUTCOME OF COMPONENT ONE OVERALL ASSESSMENT

Under Outcome 1, the suggested approach was to attempt to integrate climate change adaptation within current policies, such as the National Water and Sanitation Policy (NWSP) and its implementation Plan, the Rural Water Supply Strategy, and into the management of the Guma Valley reservoir along with training and raising awareness of decision-makers and other key stakeholders to allow planning for climate change risks in an efficient way, providing policy and institutional capacities with a moderate investment. In addition, dialogues undertaken with the private sector were expected to contribute to improve the role of government in enabling and incentivizing the private sector to take action in adaptation.

Key results of component one at TE.

The overall review of Outcome 1 of the project had difficulty at first to monitor the achievement of this Outcome as there was a mismatch between the indicators and targets proposed for the purpose in the Project Document. This was picked up at MTR, but the implementation had begun to focus on Outcome 2 work and getting the technologies implemented in the needy communities. The approach taken in subsequent Steering Committee decisions was to prioritize the construction of water infrastructure in project communities. The approach with the private sector was through the contracts with the PS. The implementation strategies for cross-cutting areas like monitoring and knowledge management were also weakly spelled out in the project document, so the coordinator, a government official, did not have a good understanding of these areas that might have led to more work inputs around dialogues and upstream policy work. TE noted, however, that the project team did a good job on input monitoring and has enhanced capacities for risk assessment in climate policy linked to improving local integrated water governance, monitoring and management through workshops and demonstration activities and the capacity of decision-makers to plan for building and respond to climate change risks on water resources or to establish functional dialogue platforms for sharing experiences among stakeholders and incentivizing private sector investments in water resources management, water delivery and supply. Several lessons learned during project implementation relating to provision of water to community groups are documented in the Mid-term Review Report and in the PIRs for 2016 and 2018. At the same time, the project gathered a lot of community-level stories relating the impacts the project has had on people's lives. These were collated and presented toward the fulfillment of the requirement for generating knowledge management products from the project (CTA-End of Project Report 2019).

(1) More than 50 officers from the Ministry of Water Resources were provided with relevant climate risks management guidelines/tools.

(2) A total of 85 policymakers (25 Members of Parliament, 45 Councilors from 3 district Councils and 1 City Council and 15 Civil Society Activists) have been introduced to climate change issues and acquired knowledge on climate change impact and adaptation responses.

(3) Baseline waterpoint mapping, climate change risk management tools and guidelines for integration into water policies were provided and stakeholders were trained.

(4) A climate change resilience plan was developed for the Guma Valley Reservoir, resulting in increased understanding of climate change-related issues which can affect water supply in Freetown. A contingency plan was developed.

(5) The Sierra Leone Business Forum and WASH donors participated in the WASH sector review conference in November 2019.

(6) The staff of the Ministry of Water Resources has been funded for several training programmes on water quality, hydrological monitoring and related subjects.

Outcome 2: Water supply infrastructure in Freetown and Pujehun, Kambia and Kono districts made resilient against climate change induced risks	Indicator 1.2.3: Number of additional people provided with access to safe water supply and basic sanitation services given existing and projected climate change	• Type and level: 0 (aside from already existing local coping mechanism)	• 5,000 at intervention sites in Freetown and three districts	Approximately 44,814 people now have access to safe drinking water as a result of the construction of 35 water facilities in total have been constructed as follows: - 24 boreholes with towers - 6 rainwater harvesting facilities with towers - 5 spring box facilities with towers - 1 gravity-fed system rehabilitated. Challenges faced in implementation during the reporting period had to do with the theft of the solar pumps and panels from the boreholes in several communities. To address some of these challenges, the facilities were officially handed over to the local councils to take over the management, use funds raised from VSLA for minor maintenance and provision of security for the facilities See field cases in Annex	S

Component two assessment of results

Under component 2, a number of adaptation options were assessed during the project design through documentation review, consultations at the national and local levels, and site visits in every chiefdom that helped to determine the most appropriate technologies that are resilient against climate change induced risks in Freetown and Pujehun, Kambia and Kono districts. Priority adaptation technologies in the water sector identified by stakeholders were the following: (i) in Freetown, some households are applying rooftop rainwater harvesting techniques to complement water supply at the household level. Current springs are also utilized, but they are badly maintained, overused and often even vandalized, resulting in poor quality and sufficiency in water; in the rural areas, communities currently rely strongly on the few open surface wells which are often riddled with waterborne diseases or have to rely on springs, which periodically dry up. Some innovative technologies are already ongoing, with low cost and safe household-level water pumping, purification and storage but with no specific climate resilience considerations. After careful and in-depth analysis, it was decided to focus on water collection during the rainy season and storage for drinking water usage in times of prolonged dry spells and drought. These options were selected based on their potential for increasing resilience of the water system. The project would test innovations for roofing toward rainwater harvesting to create a collecting mechanism for clean water. The construction of a rooftop rainwater catchment system is simple, and local people can easily be trained to build one, minimizing its cost. It provides an essential reserve in times of emergency and/or breakdown of public water supply systems, particularly during natural disasters. Running costs are low and construction, operation and maintenance are not labor-intensive. Local communities have used spring boxes as a source of water supply for many years. Their improvement will help to improve the good water quality, and generally extremely low operation and maintenance costs coupled with the ease of community management. This makes them quite effective for supplying rural communities with water for domestic purposes. Protecting these water sources from contamination is a natural way of ensuring the continuity of this supply. Spring protection is inexpensive in comparison to the development of a conventional point source. Finally, the project expected that the district-level water engineers (from both the public and private sector), NGOS, local community-based management committees, youth and women's associations and others jointly and working together in a participatory approach as learning partners would engage in meaningful dialogues on climate risks, needs assessments and planning responses to ensure that functional and long-term solutions to the impeding climate risks in the water sector are being set up, including through community-based water management approaches.

Key results of component two at TE.

(1) Pilot demonstrations of **innovative climate resilient rainwater** in at least 3 public buildings with reservoirs established to alleviate the bottleneck of drinking water supply in the dry season.

(2) **Springwater improvement** was designed, tested and demonstrated in a high-density area in Freetown (benefiting at least 200 households).

(3) Sustainable **community reservoirs with 9 stand-alone rooftop rainwater harvesting systems (in 3 hospitals and 6 schools),** as well as 5 resilient gravity-fed water distribution systems were designed and pioneered in Kono, Kambia and Pujehun

(4) More than 200 households were provided with **water storage and treatment systems for drinking water usage** in times of prolonged dry spells and drought in Kono, Kambia and Pujehun districts.

Output level activities

COMPONENT/OUTCOME/OUTPUT	SUGGESTED ACTIVITIES	STATUS OF ACTIVITIES AT TE TE ASSESSMENT
COMPONENT 1: INTEGRATING CLIMATE CHANGE CONSIDERATIONS INTO WATER POLICIES OUTCOME 1: CRITICAL PUBLIC POLICIES GOVERNING THE MANAGEMENT OF WATER RESOURCES REVISED TO INCENTIVIZE CLIMATE-SMART INVESTMENT BY THE PRIVATE SECTOR		

OUTPUT 1.A: More than 50 officers from the ministry of water resources, especially the water policy planning coordinating unit (WPPCU), the Sierra Leone environmental protection agency (EPA) and district leaders provided with relevant climate risk management guidelines/tools and trained on how the results of the climate risk/vulnerability assessments should be used to adjust regulations and policies governing the water sector at national-(NWSP, RWSS) and local-level (district development plans).	1.a.1 Undertake a Climate Change Risk Management (CCRM) capacity assessment of MWR-EPA and District staff and profile their professional updating needs. This includes the assessment of required tools for climate risks management, including vulnerability maps, climate scenarios, extreme event forecasts, indicators of vulnerability and monitoring systems; 1.a.2 Based on the assessment, develop climate risk tools and learning programme (including modules on generating, analyzing and integrating climate risk information). The Center for International Earth Science Information Networks (CIESIN), based at the Sierra Leone Environmental Protection Agency (EPA), and Met Department will support the production of climate risk/vulnerability assessments for decision-making; 1.a.3 Conduct at least four trainings at the Lakka Centre or other relevant learning centers; 1.a.4 Set up and test an on-the-job learning approach to ensure that learning objectives are directly applied to daily responsibilities; 1.a.5 Update the waterpoint and groundwater mapping tools to adapt them to new aspects of climate change developments; 1.a.6 Establish a participatory roadmap to guide the adjustment of regulations and policies governing the water sector for the inclusion and the provision of climate-smart finance; 1.a.7 Monitor learning impacts and applications. (Baseline established?)	Preliminary assessments and identification of needs for training and other capacity development gaps in climate risk management, development of learning tools, gender gaps, mapping needs and gaps in the policy and regulation arena were undertaken. A total number of 50 officers from relevant institutions, including the Ministry of Water Resources (MWR), Environmental Protection Agency (EPA) and District Councils, have been provided with the relevant climate risk management guidelines/tools and were also trained on how to address the results of the climate risk/vulnerability assessment. A Climate Change Resilience Plan for the Guma Water Reservoir was produced by the project in October 2016. Most of the recommendations that came from this plan have been carried out by the Guma Valley Water Supply Company, the sole company responsible for the supply of water to Freetown and the rest of the Western Area. Baseline waterpoint mapping: it was done in 2016 using the Akvo tool , climate change risk management tools and guidelines for integration into water policies were developed and stakeholders were trained. Monitoring conducted by MRW engineers, steering committee members, UNDP and other partners carried out monitoring of facilities. The district engineers carried out more monitoring while joint monitoring done sparingly. Traditional and local council authorities also periodically undertook monitoring activities of the facilities.
Output 1.b: Climate change resilience plan and emergency contingency plan for the Guma Reservoir.	1.b.1 Undertake a Climate Change Risk Management (CCRM) capacity assessment of Guma reservoir and prepare ToR for the selection of consultant; 1.b.2 Commission a climate change resilience plan and emergency contingency plan for the Guma Reservoir based on a large consultation process engaging GVWC, Met Department and communities surrounding the reservoir; 1.b.3 Train GVWC staff to run the climate resilience and emergency contingency plan; 1.b.4 Establish processes for review, reassessment and evaluation of the climate resilience and emergency contingency plan.	A climate change resilience plan has been developed for the Guma Valley Reservoir, resulting in increased understanding of climate change-related issues that can affect water supply in Freetown. A contingency plan has been developed. There is a developed climate resilience plan at Guma Reservoir at mile 13. Capacity assessment was conducted from the onset of the project wherein contracted organizations/institutions were recruited, their technical skills and financial viability assessed.

Output 1.c: Regular dialogues established between parliamentarians, local council members, traditional authorities, NGOs/CBOs and private sector (WASH committees) on the impact of climate change on water supply in Pujehun, Kambia and Kono districts.	1.c.1 Conduct Participatory Rural Appraisals (PRA) for relevant national- and district-level stakeholders in Freetown, Kambia, Kono and Pujehun (parliamentarians, local council members, traditional authorities, NGOs/CBOs, and private sector (WASH committees) to determine existing capacities and training needs on longer-term climatic and environmental changes; 1.c.2 Design and conduct a community awareness campaign on climate change risks using culturally appropriate tools and aimed at all genders, including information packs comprising examples of community-based adaptation measures in the water sector. Key lessons learned from the various project activities (especially the demonstrations under component 2) will be distilled and integrated into the agenda of the dialogues, as relevant for the target groups; 1.c.3 Train at least 10 WASH committee representatives to assess climate change issues, community-based adaptation planning and household-level risk reduction interventions. Climate risk management and training tools developed under Output 1.a will be adapted to WASH committee's needs; 1.c.4 Create a sustainable communication platform in which a dialogue can ensue, and further friendly communications can take place to inform a bottom-up decision-making process; 1.c.5 Monitor the effectiveness of awareness programs and improve quality of local capacity building efforts based on monitoring results;	85 policymakers (25 Members of Parliament, 45 Councilors from 3 district Councils and 1 City Council and 15 Civil Society Activists) have been introduced to climate change issues and acquired knowledge on climate change impact and adaptation responses.
Output 1.d: At least two dialogues under the Sierra Leone Business Forum and WASH Donors Investment Platform initiated on managing climate change risks on water provision and usage.	1.d.1 Undertake strategic stakeholder analysis and target group specific information and communication needs and strategic responses (e.g. communication plans) as they relate to climate change resilience in the water sector. This could include the identification of target group engagements in addressing climate change risks and establishing relevant adaptation strategies; 1.d.2 Conduct two dialogues on the through (i) selected priorities; 1.d.3 Create and make functional a water engineers' platform to support designing of resilient water supply systems; 1.d.4 Develop a functional knowledge management system that documents such policy-level dialogues to ensure that the outcomes find their way into national development planning and negotiation with investment partners;	Supported the WASH sector review conference. Participated in by the Sierra Leone Business Forum with WASH donors in November 2019. Sierra Leone Business Forum The project implementation unit was not fully staffed and there were no crosscutting strategies for linking interlinked outcome in the reject design. This project risked not having a knowledge management approach to implementing a learning platform as part of the pilot demonstration to support the overarching expected results. The limited participation of key government stakeholder in the work planning exercises thus limited the broader learning and expected "softer policy and learning 'results. The implementation Approach could have benefited from coordination knowledge approach on the other hand if it were done through a knowledge platform would have raised UNDPs supportive leadership role for coordination of the intersectoral resilience work by for government expected outcomes concerning resilience stakeholder coordination, learning and policy in the long run. This need to be rethought restored as the upscaling is continued.

Output 1.e: Relevant experiences/lessons from community-oriented climate resilient water infrastructure and management practices (including gender differentiated issues) identified and widely shared/disseminated to facilitate replication in other vulnerable areas.	1.e.1 Develop a catalogue of best practices of community-oriented climate resilient water infrastructure and management practices for wider dissemination; 1.e.2 Add on to the catalogue, as part of the project evaluation, any additional lessons learned and best practices, based on the successes of the project sites; 1.e.3 Develop participatory video and community radio shows on successful community-based adaptation approaches; 1.e.4 Organize at least two exposure visits to bring decision-makers and planners at the national, district and chiefdom levels and WASH Donors' investments platform to demonstrate experience in successful adaptation measures; 1.e.5 Inject such learning into policy- level components of outcome 1, as well as through learning and training outputs under outcome 2; 1.e.6 Develop and implement a knowledge sharing and management mechanism related to this project and climate change management.	Knowledge management approaches There is proof of knowledge management and sharing. This was done with Itegem. In terms of knowledge sharing, it was more effective at the district level with communities, councils and engineers sharing and managing knowledge on how to maintain the facility, undertake minor repairs, and keep the facility safe and clean.
COMPONENT 2: STRENGTHENING THE RESILIENCE OF WATER SUPPLY SYSTEMS TO ANTICIPATED CLIMATE CHANGE RISKS OUTCOME 2: WATER SUPPLY INFRASTRUCTURE IN FREETOWN AND PUJEHUN, KAMBIA AND KONO DISTRICTS MADE RESILIENT AGAINST CLIMATE CHANGE INDUCED RISKS		
Output 2.a: Pilot demonstrations of innovative climate resilient rainwater collection in at least 3 public building with reservoirs established to alleviate the bottleneck of drink water supply in the dry season.	2.a.1 Conduct relevant assessments to determine feasibility, cost-effectiveness and due diligence with respect to environmental and other standards; 2.a.2 Commission design of innovation technologies and infrastructure; 2.a.3 Construct the rooftop rainwater collection with reservoirs in MRW, Murray Town Hospital and EFA buildings. The system will consist of three basic elements: (i) a collection area which is the effective roof area; (ii) a conveyance system which usually consists of gutters or pipes that deliver rainwater falling on the rooftop to cisterns or other storage vessels and (iii) a storage tank or cistern; 2.a.4 Establish procedures of maintenance including (i) the procedure for eliminating the "foul flush" after a long dry spell; (ii) the periodical cleaning of the tank; (iii) the cover of the rainfall collection surfaces to reduce the likelihood of frogs, lizards, mosquitoes, and other pests using the cistern as a breeding ground and (iv) the chlorination of the cisterns or storage tanks; 2.a.5 Evaluate and map potential sites for replication in large communities in Freetown;	Rainwater collection in 3 public buildings with reservoirs established to alleviate the bottleneck of drink water supply in the dry season. Training of Water Quality Technicians. Procurement of Water Quality Training Chemical. Procurement was done for water quality training chemical. Chemicals such as chlorine, Nitrite were procured to improve on the quality of water.
Output 2.b: Spring water improvement designed, tested and demonstrated in high density area in Freetown (benefiting at least 200 households	2.b.1 Commission design of innovation technologies and infrastructure and undertake independent feasibility assessment; identify/confirm intervention sites; 2.b.2 Build and implement innovation demonstrations on spring box improvement (at least 5 demo sites); 2.b.3 Design and run community training programmes for relevant communities; 2.b.4 Document lessons learned from this output and inject learning into policy debates and development (component 1);	SEE ANNEX STATUS OF WORKS AT TE

Output 2.c: Sustainable community reservoirs with 9 stand-alone rooftop rainwater harvesting systems (in 3 hospitals and 6 schools) as well as 5 resilient gravity-fed water distribution systems designed and pioneered in Kono, Kambia and Pujehun.	2.c.1 Conduct relevant assessments to determine feasibility, cost-effectiveness and due diligence with respect to environmental and other standards; 2.c.2 Construct the sustainable community reservoirs with stand-alone rainwater harvesting systems as well as gravity fed water distribution mechanisms; 2.c.3 Establish and train WASH management committees of at least 5 members, with participation of women/girls ensured, to maintain community reservoirs;	Sustainable community reservoirs with stand-alone rooftop rainwater harvesting systems (in 1 hospital and 2 schools) as well as rehabilitation of a resilient gravity-fed water distribution systems designed and pioneered in Kono, Kambia and Pujehun The project implemented sustainable community reservoirs in the district but moreso in Guma Resevoire at Mile 13.
Output 2.d: At least 100 households provided with water storage and treatment systems for drinking water usage in times of prolonged dry spells and drought in Kono, Kambia and Pujehun.	2.d.1 Assess the current condition of water storage and distribution mechanisms and investigate solutions (e.g. community systems pioneered by the Welthungerhilfe) and make recommendations on upscaling the most appropriate water storage and distribution at community level; 2.d.2 Provide water storage and treatment systems to at least 100 households; 2.d.3 Set-up WASH committees and training programme to support self-promotion of entrepreneurs who would be able to disseminate the climate resilient community water rainwater harvesting, supply and storage infrastructure; 2.d.4 Track successes and failures and adjust support programme to communities accordingly in an adaptive manner to ensure long-term sustainability of the investments and climate resilience impacts.	More than 200 households are provided with water storage and treatment systems for drinking water usage in the dry season in Kono, Kambia and Pujehun Districts through the construction of 24 boreholes in communities. Also see results in Annex (status of WT projects).

3.3.4. Efficiency (*MS)

Cost-effectiveness is a measure of efficiency and the expected results discussed above. Per ProDoc, the suggested outputs, activities and approaches were stated as identified and selected to meet the project objective and its expected outcomes in a cost-effective way. Greater progress was achieved under Outcome 2 than under Outcome 1 above because of project management, implementation strategies, work process and budgeting process decisions, which had focused on piloting the concrete and various water harvesting and provisioning technologies to improve water services and help meet basic need in the most vulnerable and high-risk (to climate change) communities. The next stage might thus focus on addressing issues related to operation of the WASH and climate policies, showcasing intersectoral work and planning and seeking improved security of the facilities as well as the enhancement of community and local authority management systems as they take over responsibility for the pilot projects (also see CTA-2019).

3.3.5. Country ownership (Relevance)

As mentioned above in the updated relevance section and per project document, this project fully reflects the priority measures identified by Sierra Leone's NAPA and will contribute to the country's development and achievement of critical MDGs. Access to water, a leading priority for the government and to the country, is reflected strongly in the government development plans, strategies and policies. Sierra Leone's Development Plan for 2025, "Sweet Salone," highlights the improved quality of life through the provision of water and sanitation for all, envisaging the achievement to take place with support and in partnership with the private sector and donors. The second Poverty Reduction Strategy, "Agenda for Change," reiterates the agenda for improving the access to safe drinking water.

The Financial Sector Development Plan and the National Sustainable Agriculture Development Plan both highlight and prioritize this project's activities. The project is strongly in line with the priorities of the WASH Policy as well as the Draft Rural Water Supply Strategy. Council Development Plans prioritize the project activities in the region. All these groups highlight aspects of climate resilience. Major buy-in and ownership was taken up through active participatory processes during the PPG phase. Community consultations, which took place during the PPG phase of the socioeconomic and vulnerability assessment, reflected the urgency, need and strong

demand for action regarding improved water supply infrastructure and training. Meetings with the Guma Valley Water Company, SALWACO and various government and education institutions exposed the massive demand and buy-in to the project activities.

3.3.6. Mainstreaming (S)

While there is no gender baseline established for or at the sites, there was a focus on gender consideration as part of a slate of solutions proposed to the key barriers (see end note). For instance, (1) gender focuses and considerations in capacity building approaches with regard contextual gender differentiation of roles and responsibilities at community level will go a long way in efficient project implementation; (2) gender inclusion as part of modules in capacity building approaches have supported the integration of gender equality in the sustainability aspects of the project; and (3) gender sensitive and tailored technology innovations will be implemented to reduce vulnerability of women. The project document, on p. 60, paragraph 217, suggests that climate resilience in the water sector can only be achieved if water provision, management and utilization are addressed in a more inclusive manner, particularly incorporating the end user with a targeted and sensitive gender-focused approach and understanding through analysis and with gender-differentiated roles and vulnerabilities taken into account. In this sense, a participatory and gender-sensitive approach engagement with the end users and the deliverer was to be established by this project in line with WASH policy and under the leadership of MWR. The question raised for future work is how gender might be addressed concretely in climate resilient infrastructure and WASH policy,

The TE noted from interviews that for all future projects, UNDP now has in place a safeguard policy that requires more in-depth analysis and setting of a baseline for project monitoring of Gender consideration and that while the project expectation concerning gender might have been implicit in design and intent, such safeguard policy will require support in terms of resources for proper monitoring of gender considerations in future projects. The TE agree with the MTR that the project document has recognized the need and importance of involving females in the interventions to provide safe and reliable source of water to the communities. In this sense the project design has provided for gender sensitive analysis and planning so that the water supply management is more climate resilient. The project design emphasized the need for integrating gender specific information elements into the training material meant for capacity building and awareness creation. Accordingly, it suggested that specific provisions include the following;

- Identification of gender-based capacities and resources for managing climate changes risk
- Development of climate risks tools and learning programme in which gender issues are appropriately highlighted in the training material
- Ensure gender balance among participants in the training programs and the use of participatory learning format allowing both men and women to interact, exchanges of experiences and develop common vision and understanding on climate risks management.
- Monitor of learning impacts and applications with the use of Gender-disaggregated monitoring and evaluation system to measure how trainings affected both women and men.

The project has supported women's concerns through the balance of men and women supported in water management committees, including WASH committees and it has increased number of women and men benefiting directly and indirectly from access to clean water overall. Generally, the new UNDP safeguards policies for vulnerable and marginalized groups will ensure that baselines are established and these aspects of all projects are closely monitored for impact level results in all future projects.

3.3.7. Sustainability: financial resources (ML), socio-economic (ML), institutional framework and governance (ML), environmental (LM), and overall likelihood (ML*)

The sustainability of project outputs was assessed from several perspectives, including institutional, human, and financial support mechanisms that are put in place during and after project implementation.

Financial Resources (ML)

The project (a basic needs project that proposes through innovative pilots the most cost-effective and practical solutions to the wicked problem of sustaining clean water access to rural and risky communities to the government) has been funded primarily from grants with little financial input from government. In the short run, some things need to be finalized and for these remaining inputs, UNDP has provided core resources to support the finalizing work of this project. The project management communicated with the local authorities to ensure that projects in need of further support are adopted as part of the development strategies of these local authorities. The Project Coordinator had also identified resources under the GEF Small Grants Programme that were used to provide support to the unfinished or stumped infrastructure projects requiring continued support.

Although community beneficiaries have established WASH committees at each project site that collect monthly contributions from individual households, it is doubtful that the amounts collected will be enough to cover the costs of maintenance of these facilities. Additionally, interventions have begun to support the private sector's involvement by using local contractors, but this aspect needs further deepening and completion of the demand-supply with more training of local youth to maintain the technologies to stimulate more demand. The monitoring of clean water and the sustained provision of access including maintenance is essentially a government responsibility and does need the backing of the policy and a strong role of the district in support of communities. It will be through capacity developed for the operationalization of existing decentralization policies and to build monitoring capacities at the sub-regional level to ensure the water is safe (regulated) and sustained.

Socioeconomic (ML)

As mentioned above, the project was funded primarily from grants with little financial input from the government. Although community beneficiaries have established WASH committees at each project site that collect monthly contributions from individual households, it is doubtful that the amounts collected will be enough to cover the costs of maintenance of these facilities. The daily scramble for the limited water supply sometimes was shown to be leading to conflicts among community members. This is a serious socio-economic problem that could bring disunity to the community, and hence affects community development strides that require community cooperation. This project is assuring a sustainable water supply model during a period of transition and is a model supporting the decentralization of water management to the districts in the translational period. This work needs to be sustained during the interterm in the most vulnerable and risky areas to keep the peace. The evaluation here agrees with the input of the CTA who suggests in general that, although the project invested in the training of government and local authorities in climate change adaptation, the trained officials were operating within institutions that could not manage the projects that were funded. This is reflective of the implementation approach, which could have been more collaborative with institutions of education and the Ministry of Education (MOE) in designing a course for sustaining and maintaining the infrastructure. The beneficiary communities are not familiar with some of the new technologies introduced by the project and are therefore likely to be unable to manage them without continued outside support.

Institutional framework and governance (ML)

The idea of the project was to pilot/showcase the introduction of innovative and low-cost technologies and local governance and water management systems in the remotest and most vulnerable parts of the country to get clean water to needy communities in such a way that it is sustainable and addressing the new climate change risk posted as increasing temperatures and increasingly drier areas.

The WASH and Climate Adaptation policy framework is governed by the new overarching (the National Water and Sanitation Policy of 2012) instituted in 2014 and climate policies or directives. Creating the opportunity to link the lessons arising from this water policy to climate risk monitoring for improved and sustainable water management was a key aim of the more upstream aspects—that policy and intersectoral linkages work. The operationalization of the 2014 WASH law (The National Water and Sanitation Policy of 2014) was a key expectation as was the risk and monitoring work needed to ensure that basic needs are met in the face of increasing climate changes. This project's work is a priority for the government as it is serving basic needs, and the institutional work to be done is also a priority for the operationalization of new WASH and climate policies and decentralization of EPA and water quality monitoring to the districts. The work with districts and planning is thus a key part of the process, a process begun with the operational work shown by this project. Sierra Leone is thus, at the beginning of the project, still going through a process of decentralization. Under the Local Government Act (2004) and in line with the Local Government Regulations (2004), responsibilities for sanitation provision were decentralized, with Local Councils assuming full responsibilities on sanitation aspects in 2005. However, Local Councils are still a deficit in capacity and still determining what this role might mean in practice and how they will implement this demanding responsibility. This project has to some degree shown the way forward and this needs to be communicated to policymakers. There are therefore concerns regarding human resources as the sector adopts decentralized service provision. Local government bodies, with limited technical capacity and financial resources, are likely to struggle to fulfill their roles. Decentralization was reintroduced in Sierra Leone in the immediate post-war years after three decades of suspension. The devolution of water supply services started taking place only during the second phase (post-2008) and is only now being devolved to the councils, and is still currently largely limited to the rural water supply.

Delays in devolution, experienced in the past years, have largely been due to weak local level capacities especially in the district councils against associated financial and other risks. The decentralization policy requires that the central government transfer both funds and personnel for devolved functions.

The government has devolved functions of the rural water supply to the councils since 2004 but the staff was not devolved. What happened was that the MWR attached engineers to each district and their salaries have been paid by the Ministry and not the councils. Some of the achievements thus far include: the engineers organize coordination meetings between community/district stakeholders and partners working in the sector; monitor activities funded by the government; award contracts to contractors through a rigorous National Public Procurement Process; monitor sanitation in the communities; train pump technicians for the maintenance of hand pumps in the communities.

The policy and planning needs: Not much is reported by the councils to the MWR on district activities supervised by the engineers. At the District level, planned activities of MWR are submitted to the council for approval and they form part of broader council plan in that jurisdiction at any given period. At the District level, planned activities of MWR are submitted to the council for approval and they form part of broader council plan in that jurisdiction at any given period. In essence, they plan collaboratively. This aspect needs strengthening so that the MWR will capture the needs, activities, success stories, and challenges of rural water supply in the National Development Plan. During the Presidential Retreat held in March this year, this was discussed and flagged. Training and provision of water treatment kits and chemicals are required. There is a need to upgrade training sessions, supply chemicals, and reagents for treatment and testing for water quality.

Environmental (ML)

This is an environmental project and has control and regulation of clean water access, knowledge of the quality and pollution, and flow at its heart.

The project supported water quality monitoring but much more need to happen in terms of operationalizing policy and supporting the districts with planning and operationalization at the sub-national level. The work with MET services to update the water flow collection point and the work on the district water authority web page.

The project provided support water quality monitoring. As indicated earlier, the team would go out into the field, collect water and subject to testing in the lab to determine its quality. This was carried out in all of the districts. Partners such as Itegem, Planning Green Future, Pikin to Pikin, EFA have been involved in this exercise

3.3.8. Impact

The project has clearly impacted the lives of over 44, 000 newly installed water technologies and water governance systems. The project had focused on the provision of access to water in the most vulnerable and most at risk communities in Sierra Leone. It was quite successful in its end targets to provide access to thousands of needy citizens. For this, the project focus on concrete implementation of NWT in rural and remote and most vulnerable including urban areas and approach have been highly beneficial. The project indeed provided a final review with lessons for policy in the last months of implementation and involvement in the SLB forum. The project management worked through a learning-by-doing approach, but the lesson is that this approach to implementation is where most of the lessons concerning sustainability and piloting approaches stem and it was siloed. For the learning objectives, the project implementation might have been a more collaborative approach with work planning involving the other key sector (sanitation, education, climate monitoring, water monitoring, education etc.) in the design of the work plans. In this way, other elements might have been showcased around the integrative nature of the work to install and sustain practical, innovative, cost-effective technologies, i.e. close involvement of the Ministry of Education as an example of how to get a solution for vocational education around some of the key technologies introduced in communities. The work was largely implemented by the water engineering department; however, there are important policy lessons for WASH and climate policies. This nexus is what sets the approach in the innovation department, including showcasing local water quality monitoring and implementing local government with a gender lens.

4. Conclusions,

The overarching target for this project were modest and included:

- Capacities of at least 2-line ministries and 2 District Councils to mainstream adaptation concerns within water policies and local development plans are strengthened.
- Capacities of two research/training centers to deliver relevant trainings on climate change issues are strengthened.

The evaluation team considered what had been achieved in terms of the policy goals and capacity development expected results. As mentioned above, the implementation approach was generally guided by an active steering committee. However, with work planning led by the MWR project coordinator, decisions were taken early on concerning implementation and budget, and for a prioritization of the water access needs of people and sites identified during the PPG stage. The design was built to succeed in this regard (focus on provision of water technologies to most at risk and remote). The design included inputs for policy and monitoring by government officials that dealt with WASH and climate policy and the cross-sectoral nature of the work but the broader collaboration in implementation was limited. The implementing context during Ebola and crisis's was a large part of the limiting factor. The project brought cross-sectoral counterparts together through many platforms including the steering committee and several policy forums (but late). The project provided a review of the policies and policy advocacy but it was implemented late (last months of implementation September – December 2019). There were three policy briefs developed: 1) "Management of New Water Supply Technologies in the Kargboto community, Tonko Limba Chiefdom, Kambia District, Sierra Leone, 2) Promotion of rainwater harvesting in Sierra Leone in the "Introduction: The Water Challenge in Sierra Leone" policy brief and 3) "Use of Traditional Knowledge Systems to Manage and Protect Water Resources in Kortumahun Community, Panga Krim Chiefdom, Pujehun District, Sierra Leone." These were presented during a PPP conference (also organized by project CTA) held at Kobeibu Hotel and Conference Centre in Bo Town from November 20–21, 2019. This was highly successful and attended by up to eighty (80) participants from government agencies, local authorities, WASH Sector NGOs and bilateral and multilateral

cooperating partners supporting water and sanitation supply initiatives in Sierra Leone.[x] TE noted the policy work for a pilot of new technologies needed more rigor on cost benefits analysis. While they were somewhat strong on the social economic aspects of NWT, the quantitative analysis for policy was lacking and provides a lesson learned for future work scaling up appropriate technologies to other parts of the country.

Secondly, the evaluation team considered the capacity development work conducted under the project. The training was geared to impact on planning and policy staff and included 10 technical staff from the Ministry of Water Resources and 15 staff from 3 District Councils who were trained to integrate climate risks into planning, especially as it relates to the water sector. In Freetown, Kambia, Pujehun and Kono, 18 participants were trained.

The project succeeded in training staff from government in the use of tools that promoted risk assessment and adaptation to climate change. Up to 37 interventions promoting water harvesting, borehole drilling and protection of natural springs were implemented over the project life span. Where these were completed, beneficiary community groups can access portable drinking water from these sources. The project had generated lessons collated and packaged these as communication and knowledge management products. These can be continued to be disseminated to other areas of the country as a way of promoting replication of successes.

The highest value added of the project work has been its success in the provision of access to clean water in the remotest, most vulnerable and neediest places in the country. It has provided a sound model of local water governance that can be replicated elsewhere (also see case studies). This lesson from this work can be scaled. The UNDP can focus on supporting the operationalizing the water quality monitoring aspects with sectors including the Environment Protection Agency (EPA), Ministry of Water Resources and others through continued capacity building, providing motivation and instrumentalization, i.e. infrastructure for monitoring water quality: access to higher technology including on the scientific work and monitoring water quality and climate change impacts and scenarios.

The project was initiated when Sierra Leone experienced the Ebola outbreak in 2014. The crisis delayed the project start-up and made the mobilization of all the expected collaborating agencies difficult. A second major challenge noted by the interviewees was the low level of participation achieved in project implementation by the local authorities and limited opportunities for private sector engagement. Another key issue recorded was the project relationship with local contractors, who were perceived to have abandoned their work. The TE feels this was a miscommunication and lack of-reflection of the spirit in which the project was intended to be implemented. It was rather a failure of implement partners and learning approach with a strong knowledge management by the PIU.
The choices between key implementing partners made at the beginning around implementation and work planning were in this context. The project was implemented mainly by the water sector and the UNDP in the absence of a strong PIU and full complement of staff.

The results, however, reflect a strong focus on delivery of water engineering and introduction of new technologies in the targeted rural and urban areas. The downstream concrete results were particularly good, with over 85 % of the technologies implemented. The policy and learning work were implemented quite late and included a conference in November 2019 to showcase results. On the policy and softer upstream side, lessons were learned. For instance, the policy advocacy work showcasing process and the learning by doing through working together to plan with other sectors was late in implementation. In fact, the work planning was rather led by the water sector but may have included more policy work activities at the early implementation for systemic change purposes. The implementation, however, supported the intersectoral monitoring through the steering committee; this was a good result although rather undocumented. The EPA and its relationship with the water sector and the districts and local levels were brokered. This was also a good result. Adaptive management was led by UNDP and the steering committee with a strong UNDP oversight of the delivery and results. The need for overarching technical monitoring was clear from the design but not rectified until near the end of project. The inclusion served the CTA well in August 2019, accelerated the implementation and supported the project to achieve more balanced results.

In retrospect having a strong knowledge management plan and a full complement of PIU support staff has been a lesson learned. There are lost opportunities in this regard for stronger implementation including how it could have been contributing to policy and learning results. The lack of KM in implementing represents a missed opportunity to

coordinate the private sector and the WASH and climate sectors. The learning and coordination for policy work was picked up late by the CTA through the organizing of the PPP conference WASH Coordination platform.
The Knowledge Management session of the conference highlighted the need for dialogue and information-sharing in the WASH sector in Sierra Leone. The current status was causing unnecessary duplication of effort in terms of project interventions as different organizations ended up supporting the same communities while other communities went without services. Constant dialogue and information-sharing also helped with standardization of approaches to water service delivery systems and facilities. It considered critical that participants be requested to share their views on the creation of a dialogue platform and protocols for information-sharing in the WASH and climate changes "resilience" sector.

The overall expected targets expected included:

- to build capacities of at least 2-line ministries and 2 District Councils to mainstream adaptation concerns within water policies and local development plans are strengthened.
- to build capacities of two research/training centers to deliver relevant trainings on climate change issues are strengthened.

Results:
The project has gone over and above its expected results in terms of concrete implementation of new water technologies in remoted and risky areas. This is a very favorable result. The key issues is policy learning and sustainability including the institutional capacity need of the districts for water quality monitoring and results of the resilience work inter - sector.
The evaluation reviewed the expected achievements in terms of policy and capacity development level results. The implementation approach was generally guided by the active steering committee. Decisions were taken early on concerning implementation and budget, prioritization of the needs of people identified during the PPG stage and provision of a good demonstration of what works in each case. The design was built to succeed in this regard (with some learning, i.e. maintenance of new technology and need to build that in as well). There was also a focus on policy-level monitoring by government officials that dealt with WASH and climate policy and the cross-sectoral nature of the work. The project brought cross-sectoral counterparts together through many platforms. Additionally, the project provided a review of the policies and policy advocacy. There were three policy briefs developed: 1) "Management of New Water Supply Technologies in the Kargboto community, Tonko Limba Chiefdom, Kambia District, Sierra Leone, 2) Promotion of rainwater harvesting in Sierra Leone in the "Introduction: The Water Challenge in Sierra Leone" policy brief and 3) "Use of Traditional Knowledge Systems to Manage and Protect Water Resources in Kortumahun Community, Panga Krim Chiefdom, Pujehun District, Sierra Leone." Additionally, a PPP conference was held at Kobeibu Hotel and Conference Centre in Bo Town from November 20–21, 2019, which was attended by up to eighty (80) participants from government agencies, local authorities, WASH Sector NGOs and bilateral and multilateral cooperating partners supporting water and sanitation supply initiatives in Sierra Leone.[xi]

Secondly, the team considered the capacity development conducted under the project. Much training (for policy) included 10 technical staff from the Ministry of Water Resources and 15 staff from 3 District Councils who were trained to integrate climate risks into planning, especially as it relates to the water sector. In Freetown, Kambia, Pujehun and Kono, 18 participants were trained.

The project succeeded in training staff from government in the use of tools that promoted risk assessment and adaptation to climate change. Up to 37 interventions promoting water harvesting, borehole drilling and protection of natural springs were implemented over the project life span. Where these were completed, beneficiary community groups are now able to access portable drinking water from these sources.
Key lessons were collated and packaged as communication and knowledge management products. These will be disseminated to other areas of the country as a way of promoting replication of successes.

Value added was the provision of access in the remotest, most vulnerable and neediest places in SL for access to water and a model of water governance that can be replicated elsewhere. This work can be scaled and UNDP can focus on operationalizing the monitoring aspects with sectors including the Environment Protection Agency (EPA),

Ministry of Water Resources and others by doing more capacity building and providing motivation and instrumentalization, i.e. infrastructure for monitoring water quality: higher technology and scientific work and monitoring water quality and climate change impacts and scenarios.

For outcome one, the targets included:

- The CC. resilience plan for Guma reservoir is established.

- 15% of staff from targeted institutions are aware of predicted impacts of climate change and appropriate responses
- 60% of those targeted have access to relevant disseminated adaption experiences from the project.

The concrete results included:
A Climate Change Resilience Plan for the Guma Water Reservoir was produced by the project in October 2016.

85 policymakers (25 Members of Parliament, 45 Councilors from 3 district Councils and 1 City Council 15 Civil Society Activists) have been introduced to climate change issues and acquired knowledge on climate change impact and adaptation responses, including:
- 25 members of Parliament
- 45 councilors from 3 district councils and 1 city council
- 15 civil society activists were trained.
The issue of climate change is relatively new in Sierra Leone, so the benefiting; policymakers are the first to benefit from this support.
Of staff from targeted institutions (MWR; EPA; LCs, GVWC; etc.)15 % are now aware of predicted climate change impacts. Technical staff from Ministry of Water Resources (MWR), GVWC and the three district councils supported the development process of climate change risk management tools and guidelines during the training to be integrated into the water policies.

Of targeted stakeholders, 60% have access to relevant disseminated adaptation experiences from the project. Several trainings were conducted during a consultancy by INTEGEMS, a consultancy firm contracted to do the Climate Change Risk Management and Capacity Assessment for the water sector in Sierra Leone. Also, 6 NGO's were contracted: 3 to do village savings and loan scheme trainings and 2 to do awareness sensitization on climate change in all project locations. WASH committees, as consultancies, were given out to 6 different NGOs to carry out the awareness sensitization on climate change activities in all project locations. The training provided a sustainable communication platform for climate change risk management at the community level. These platforms would increase stakeholders' and communities' access to appropriate information and communications on climate change risks and adaptation measures in the water sector. They would also support the mobilization and empowerment of communities, through 1) resource mobilization for the continuous maintenance and sustainability of the water points and 2) the said trainings in the communities that have been capacitated on climate change issues to enable them participate in the development and implementation of bylaws to effectively integrate local and cultural knowledge with gender consideration in climate change adaptation measures in the water sector.
key Results of the above at TE:
(1) More than 50 officers from the Ministry of Water Resources were provided with relevant climate risk management guidelines/tools;
(2) 85 policymakers (25 Members of Parliament, 45 councilors from 3 district councils and 1 city council, 15 civil society activists) have been introduced to climate change issues and acquired knowledge on climate change impact and adaptation responses;
(3) Baseline waterpoint mapping, climate change risk management tools and guidelines were made for integration into water policies and stakeholders were trained.
Design and development of the web-based Hydrological Information Management System (HIMS) was done. INTEGEMS conducted a two-day training for staff on the management and administration of HIMS on July 16 and

17, 2020. The team saw sample/historical data on discharge measurements; shape files of the Rokel River Basin; Sample data from the surface water monitoring stations.

4. A climate change resilience plan was developed for the Guma Valley Reservoir, resulting in increased understanding of climate change-related issues which could affect the water supply in Freetown. A contingency plan has been developed.
5. The Sierra Leone Business Forum and WASH donors participated in the annual WASH sector review conference.
6. The staff of the Ministry of Water Resources has been funded for several training programmes on water quality, hydrological monitoring and related subjects.

Outcome 2 target was modest at expected impact on 5.000 at intervention sites in Freetown and three districts.

Results
The original targets were thus set low. The project has provided approximately 44,814 people with access to safe drinking water as a result of the construction of 35 water facilities. Some of these facilities would need to be further supported to become fully operational with a sustainability plan based on transgression during implementation. This is noted in the cases and recommendations.

Key Results of Above at TE (See field cases in Annex)
(1) Pilot demonstrations of innovative climate resilient rainwater in at least 3 public buildings with reservoirs were established to alleviate the bottleneck of drinking water supply in the dry season;
(2) Spring water improvement was designed, tested and demonstrated in the high-density area in Freetown (benefiting at least 200 households):
(3) Sustainable community reservoirs with 9 stand-alone rooftop rainwater harvesting systems (in 3 hospitals and 6 schools), as well as 5 resilient gravity fed water distribution systems designed and pioneered in Kono, Kambia and Pujehun;
(4) More than 200 households were provided with water storage and treatment systems for drinking water usage in times of prolonged dry-spells and drought in Kono, Kambia and Pujehun districts.

5. Recommendations

#	Recommendation	Description	Responsible Party
1	Develop Phase two of project to scale NWT and governance learning. Operationalize local governance model.	The next phase can focus on addressing issues related to improved security of the facilities and the enhancement of community and local authority management systems as they take over responsibility for the pilot projects. Focus on the upstream work on intersectoral WASH and climate change resilience in policies. Support the institutional strengthening for intersectoral coordination and regulation, recently strengthened by EPA and MWR that will move to the districts and communities. The policy, planning and capacity building needs: The Local councils (LCs) provide oversight to MWR activities at District level. They plan district water need together. As such, the District Engineers are accountable and report to the Local councils. Same report is also shared with MWR management. Also, part of the funds received by MWR at District level passes through the LCs. During the Presidential Retreat held in March this year, the need for institutional capacity building and in particular around the devolved monitoring and regulatory work was discussed and flagged. Training and provision of water treatment kits and chemicals are required. There is a need to upgrade training sessions, supply chemicals, and reagents for treatment and testing for water quality. This is the basis of a follow won project. UNDP is well positioned and has best capacity to support this effort.	UNDP CO, UNDP RTA GOSL

#	Recommendation	Description	Responsible Party
2	NWT, Technologies and Water Quality Monitoring	While water harvested from rooftops is a useful supplement to regular water supplies, it is important for the government to ensure, through the relevant ministries, that care is taken and the water is portable as it is collected from open sources. It is necessary that the government monitor water quality from such sources and ensure that rainwater was properly treated before communities consume it.	GOSL
3	Handover new NWT Project Investments	MWR and UNDP supported relevant local authorities and had them take over the project investments and incorporate them into their water resources development plans.	MWR-UNDP
4	Policy Subsidies	Government of Sierra Leone must reduce or waive import duties and taxes on components that are imported for the development of water supply facilities targeting rural and poor urban communities.	GOSL
5	PPPs	Private Public Partnership arrangements should be put in place to support the development of effective water supply and harvesting mechanisms in Sierra Leone.	GOSL
6	Policy–Public Spaces have cost effective NWT installed	GOSL should make it mandatory for public institutions, such as military bases, hospitals and schools, to have rainwater harvesting systems in place.	GOSL
7	Knowledge Management-Knowledge Sharing	Continue to consolidate all the knowledge inputs executed and lesson gained through the experimentation for future sharing. Upload on a shared data base and hand it over to the MWR. The government should spearhead the **creation of dialogue forums where experiences with the implementation of water service projects are shared and policies to promote them are formulated**. This policy recommendation applies to all three technology choices tried out under the project.	UNDP GOSL

6. Lessons

For the learning objectives, the project implementation and monitoring might have a more collaborative approach, including integrated planning work with key sectors. This also means involving the key sectors (education, climate monitoring, water monitoring, etc.) in the design of the work plans so that other elements might be showcased around the integrative nature of the work to install and sustain practical innovative cost-effective technologies, e.g. close involvement of the ministry of education to get a solution for vocational education related to key technologies introduced in communities. The work was largely implemented by the water engineering department. However, there are important policy lessons for WASH and climate policy. This nexus is what sets the approach in the innovation department, including showcasing local water quality monitoring and implementing local government with a gender lens.

In terms of expected outcomes for the two interlinked component including stimulation of the private sector and policies and for scaling up of the NWT , the project has made an effective contribution to showcase what technologies work and what bottleneck the private sector will face in supplying the infrastructure for the new technologies. Here the government will need to review the challenges shown by the project to engage local contractors and for sustaining the work including by educating local tradesmen or women in the repair. The entire value chain has been dissertated and taking into consideration these lesson for policy and subdues endearing are critical to ensue this experiment can continue to benefit SL.

DESIGN	
	Targeting and cross-pilot learning goals: The dual rural and urban and targeted focus was great to demonstrate the benefit of an intersectoral climate risk and WASH operationalization approach at the local levels and to address those most

	vulnerable and needy. The project demonstrated the need for targeting basic services to the neediest and most at risk by using climate risk information in urban and rural settings.
	Pilot projects involving science can also build into them scientific assessment for rigor and results as well as for sustainability measures. This pilot project required constants scientific monitoring and oversight. The project might have had a stronger element on monitoring water quality built into the design for its sustainability.
	The capacity building approach for introducing, pilot testing and sustaining new water technologies NWT in the most vulnerable and at-risk communities through pilots for results should include vocational training for maintaining those new technologies. Projects that introduce new technologies to rural communities should include the provision of resources for basic training of beneficiary communities on how to manage these technologies. At a minimum, new project design, should build in the sustainable learning linkages to the communities and with the companies commissioned to install, for example, the solar pumping systems or the borehole or water gravity system, to train focal persons for the maintenance and repair of the facilities in the event of equipment failure. These arrangements would go a long way in promoting public-private sector partnerships in the delivery and supply of water to community groups around the country.
	Planning for results about implementing NWT with communities should include traditional knowledge: Traditional knowledge and modern scientific approaches ar*e* complementary and should be used in conjunction in water and sanitation and ecological restoration projects*.* In light of increasing vulnerability to climate impacts, there is need to promote use of traditional knowledge and practices to complement scientific knowledge, recognizing that indigenous peoples, through their experience and traditional knowledge*,* provide an important contribution to the development and implementation of plans. While there is no empirical evidence that these traditional beliefs are true, it is important that the community has used these traditional knowledge systems to protect this water source against misuse and pollution. Therefore, new water resources management approaches that are introduced to traditional communities must take into account such systems, which are more easily understood by these communities.
	Inclusive design and planning : The pilot project design intended to build bridges between local people and the district councils for planning most relevant water infrastructure: Local authorities such as District Councils should be directly involved in the planning and development of community-level projects as this will facilitate continued support for the participating communities after project support comes to an end.
	Partnering and approach with stimulating the private sector: While partnering with local private sector contractors was clearly intended in the design, it was not how the project worked or engaged with the local contractor's i.e. as true partners in development. It was more of a client-contractor agreement, counter to the intention for learning with the new contracts all together. The project was not implemented with a strategy for engagement of private sector although it was designed for this. It was a lost opportunity and a lesson learned. Having a robust knowledge sharing platform would have supported these goals. The project might for example had a more flexible approach to the contracts especially where the costs of installing rural infrastructure were so uncertain and also provided a learning platform for private contractors to learn from each other. This lesson is linked to the project management and implementation approach with only a small PIU.
	Counterparts and implementing partners for scaling up While the project represented a partnership between UNDP /LCDF, MWR AND EPA, the main implementing agencies included MWR, SALWACOWRALC and Guma Valley Water Company. For a scaled up version of this project and in particular, for implementing the proven technologies and practices for local water and sanitation and climate change governance across the country, these agencies should be represented more in the project design and given more weight as implementing partners.
IMPLEMENTATION	**Approach to building capacity** through doing is an implementation approach but to get results such an approach needs strong monitoring and learning (knowledge management and communication) approaches for documentation of results including learning, policy goals and scale up potential.
	Knowledge Management and Learning (KM and L): There was a missed opportunity to use KM and L as an implementation of cross-cutting the two-component implementation approach. Such cross-cutting work on knowledge management, capacity building and learning, communication and results based monitoring would have supported coordination and policy sustainability learning goals of this project. See above.
	Results monitoring and adaptive management, NEX and staffing PIU: The lack of strong monitoring capability, either through staffing and engaging mechanism for broader sectoral representation in work planning, led to the underreporting of the process-type results and limited policy level results in general. Additionally, having the implementation done strictly by one project coordinator in one ministry led to an underrepresentation of the other stakeholder and sectors in the implementation and as such a weakened implementation approach for learning while doing especially with the private sector and other stakeholders . The work planning was biased in favor of water engineering while this project also had cross-sectoral and integrative "resilience" policy goals. In hindsight, only small efforts were needed to move the project toward its policy-level results. That said, the project did very strategic things, including work on supporting the information management system at the new water authority. This is a system that supports the dissemination of the climate information, i.e. water flow, to a broader sectoral audience and is useful for planning. Managment held a successful policy forum at the

	end of the project. More dynamic knowledge and learning work was needed as was more inclusive sectoral /stakeholder monitoring of community pilots together with local authorities.
	Stimulating Private Public Partnerships PPPs with co-financing and local education and scaling resources through small grants UNDP comparative role in co-financing key aspects of model programme. Provision of track co-financing and access to small grants for funding educational inputs (plumbing infrastructure and education) has been a good input to support the fund to stimulate the PPP work with government. The provision of track funds to create the business kiosks for purchasing clean water –and changing water access practices while stimulating a market for clean water has been a good lesson learned and support to results input.
	Social Norms Work is needed for PPP People think water is a gift from God. Buying water, a natural resource is not the norm. Work on changing norms is key in the changes and the idea of kiosk help. More work needed with the sector education is a lesson learned
RESULTS	
Component one	**Upstream Results.** National- and subnational-level results (cross-sector coordination work, budgets and policy) require more inclusive design approaches and joint monitoring involving sectors and policymaker. The policy influence work in a pilot project needs more rigor in design on methods for testing efficacy of results. This project needed better design and methods for assessing the cost benefit of the new water technologies for policy. This was left up to monitoring chance and the evidence is mostly antidotal.
Component two	*Lesson from NGOs.* • NGOs are good implementing partners and have supported the setup of WASH committees. *Lesson from Working with Communities and Districts and Private Sector Water Governance/Management Systems* • There is a need to set up a platform for planning and sharing lesson during piloting andand the design phase. Another important lesson with respect to the participation of the private sector in the development and delivery of water services is that of sharing of experiences with work at the various levels of intervention. This is best conducted through dialogue forums involving a broad range of stakeholders, including decision and policymakers, local authorities, local community representatives and programme support agencies. • Work was strictly based on contracts rather than implementing more flexible *patterns in the development approach*. The implementation needs a more collaborative approach to facilitate the smooth implementation and acceptance that could be cost overruns in implementing new technologies in rural areas. • The NIM approach taken in working with districts allowed for monitoring work as planned. It was implemented by the Ministry through the Local Councils. District engineers assigned to Councils directly monitored the implementation of these activities in the districts Completed facilities are handed to UNDP by the contractors, not to communities directly. UNDP does the handing over to the Communities, involving Local Councils, the MWRs and other relevant stakeholders including the Ministry of Water Resource. Therefore, monitoring of these facilities has been by local councils and the Ministry of Water Resources. *Lesson from Pilots* *New rainwater harvesting technologies* • The pilot rooftop rainwater harvesting project demonstrated that rooftop rainwater harvesting technologies have the potential to increase water availability for domestic and institutional use in Sierra Leone. • Major buildings were not designed to collect rainwater. The types of material and angle used in roofing for most of the buildings and houses in cities such as Freetown were not constructed with the foresight to collect rainwater. Innovations for roofing toward rainwater harvesting are important for creating a collecting mechanism for clean water. • Rooftop rainwater harvesting technologies have the potential to reduce the specific vulnerabilities of women in key institutions. Increased water supply improves personal hygiene for women and girls.

	Potential for upscaling • The technologies can easily be upscaled and introduced to other regions of the country where community groups depend on water sources that dry up during the dry seasons. Rooftop rainwater harvesting is one of the most appropriate climate-resilient adaptation techniques that can be adopted in the water sector. The type of technology used should be governed by the need and context and for the practical means employed for its maintenance and cost effectiveness. • While water harvested from rooftops can be a useful supplement to regular water supplies, care should be taken to ensure that it is portable as it is collected from open sources. This is usually done through chlorination of the water in the reservoir. *Management of protected spring box and water tower and reticulation in the Kortumahun Community* • Many lessons arise concerning the use of traditional knowledge systems to manage and protect water resources in Kortumahun Community, Panga Krim Chiefdom, Pujehun District, Sierra Leone. • While there is no empirical evidence that these traditional beliefs are true, it is important that the community has used these traditional knowledge systems to protect this water source against misuse and pollution. It is therefore important that new water resources management approaches introduced to traditional communities take into account such systems, which are more easily understood by these communities. That way, full buy-in to new developments will be realized and readily assimilated into sustainable community water resources management practices and strategies. • Programmes that seek to address water management challenges should be sensitive to and take into account community beliefs and practices. • There is need to engage community leadership when implementing water management projects. *Use of Solar Pumps* • Introduction of solar pumping technology through the project is a new intervention for the Kargboto community. As such, community members have no experience in using and managing it and have no capacity to maintain the system. For example, the pump was rendered dysfunctional following a lightning induced breakdown in 2019. As a result, there has not been any water supplied through the system. • The committee requested the assistance of a local radio repair technician who took away the transistor to his workshop for repairs. At the time of the team visit in October, the technician had not returned the component he took for repairs and the water facility was still not working. The lesson from this experience is that the project should have provided resources for **basic training of beneficiary communities on how to manage the technology that was provided to them**. At the minimum, the project should link the communities with the companies commissioned to install the solar pumping systems so that they can **train focal persons for the maintenance and repair of the facilities** in the event of equipment failure. • Solar water pumping technologies are costly interventions because most of the components used in the systems, including solar pumps and control equipment, solar panels and the water pipes are imported. Private sector companies that were engaged in the project passed on the full costs of these components plus duties and taxes to the project. It is doubtful that community groups will be able to replace any of these components should the need arise. Consideration should therefore be given to reducing or waiving import duties and taxes on components imported specifically for rural water supply projects. These arrangements would go a long way in promoting public and private sector partnerships in the delivery and supply of water to community groups around the country.

ANNEXES

- **ToR**

Attached

- **ITINERARY**

- **LIST OF PERSONS INTERVIEWED**

No.	Stakeholder	Institution		Position	Email	Phone
1	Samuel Doe	UNDP		RR	Samuel.doe@undp.org	+232 79850340
2	**Tanzila Sankoh**	**UNDP**		**Team Lead-SLED**	**Tanzila.sankoh@undp.org**	**+23279961450**
3	Sam Goba	Ministry of Water Resources		National Project Manager-Water project		+23276642379
4	**Muyeye Chambwera**	**UNDP**		**Regional Technical Specialist**	**Muyeye.chambwera@undp.org**	
5	**Ranita Koroma**	**SUNITA**		**Wash Consultant**		
6	Samuel Kamara	EPA-SL		Member-Project steering committee	Samuel.kamara@epa.gov.sl	+23278817515
7	Mohamed Juana	Water Regulation and Marketing Agency		Member-Project steering committee	msejuana@yahoo.co.uk	+23279912171
8	Ing. Abdul Ben Lebbie	SALWACO		Member-Project steering committee		
9	**Oliver Chapeyama**			**CTA**	**ochapeyama@yahoo.co.uk**	
10	Ma Ruming	WINGIN heavy Duty Machine & Co.-Contractor		Managing Director		+23276720000
11	Haroun Jalloh	Jalmans Construction-Contractor		Manager	harounjalloh@gmail.com	+23276613659
12	Councils	Kambia, Pujehun, Western Rural and Kono		Chairmen/DPOs/Cas	Don't have their contacts	
13	Sample of Beneficiaries	Four districts beneficiaries to be interviewed by National Consultant -				

- **SUMMARY OF CASES AND FIELD VISITS**

Report from the TE Field Visits

The consultant carried out field work from July 25 to 31, 2020 visiting communities where the project has been implemented in Freetown, Kambia, Pujehun and Kono districts. The consultant did a random sampling to choose communities to be visited. The reason for this was that some of the communities are hard-to-reach due to the incessant rainfall experienced in the country. Besides, COVID 19 prevented the consultant from holding FGDs in many cases.

Findings

The criteria that the project used for selection of sites were largely communities that faced water shortage. The project saw the need for these communities to be exposed to pipe borne especially in health care centers; education sector etc. cannot be overstated. Generally, all communities not reached/covered in the first phase need this facility because access to clean water in Sierra Leone remains a key challenge especially in rural communities.

In all of the communities, stakeholders (District Engineers, traditional leaders, women, youths and other local leaders) revealed that prior to the introduction of the solar powered water pump, bore holes the water storage tanks and the water distribution system, community members sourced water from unprotected wells and nearby streams leaving the people vulnerable to water borne diseases. The project consulted beneficiaries in these communities and traditional knowledge was built in (identification of garbage site information, for example) before the installation of the new technology. Stakeholders established that the use of surface water and use of the stream in the riverine districts of Kambia and Pujehun can be scaled up to supply the cluster of communities in districts. The two districts are awash with rivers and streams.

Kambia District: The consultant visited three communities (Kargboto, Barmoi Luma and Kolenten Secondary School) where the project has been implemented. In Barmoi Luma, a Borehole and Water Tower supplying water through stand posts was installed. The WASH Committee has been established and trained in VSLA operations. The Wash Committee in up and running according to residents interviewed. The committee has started collecting revenue for the use of water from community members and at the market place. The facility is fully functional with water being supplied to the health centre, the international market (between Sierra Leone and Guinea) and the community. Some of the good practices at this site and all others visited include by-laws to keep the sites clean, and inclusivity and participation of women and youths in decision-making.

The Wash Committee is dominated by women and they play a critical part in keeping monies collected from community members. They have used these monies to undertake minor repairs on the facility such as repairing broken pipes. The Engineer serving the district revealed that the water quality is good and that water is treated anytime the need arises. The beneficiaries stated how appreciative they are with the new technology albeit they do not know how to operate it. The technology is functional as stated above and the services is rendering to the community is overwhelming. The facility also serves the nearby schools and health care center, which is, in all intents and purposes, meet the requirement for site selection.

In Kargboto, Borehole and water reticulation and Solar water pump installed. The community has a functional Wash Committee and members pay le5,000 per month. Stakeholders revealed that two VSL groups of sixty members each have been established in the community and each member contributes le1,000 per week to sustain the functionality of the facility. The amount paid is reasonably small to undertake any major repairs to the facility. In some cases, some people even renege on payment.

The borehole serves the entire community and stakeholders stated their appreciation for the facility and for the establishment of the VSLA which has opened doors for members to borrow money to undertake business. Women participation was measured as high and their decision-making roles clearly beneficial to the community and in preserving the facility.

In Kolenten Secondary School, a Borehole and water reticulation was installed and Wash Committee set up but has been dysfunctional since the outbreak of COVID 19. Members pay le2,000 per week. The borehole has been drilled and solar pumping system installed. Basic maintenance work to unblock drains from stand pipes. The facility is providing water in the school labs to perform experiments (Chemistry, Biology and Physics) with improved teaching and learning, toilets for the students, helpful to girls when they experience their monthly menstrual circle, cleaning of the campus and hand washing during the COVID 19 period. This has contributed to improved health and less burden on students to fetch water in the nearby streams.

In Kambia, the district engineer stated that scaling up is needed in Samu Chiefdom because the facility will serve larger communities. These communities also have schools and health care centers that need this new technology. In Kichon, there are more than three thousand residents, about four to seven thousand in Madina, and three to five thousand in Rokupr. All of these communities have schools and health care centers. Before the civil war in 1991, these communities had enjoyed access to clean water but the war ravaged these facilities leaving them vulnerable. According to the engineer, it is pathetic to see women lacking better delivery services which continue to increase infant mortality rate in the district. These communities are prone to early child marriages and teenage pregnancy because girls are burdened with fetching water at odd times that make them vulnerable. The Wash committee comprises of twelve people (6 men and 6 women). Women participation and involvement in decision making regarding the facility is high.

NGOs are involved in WASH and provision of clean water including CARE International, UNICEF and ActionAid. This is true for the other districts.

Flooding of the Konlenten river restricts access to the facility. The taste of the water (water quality due to dirt in the tanks) is not satisfactory as reported by the engineer and community stakeholders.

Kono District: the consultant visited two sites: Kono District Education Committee (KDEC) Primary School (Wash Committee is now functional with 6 women and 4 men). The facility services three schools and a vocational training center. Like in Konlenten School, the facility is providing water to the toilets for students, helpful to girls when they experience their monthly menstrual circle, cleaning of the campus and hand washing during the COVID 19 period. The facility has contributed to improved health of the students and teachers and members in the surrounding community. The facility serves up to 750 people. There has been some training in minor repairs on the facility albeit this need to be further strengthened. By-laws from community members have kept the facility clean and the water quality, according to the district engineer, is good. Treatment, use of chlorine, is applied when the need arises.

In Boroma community, the facility is serving more than four thousand people and supplies schools and a health center. It is fully functional with a working Wash Committee (3 men and 7 women). There is one borehole, two tanks (10,000 ltrs each) and the people experience effective clean water. Every household pays le2,000 each for maintenance.

The new technology is working well for the people and they are eager to learn more about it. Wash Management Committee capacities need to be built and transfer of technical knowledge development of the solar panels cannot be overstated.

In terms of scaling up, Boroma Community, with one of the highest population concentration, should benefit from this facility. Clean water remains a key challenge in this community and is a burden for the people particularly women and girls. This community lacks a lot of facilities but clean water is very paramount among the list of felt needs. According to the focal person, Fiama also needs to be scaled up because it is quite populated and the need for clean water cannot be overstated. There are schools and health care centers too in these communities that can benefit from the facility. The provision of clean safe water can help in mitigating the increase in teenage pregnancy and infant mortality rate in the district.

The district and communities benefitted from trainings of caretakers for the new technology and how they should respond to emergency. But they face some challenges among which are: more training is needed for care takers particularly in the repairs of the solar panels; more tools are needed and post monitoring of project need to be strengthened. Aside, partnership with councils and the Ministry of Water resources have to be strengthened with the view to monitor projects and provide reliable information on the functionality of the facility. Women are playing a key role in the project and because of their vulnerability; they occupy decision-making positions in the WASH committee.

Wash Committee governance needs to be strengthened (on accountability, transparency, consensus building) through capacity development to enable members perform minor maintenance (fixing of broken pipes), reach compromises on the management of the facility and build partnership with the private sector and other NGOs such as CARE International and ActionAid. The facilities need to be safeguarded against theft and to be kept clean at all times.

Pujehun District: Sites visited include: Kuranko Community has a borehole serving about 1100 household. The stakeholders stated that there is a Wash committee with 5 men and 5 women managing it. The facility is fully functional and provision of clean water is assured.

The consultant spoke to stakeholders in Nyadehun Galliness via phone because of the poor road network. The facility is fully functional with an established Wash Committee (5 men and 5 women).

In the district, Malaema and Gohn communities with the population of four and three thousand respectively need to be scaled up to benefit from the facility in terms of technology and management committee not to mention VSLA which has the potential to empower women and other vulnerable groups. These two communities have schools and health care centers. Clean water remains a key challenge in these community and people struggle to fetch water from unprotected sources. As rural communities, people lack a lot of facilities but the provision of clean water stands paramount among the list of felt needs.

The district and communities benefitted from some capacity building activities particularly training of caretakers for the new technology and how they should respond to emergencies. Some of the critical challenges they face include adherence to by-laws; payment for the services provided by the facility; refusal to pay back loans obtained from VSLA etc. Aside, partnership with councils and the Ministry of

Water resources have to be strengthened with the view to monitor projects and provide reliable information on the functionality of the facility.

Wash committees are up and running and the management so far is good. Women participation in decision making (which is true for communities visited in the three districts) is quite impressive. Women interviewed stated that they are given space to hear their views and they in many ways control the safe keeping of funds raised from the VSLA. Their financial capacities have been built as a result of this and they could now provide assistance to their husbands in taking care of the homes. This point is true for all of the communities visited in the three districts.

Flooding remains a critical challenge in these riverine areas. When it floods, access to the facility is most of the time impaired and this pose a big challenge for women and girls who are always expected to be carriers of water for the family.

Freetown

The consultant visited two sites in Freetown where the project has been implemented. They include Baoma and Mayenki communities. In Baoma, a borehole was constructed serving a little over three thousand people. The facility is fully functional and residents revealed that this is one of the highest yielding boreholes in Freetown. In Mayenki, another borehole was constructed providing clean drinking water to over three thousand people. The facility is also functional.

The engineer and residents agreed that the community was fully aware and consulted about the project and contributed to identifying the site. Local leaders were fully involved in the process and made sure that local knowledge was built in. The consultant found that the water governance of the two facilities need to be scaled up. Planning and management strategies need to be focused on when scaling up. That is, capacity building of WASH committee on management and planning is required. Also required is more training on VSLA and the element of accountability particularly with the funds raised by the community.

In Baoma, the facility provides services to some of the schools around. Irrespective of the fact that the facility has a lot of pressure due to the population, the WASH committee is doing a marvelous job in cleaning the facility, ensuring that it is not littered and preventing theft. This is done by always ensuring that there is a guard at the facility to monitor events. In terms of sustainability, the VSLA is one of the sustainability elements of the project and Baoma has the potential to continue carrying out minor repairs and also providing loans to members for sustenance.

In Mayenki, the facility serves the health care center and provide access to clean water to many residents. The entry strategy of UNDP was good as the agency relied more on local knowledge, local contractors and in some cases local resources that resulted in ownership of the project. The stakeholders also stated that the water facilities provided are closer to health care centers and are providing access to clean water in the larger community. The benefit, to them, far outweigh the cost of the project as the provision of clean water has resulted in reduction of water borne diseases such as cholera, typhoid, and dysentery that has been prevalent prior to the project. Improved access to water has also freed women and girls of the burden of sourcing water from the streams and rivers, which has enhanced their security. With easy access to clean water, women and girls now dedicate less time to sourcing water. As such, time is saved for other family duties and girls are less prone to GBV and rape incidences

In both communities, women have been given decision-making roles in Wash committees thereby socio-economically empowering them which is good for project resilience and potential for sustainability. Women and children have clearly stated how the project has brought them so much relief. The women noted that because they now have access to safe and clean water supply in the township, they are no longer worried about their children travelling long distances to fetch unsafe and untreated water from the swamp and nearby rivers.

In all of the communities visited in the four districts, project has sustainability elements which include:

1. Wash Committees can play a role in maintaining the gains made by the project through minor repairs using funds raised by the community;
2. The role of women, who had hitherto struggled to fetch water from long distances, will ensure that they do not get back to those days;
3. The VLSA is a sustainable strategy;
4. Community by-laws will help mitigate theft to property and keep the facility clean;
5. A monitoring system provided by the council will ensure continuity
6. There is ownership of the project

However, all of the communities visited stated that they face some challenges that could thwart sustainability. At the institutional level, by-laws are most of the time not adhered to and theft to property, especially in Kono (in Njagbema Fiama community in Kono District where the pumping machine was stolen and nobody has never been arrested as a suspect by the police who are investigating the matter). Beneficiary communities are not also familiar with some of the technologies (capacity deficiency) which have been introduced by the project and are, therefore, most likely not able to manage these without outside support. There is need for the project management to communicate with the local authorities to ensure that projects are adopted as part of the development strategies of these local authorities particularly the district councils. To actualize this, government needs to fund the councils, build the capacity of M&E officers, Engineers, to take over these projects.

Financially, the government is yet to provide support to the project through the councils and this risks sustainability. The burden has fallen on district councils that have not received grants from government to provide such support. At the moment, the councils are monitoring the project and contractors can be recalled to fix broken pipes. In other words, contractors are held accountable by the district councils. Political will on the part of the government is needed to ensure sustainability.

Some key successes:

1. Community training programmes were carried out on Climate Change and Gender in all project communities;
2. WASH Management Committees were set up and trained in all targeted communities;
3. Access to safe Water has increased to over 10800 people through the provision of 24 boreholes with solar powered submersible pumps in Kambia (5), Kono (5) and Pujehun (8).
4. Construction of 5 Spring Boxes in communities, (1) in Kono, (1) in Kambia and (1) in Pujehun were done.

With regards to adaptive capacity, more needs to be done (training and sensitization need to be scaled up) to adapt to climate change. Flooding remains a challenge especially in the riverine communities and people can hardly access clean water when flooding takes place.

Some of the challenges highlighted include: lack of community level positive behavior towards community property; community dependency on external assistance; lack of capacity of Wash Committee to provide maintenance services; lack of knowledge of the new technology; lack of capacity of some contractors

leading to poor performance and delay in implementation; theft of solar panels and submersible pumps (particularly in Kono); Community people to take full ownership of these facilities etc. These challenges are common in all of the communities visited.

Lessons Learned

1. Effective monitoring of the project can lead to sustainability of results
2. Collaboration and coordination among stakeholders is key to sustainability and greater project impact
3. Building the capacity of Wash Committee members will result in building a management system and knowledge development of the new technology

List of people met/interviewed in the field

No.	Name	Designation	Location	Contac Info.
1	Augustine Amara	District Engineer	Kambia	
2	Alie Turay	Teacher		O88767522
3	Brima Bangura	Trader		NA
4	Saffie Koroma	Business women		NA
5	Hawanatu Sesay	Trader		099122468
6	Saffia Komba	Unemployed		077613773
7	Ing. Kobba	District Engineer	Pujehun	030051241
8	Emmanuel Massaquoi	Teacher		076577553
9	Abrahim Koroma			030120654
10	Tamba Pessima	Businessman		079089160
11	George Sorie	District WASH Foocal Person	Kono	079265734
12	Sahr Pessima	Miner	Kono	
13	Komba Gborie	Trader	Kono	
14	Mariama Bah	Business		
15	Ishaka Boackarie	Farmer		075164417
16	Saffa Janneh	Farmer		077369166
17	Mustapha Swaray			030113422
18	Alpha Kpukumu	Farmer		080686598
19	District Engineer	Engineer		079265734
20	Mustapha Kamara			078707684
21	Abdulai Nyademoh	Miner		076857533
22	Amara Massaquoi	Business		NA
23	Talu Massaquoi	Farmer		076578453
24	Finda Yambasu	Housewife		
25	Saffea Komba	Business		
26	Kumba Bonga	Business		
27	Sia Neckor	Trader		
28	Jarie Gbondo	Trader		030266743
29	Kumba Senesie	Business		
30	Tamba Koroma	Miner		

- **LIST OF DOCUMENTS REVIEWED**

- Original Project document in word format
- list of current and past government, UNDP and GEF policies and laws, frameworks this project is contributing to - i.e. relevance
- Project final inception report
- Steering Committee Meeting Minutes - and cover pages with dates and who participated and any major decisions
- List of all legal documents and policies contributed to and or developed by project with a summary of institutional results
- Annual Project Review (APR)/Project Implementation Report (PIRs)
- Mid-Term Evaluation Report
- Project Technical Reports (List provided in separate Annex Attached with ToR)
- Project brochures and awareness materials.
- Final GEF tracking tools – final METTs post-MTR -Capacity Development Score card and Financial Scorecard
- List of all capacity building and learning type activities conducted by project since beginning with results, i.e. number, etc.
- ToR in word document
- List of ongoing and in the pipeline GEF projects and any other synergistic donor activities.
- List of scientific and policy related studies
- List of implementing partners and stakeholders that were active and how and how this differed from what was planned in the Project document.
- Status of results against the agreed indicator framework
- List of all staff attached to the project from inception with position and reason for leaving.

- **EVALUATION QUESTION MATRIX**

Evaluation questions	**Indicators**	**Sources**	**Methodology**
(include evaluative question(s))	(I.e. relationships established, level of coherence between project design and implementation approach, specific activities conducted, quality of risk mitigation strategies, etc.)	(I.e. project documents, national policies or strategies, websites, project staff, project partners, data collected throughout the TE mission, etc.)	(I.e. document analysis, data analysis, interviews with project staff, and interviews with stakeholders, etc.)
Relevance: How does the project related to the main objectives of the International, Regional, National Priorities, GEF focal area, and the environment and development priorities at the local, regional and national levels?			
Project Strategy: To what extent is the project strategy relevant to international, regional and country priorities, country ownership, and the best route toward expected results? To what extent is the project strategy in line with Government and UNDP /GEF priorities?	Level of participation of the concerned agencies in project activities Consistency with international, regional, national strategies and policies.	Project documents National policies and strategies	Desk review Interviews with project team, UNDP and other partners.
To what extent is the project aligned to the main objectives of the GEF focal area?	Consistency with GEF strategic objectives.	Project documents GEF focal areas strategies and documents	Desk review GEF website Interviews with project team and UNDP
Effectiveness: Progress toward Results: To what extent have the expected outcomes and objectives of the project been achieved? To what extent have the expected outcomes and objectives of the project been achieved thus far?			
Has the project been effective in achieving its expected outcomes?	See indicators in project document results framework.	Project document Project team and stakeholder	Desk review Interviews with project team and relevant stakeholders

		Data reported in project annual and quarterly reports	
Project Implementation and Adaptive Management: Has the project been implemented efficiently, cost-effectively, and been able to adapt to any changing conditions thus far?	Steering committee meetings PMU an/d UNDP notes	Data collected throughout the evaluation	Desk review
To what extent are project-level monitoring and evaluation systems, reporting, and project communications supporting the project's implementation?	Steering committee meetings PMU and UNDP notes	Project document Project team and stakeholder Data reported in project annual and quarterly reports	Desk review Interviews with project team and relevant stakeholders
To what extent have partnerships and linkages between institutions/organizations were encouraged and supported? What was the level of efficiency of cooperation and collaboration arrangements?	Specific activities conducted to support the development of the cooperative arrangements between partners Examples of supported partnerships Evidence that particular partnerships/linkages will be sustainable Types/quality of partnerships cooperation methods utilized	Project documents	Desk review Interviews with project team and relevant stakeholders
Efficiency: Was the project implemented efficiently, in line with international and national norms and standards?			
Were the accounting and financial system in place and adequate for project management and producing accurate and timely information? Was the project efficient with respect to incremental cost criteria? Were progress reports produced accurately, timely and represented to reporting requirements including adaptive management changes? Was the project implementation as cost effective as originally proposed (planned vs. actual)? Was procurement carried out in a manner making efficient use of project resources?	Availability and quality of financial and progress reports Timeliness and adequacy of reporting provided Level of discrepancy between planned and utilized financial expenditures Planned and actual fund leveraged Quality of actual funds leveraged Quality of results-based management reporting (progress reporting, monitoring and evaluations)	Project documents and evaluations UNDP Project team	Document analysis Key interview
Sustainability: To what extent are there financial, institutional, socio-economic, and/or environmental risks to sustaining long-term project results? To what extent are there financial, institutional, socio-economic, and/or environmental risks to sustaining long-term project results?			
How does the project support resource mobilization for the FISHERIES MANAGEMENT implementation?	Amount of national budget allocation	Legal regulation	Document analysis
How does the project support personnel allocation for the	Personnel allocation	Legal regulation	Document analysis

system approach to implementation?			
To what extent is FISHERIES compliance and monitoring conservation related issues considered?	Government agencies aware and committee to regional tuna fisheries integration and sustainable development. Legislation and planning documents show evidence of mainstreaming?	Legal regulation Project document /reports	Document analysis Interviews with stakeholders
Are there any political risks that may threaten the sustainability of the project outcomes?	Government agencies aware of three Rios?	Government policies	Analysis
Impact: Are there any indication that the project has contributed to, and enabled progress toward reduced environmental stress and/or improved ecological status?			
Has the project strengthened local capacity?	Awareness and understanding of the global norms and standards and related conventions at the provincial level	Interviews Provincial level plans/ strategies	Interviews Document analysis
Has the project developed tools to support mainstreaming process?	Evidence of development of different tools to support the mainstreaming process	Interviews Provincial level plans /strategies	Interview Document analysis
Has?	Evidence of incorporation of Biodiversity, Climate change and land Degradation in planning processes at the provincial level.	Interviews Provincial level plans /strategies	Interview Document analysis

- **QUESTIONNAIRE USED AND SUMMARY OF RESULTS**

QUESTIONNAIRE OR INTERVIEW GUIDE USED FOR DATA COLLECTION FROM PROJECT TEAM IMPLEMENTING PROJECT

Project Formulation, Design and Strategies/Relevance

Formulation

- How does this project contribute to the national, regional and international priorities?
- What any significant national, regional and international directives and policy/laws are (include any since project signing) to which the project contributes?
    - Describe details in relation to the national policy and enabling context: SDGs, CC, DRR (2015), Oceans, etc.

Design

- Were you involved in the project design? Did the project adequately build on the national gaps in monitoring and compliance identified at the *end of phase one*? What were those gaps in your country?
- Were the project's rationale and plan, logical framework, and the theory of change in line with the actual problems at national level and sub-regional level?

Strategies

- Do you think the project had a clear theory of change TOC at the sub-regional and the national level? Why or why not?
- What were the main national drivers for joining and developing this project?
- Were the expected results of this project made clear? How?
- Do you think the outputs link to the expected outcomes?
- Has the casual pathway to results been clear and concise?
- Any lessons learned?

Project Implementation and Management: Effectiveness and Efficiency

- Project implementation: capacity building approach and adaptive management
    - What was the implementation approach taken nationally? Please provide details of the approaches for learning, for knowledge sharing, and for policy advocacy.
    - How many workshops did you participate in? List them. Were they useful? Why?
    - How many consultancies did you implement? What were they? Do you think they had any policy level results?
    -
- Management Arrangements
    - Describe the project management arrangements at national level, i.e. how many staff, how much remuneration? Any challenges to report?
    - Describe how the national project management coordinated at national level? With teams and project manager in sub region and other countries?
    - Any lessons learned?
- Work Planning
    - How did you facilitate national work planning and financing reporting?
- Finance and Co-Finance
    - Please provide the expenditure per outcome per year.
    - Provide a breakdown of expenditure by outcome and by year until end of project.
- Project level Monitoring and Evaluation systems
    - Describe the monitoring and evaluation system at the sub regional and national level?

Factors influencing Results

- Project Management and Work planning
    - What was the project management, human resources and organizational set-up?
    - How did you do work planning at national level? Describe the process.
    - What were the day-to-day coordination, reporting, and monitoring mechanisms? To whom did you report? When? How? Did this system work? Why or why not?
    - What was the role of the project secretariat in results oversight and management?
    - How did this project employ adaptive management at the national and sub-regional levels? Can you give any examples?

- Governance and oversight
    -
    - What were the main mechanisms for sub-regional and national project coordination and oversight? i.e., meeting with director of department, project boards, and national workshops?
    - How many steering committee meetings did you participate in? Who attended and when? Were these meetings useful? Why?
    -
- Synergies
    - Did the project support synergies with ongoing related projects and initiatives post MTR? Why or why not?
    - What were the related projects?

- Technical inputs
    - Did the project, project management, UNDP GEF support implementation of consultancies, provide you with sufficient technical support to enable the implementation of new approaches and tools? How? Why or why not?

- Partnerships
    - Who were your regional and national implementing partners? List them?

- Did other partnerships evolve? Did the original partnership strategy play out? Why or why not?

- What was the UNDP/GEF role and comparative advantage?
  - What was the added value of the UNDP /GEF involvement? What was the added value of the Regional GEF involvement?
  - Did the UNDP/GEF platform support the project implementation and results? How? Why or why not?
  - What might be improved?

- Financial management and co-financing results
  - Did the government commit all expected co-financing? Please provide this number and include all the in kind and cash resources.
  - Provide the final national project expenditure by outcome and by year.

- Factors influencing implementation
  - Provide your comments on all these factors at subregional- and national level: communications, knowledge management, capacity building approach, technical inputs and support, coordination mechanisms.

Project Results, Performance, Effectiveness
Log frame, Expected Results

- Did this project meet all its stated objectives, outcomes, and targets at the sub-regional and the national levels? Please fill in national comments on the project outcomes in the table below.

- Did the project help you meet all the project stated expectations for improving data collection, monitoring systems, and compliance in your country?
- Which national and regional outcomes and targets were most difficult to meet? Why?
- Which national and regional outcomes and targets were the easiest to achieve? Why?
- Are any of the national project targets outstanding? Why?
- What might have been done differently to meet all targets and goals? Why
- What do you think are the project's greatest results? At sub-regional level, at the national level?
- How did you facilitate collaboration between sectors in project activities, i.e. with MOEs, others? Give examples?
- How did you use communication in this project as an enabler for policy and learning results?
- Do you think there are any unintended consequences and unexpected results of this projects work?
- What is the valued added of inter-project level collaboration?
- Has this project supported the governance mechanism or not?
- Any lessons learned?

Monitoring and Evaluation

- Describe the monitoring and evaluation systems at the sub- regional and national levels? How did you monitor and report your project results?
- What were the reporting mechanisms? How often did you discuss national-level results internally and where?
- How did you support the secretariat monitor project? (i.e., evidence of program-level assessments)
- Any lessons learned?

Sustainability
What is the likelihood of project sustainability?

- Economic sustainability
- Political sustainability

- Environmental sustainability
- Social sustainability

Lesson learned and next steps

What do you think are the main lessons learned to date based on the following?

- Design and Formulation
- Management and Implementation Approach
- Finance
- Partnerships
- Results
- Sustainability

What are the next steps? Do you have any recommendations to share?

Stakeholder Interview Guide: Individual and FGDs

1. How involved were you in the project design, implementation and monitoring?
2. Did the project address your needs for safe drinking water?
3. What have gone well with the project? **Success Stories/testimonies**
4. What have not gone well? **Challenges**
5. How has the **project impacted** your life in accessing safe drinking water? **Can we agree on the Direct and Indirect costs?**
6. Would you purchase the technologies for your own house? From whom, why or why not?
7. What are the benefits?
8. Do you think your community will sustain the gains of the project in the absence of funding? If yes, how? If no, why?
9. How far is your bore hole/other from your dwelling house? What challenges do you face in getting water from there?
10. Do you contribute to the village savings for the well? How much?
11. How useful is your borehole, water harvesting system etc.
12. What do you recommend for any future intervention?

Interview Protocol for Management Committees, District Councils and District Engineers

1. What have well/not well with the project?
2. How effective was project implementation and monitoring?
3. Did you **establish all the structures**? Was it **gender sensitive**?
4. Did you generate interest from the private sector? How were they involved and how will the supply be sustained?
5. What does the technologies cost? Is this sustainable?
6. What is your perspective on the technologies being further scaled and the program being supported by government program and further donor investments? Is there a good basis for this to continue?
7. Did the project address the needs of the community? How? Provide evidence.
8. How sustainable is the Village Saving Scheme?
9. How was monitoring done? Any M&E plans?
10. How did you build partnership with other stakeholders (traditional leaders, council members, etc.) in the community?
11. What type of technology did you use? How effective was it in delivering results?
12. What has been the impact of the project on the community?

13. Do you think your community will sustain the gains of the project in the absence of funding? If yes, How? If no, Why?
14. What are some of the benefits of the project to the community?
15. Any lessons learned/Any innovation? Any unexpected consequences from the project that might support the scale up?
16. Why would you scale up this programme and why?
17. How do you get the scientific information to make informed risk management decisions? Is it reliable and effective? How have things changed from before?
18. What are the critical recommendations for any future intervention?

- **EVALUATION CONSULTANT AGREEMENT FORM**

Evaluators:

1. Must present information that is complete and fair in its assessment of strengths and weaknesses so that decisions or actions taken are well founded.
2. Must disclose the full set of evaluation findings along with information on their limitations and have this accessible to all affected by the evaluation with expressed legal rights to receive results.
3. Should protect the anonymity and confidentiality of individual informants. They should provide maximum notice, minimize demands on time, and respect a person's right not to engage. Evaluators must respect people's right to provide information in confidence and must ensure that sensitive information cannot be traced to its source. Evaluators are not expected to evaluate individuals and must balance an evaluation of management functions with this general principle.
4. Sometimes uncover evidence of wrongdoing while conducting evaluations. Such cases must be reported discreetly to the appropriate investigative body. Evaluators should consult with other relevant oversight entities when there is any doubt about if and how issues should be reported.
5. Should be sensitive to beliefs, manners and customs and act with integrity and honesty in their relations with all stakeholders. In line with the UN Universal Declaration of Human Rights, evaluators must be sensitive to and address issues of discrimination and gender equality. They should avoid offending the dignity and self-respect of those persons with whom they come in contact during the evaluation. Knowing that evaluation might negatively affect the interests of some stakeholders, evaluators should conduct the evaluation and communicate its purpose and results in a way that clearly respects the stakeholders' dignity and self-worth.
6. Are responsible for their performance and their product(s). They are responsible for the clear, accurate and fair written and/or oral presentation of study imitations, findings and recommendations.
7. Should reflect sound accounting procedures and be prudent in using the resources of the evaluation.

Evaluation Consultant Agreement Form[6]

Agreement to abide by the Code of Conduct for Evaluation in the UN System

Name of Consultant: _____

Name of Consultancy Organization (where relevant)**:** _____

I confirm that I have received and understood and will abide by the United Nations Code of Conduct for Evaluation.

[6]www.unevaluation.org/unegcodeofconduct

Signed at *place* on *date*

Signature: _____

- **REPORT CLEARANCE FORM**

- ***ANNEXED IN A SEPARATE FILE: TE AUDIT TRAIL***
- ***ANNEXED IN A SEPARATE FILE: TERMINAL GEF TRACKING TOOL, IF APPLICABLE***

- **ANNEX: ORIGINAL LOG FRAME**

This project will contribute to achieving the following Country Program Outcome as defined in CPAP or CPD:

Expected CP Outcome(s):

Transitional Joint Vision for Sierra Leone of the United Nations Family (2013-14): Cluster 3 goal: To ensure that natural resources are sustainably and equitably managed and threats and impacts from natural and man-made disasters are reduced

Country Program Outcome Indicators:

Transitional Joint Vision for Sierra Leone of the United Nations Family (2013-14): Cluster 3 indicators:

(1) Percentage change in mortality and casualties and economic impacts of natural and man-made disasters compared to 2011

(2) Percentage change in Sierra Leone's environmental performance index as compared to 2010 (as measured by UNDP's Human Development Reports)

Primary applicable Key Environment and Sustainable Development Key Result Area (same as that on the cover page, circle one): 1. Mainstreaming environment and energy OR

2. Catalyzing environmental finance OR 3. Promoting climate change adaptation OR 4. Expanding access to environmental and energy services for the poor.

Applicable GEF Strategic Objective and Program: Adaptation to Climate Change: Objective 1: Reduce vulnerability to the adverse impacts of climate change, including variability, at local, national, regional and global level and Objective 2: Increase adaptive capacity to respond to the impacts of climate change, including variability, at local, national, regional and global level

Applicable GEF Expected Outcomes: Outcome 1.1: Mainstreamed adaptation in broader development frameworks at country level and in targeted vulnerable areas, Outcome 1.2: Reduced vulnerability in development sectors, Outcome 2.1: Increased knowledge and understanding of climate variability and change-induced risks at country level and in targeted vulnerable areas, Outcome 2.3: Strengthened awareness and ownership of adaptation and climate risk reduction processes at local level, Outcome 3.1: Successful demonstration, deployment, and transfer of relevant adaptation technology in targeted areas

Applicable GEF Outcome Indicators: (following AMAT tool)

Indicator 1.1.1: Adaptation actions implemented in national/regional development frameworks.

Indicator 1.2.3: Number of additional people provided with access to safe water supply and basic sanitation services given existing and projected climate change

Indicator 2.2.1: No. and type of targeted institutions with increased adaptive capacity to reduce risks of and responses to climate variability.

Indicator 2.3.2: % of targeted population awareness of predicted adverse impacts of climate change and appropriate responses

	Indicator	**Baseline**	**Targets** **End of Project**	**Source of verification**	**Risks and Assumptions**
Project Objective[7] E*nhance the adaptive capacity of decision-*	Indicator 2.2.1: No. and type of targeted institutions with	Technocrats from MWR and EPA in Freetown, but particularly regional technical staffs have extremely	At least capacities of 2 line ministries and 2 Districts Council to mainstream	Baseline capacity assessment to be	Unavailability of requisite human resources and data

[7] *Objective (Atlas output) monitored quarterly ERBM and annually in APR/PIR*

makers in the public and private sector involved in water provision to plan for and respond to climate change risks on water resources. **(equivalent to output in ATLAS)**	increased adaptive capacity to reduce risks of and responses to climate variability. (AMAT indicator 2.2.1)	limited opportunity for professional updating, and usually find it difficult to address newly emerging technical issues and practices into their ongoing work. One of the major limitations is the lack of capacity to deal with climate risks and understandings of managing these risks in the water sector.	adaptation concerns within water policies and local development plans are strengthened; and capacities of two research /training center to deliver relevant trainings on climate change issues of are strengthened.	undertaken at project onset APRs/PIR Policy reviews as part of APRs/PIR MTR	Insufficient institutional support and political commitment
Outcome 1[8]: Critical public policies governing the management of water resources revised to incentivize climate smart investment by the private sector. **(equivalent to activity in ATLAS)**	Indicator 1.1.1: Adaptation concerns and actions mainstreamed within at least the Guma Reservoir Management process (AMAT indicator 1.1.1)	The overall risk that climate change may pose on the sustainability of water supply to the capital not well integrated into Guma Reservoir management;	CC resilience plan for Guma reservoir established	Policy and resilience plan review Policy reviews as part of APRs/PIR	Timing of interventions well attuned to policy development/review Political will is lacking
	Indicator 2.2.1: No. and type of targeted institutions with increased adaptive capacity to reduce risks of and responses to climate variability. (AMAT indicator 2.2.1)	Key decision-makers who are supposed to lead the implementation of the policy have limited knowledge of climate change impacts or adaptation responses. Information, including inventory and mapping, is inadequate and staffs from MWR have limited expertise to internalize climate changes into existing local development plan Low interplay between public and private sector on adaptation strategies investment	15% of staff from targeted institutions aware of predicted impacts of climate change and appropriate responses 60% of targeted stakeholders have access to relevant disseminated adaption experiences from the project	Baseline capacity assessment to be undertaken at project onset Awareness raising activities Policy reviews as part of APRs/PIR	Insufficient institutional support and political commitment

[8] *All outcomes monitored annually in the APR/PIR. It is highly recommended not to have more than 4 outcomes.*

		Existing coping strategies and adaptation action not documented at all, including for the water sector.			
Outcome 2: Water supply infrastructure in Freetown and Pujehun, Kambia and Kono districts made resilient against climate change induced risks. **(equivalent to activity in ATLAS)**	Indicator 1.2.3: Number of additional people provided with access to safe water supply and basic sanitation services given existing and projected climate change (AMAT indicator 1.3.1.1)	Type and level: 0 (aside already existing local coping mechanism)	5.000 at intervention sites in Freetown and three districts	Project reports e.g. trainings, pilot interventions, APRs, PIRs Local level assessments at demonstration sites (Questionnaire based appraisal - CBA) APRs/PIR	Target population do not see the benefit of new practices or social conflicts hinder taking up the practices; Low Capacities of WASH comities to support the implementation of appropriate climate resilient technologies

ANNEX: DETAILED STATUS OF FACILITIES (CTA FINAL REVIEW 2019 NOVEMBER)

Name of Community	Facility	Beneficiaries	People served (Nos.)	Number of stand posts	WASH Committee formed	Status / Reasons for non-operation	Recommended Remedial Measures
Kambia District October 22-23 2019							
1. Bamoi Luma	Borehole and Water Tower supplying water through stand posts.	International Market Place/ Community	The facility serves a community of 5,000 but this figure varies with the numbers of people passing through the market.	10	The WASH Committee has been formed and trained in VSL operations. The committee has started collecting revenue from community members and at the market.	The facility is fully functional with water being supplied to the health center, the international market and the community.	This facility can be handed over to the District Council for them to manage as part of their water delivery and supply programme.
2. Kargboto	Borehole and water reticulation . Solar water pump installed	Community	Estimated population of 500 served by this water delivery system.	7	2 VSL groups of sixty members each have been set up in the community. Each member contributes L 1000 per week.	The solar power system was struck by lightning, so the system was non-functional at the time of the visit. Community engaged a local "repair person" who had not been of much help.	Training in basic system maintenance is required. Further institutional strengthening support for the VSLs also required.
3.Gbalanthalan	Borehole	Health Center & Community	350	7	A VSL Committee has been set up and they are collecting contributions from community members.	Fully Functional	The community will need institutional strengthening support following the end of UNDP support.
4.Rogberay	Spring Box	Community	1,300	8	Yes	Construction of the Spring Box super-structure was completed but contractor will need to construct at outlet from. Solar pumping system was not in place because of disagreement between the contractor and communities regarding where the solar panels were to be installed. As a result, water	The Community Management Committee needs to meet with the contractor and resolve the issue of the placement of the solar panels as this is the only issue that is standing in the way of delivery of water services from the Spring Box to the communities.

Name of Community	Facility	Beneficiaries	People served (Nos.)	Number of stand posts	WASH Committee formed	Status / Reasons for non-operation	Recommended Remedial Measures
						pumping is not functional with communities drawing water from a partially covered reservoir. The contractor was to go and attend to this issue and report back by November 8, 2019.	
5.Kolenten Sec School	Borehole and water reticulation	The facility was developed at a school site to provide water to students.	600	8	No	The borehole has been drilled and solar pumping system installed. Basic maintenance work to unblock drains from standpipes.	The District Engineer needs to monitor this facility and assist the school with routine maintenance of the facility.
6. Kychum	Borehole	Community	1000	10	Yes		Did not visit due to poor state of the road.
Kono District							
7.Fuero	Borehole	Community	1000 members in the community.	7	No management committee established	Infrastructure completed but the system was not functional due to technical problem with the solar pumping system. This has been the situation since the Project Mid-Term Review. No attempt has been made to repair the system indicating no community ownership. The community now depend upon an alternative water source with a hand pump. This compromises reliability of water supply to the school and health center.	The community at Fuero need support with institutional strengthening.

Name of Community	Facility	Beneficiaries	People served (Nos.)	Number of stand posts	WASH Committee formed	Status / Reasons for non-operation	Recommended Remedial Measures
8.Kombayendeh	Borehole	Community	1,200	8	Yes. VSL training conducted. Members pay Le 5000 per household per month.	Water supply system was functional. Need to fix the overflowing tank (replace the floater?)	
9.KDEC Primary School	Borehole supplying water to 3 schools and 1 Vocational training Centre	3 schools and a vocational training center.	750	8	No	System was now functional. Stolen solar panels and submersible pump had to be replaced.	Community sensitization required to manage issue of theft. The facility funded by the project provides water for a large community. The contractor supplied 5000 liter tanks instead of 10 liter tanks.
10.Boroma	Borehole	Community	4,207 people served by the water infrastructure.	10	WASH Committee still to be set up.	Borehole supplies health center and school. Fully functional facility.	Support needed for institutional strengthening and making VSL operational.
11.Njagbema Fiama	Spring Box	Community	2,000	8	WASH Committee not functional.	The civil works to protect the spring were completed by the time of my visit. However, the system was not functional because the solar pump was stolen.	The spring box is a high yielding one, so it can supply sustainable levels of water to the community. The stolen pump should be replaced to avail water to the community otherwise the infrastructure developed so far will be vandalized. Institutional strengthening required for the VSL management committee.
12. Government Model Sec School	Borehole	School and community	More than 1000 students and community members benefit from	8	Community members contribute monthly to a fund which is used for maintaining the water facility.	The water facility is fully functional and well maintained. The involvement of the school administration in the project has assisted with maintenance.	Government Model School presents a possible model of how schools can work with community members to manage public assets like water delivery systems. School administrators have access to information and means of

Name of Community	Facility	Beneficiaries	People served (Nos.)	Number of stand posts	WASH Committee formed	Status / Reasons for non-operation	Recommended Remedial Measures
			the water facility.				communication and can therefore contact technical services providers to assist with maintaining the facilities that have been developed.
13. Njaima Ninikoro	Gravity water supply system	Jayamani Village	Up to 300 households serviced by the facility	10 stand posts	WSL committee set up and functional	The civil works have been completed and water is being delivered to the village.	There is need for constant monitoring of the water intake point to ensure that it is not disturbed.
Pujehun District							
14.Kuranko Community, Kpaka Chiefdom	Borehole	Community	100 households	7	WASH Committee established and collecting money.	Nonfunctional due to breakdown of the solar panel/ pump since August 2019	The Kuranko community need institutional strengthening support to improve their management of the infrastructure.
15.Nyandehun Galliness	Borehole	Community	479	6			Did not visit because bridge was damaged
16.Koroma Laa New Market	Borehole	Community	1000	10			Did Not visit
17.Taninahun Malen	Borehole	Community	2000	10	No VSL committee set up yet.	Nonfunctional due to breakdown of the solar panel/ pump	These facilities need to be monitored more closely to avoid their sitting without providing the services they are meant to.
18.Nyandehun Malen	Borehole	Community	100	10	VSL committee collecting L 1000 per month.	Fully functional	Institutional strengthening required to maintain the level of delivery that is currently in place.
19.Jendema	Borehole	Community	10,000 people	10	Not clear as to whether there is a community management	The borehole, the water tower with tanks and sola pumping system have been constructed	This project site demonstrates the impact of the classical problem of lack of involvement and engagement of all

Name of Community	Facility	Beneficiaries	People served (Nos.)	Number of stand posts	WASH Committee formed	Status / Reasons for non-operation	Recommended Remedial Measures
					committee as the Chief and the local Councilor gave different	but there is no water flowing to the stand points due to a possible blockage in the pipe network.	stakeholders in project planning and implementation. Further support for institutional development is required.
20.Fullawahun	Borehole	Community	450	6	Not Yet	NEW- Under construction	Not Visited
21.Sarhun Kpaka	Borehole	Community	1200	8	Community VSL committee established and functional	The water supply system is working although the community complained about the accumulation of algae in the tank. The community also expressed the desire to extend the reticulation to reach the health center.	Highly active community who are fully engaged in the project, but they will need continued institutional strengthening support.
22.Massam Kpaka	Rainwater Harvesting	School	550	6	No	Work was still on-going on the reservoir and the water tower.	District Engineer (MWR) to continue monitoring this site to ensure that works are completed to a satisfactory standard.
23.Kortumahun	**Spring Box**	**Community**	**390**	**6**	**Not Yet**	**Contractor had deserted the project prior to our visit. He is requesting for extra money to cover.**	**Construction of remaining works and laying of pipes was on-going at the time of the visit. The District Engineer 9MWR) has committed to closely monitor this site to ensure all works are completed to the required standard. The UNDP Project Management Team will visit this site again before the end of the project.**
Freetown							

Name of Community	Facility	Beneficiaries	People served (Nos.)	Number of stand posts	WASH Committee formed	Status / Reasons for non-operation	Recommended Remedial Measures
24.Baoma	Borehole	Community	3,000 and above	10	Yes	Fully Functional. This is one of the highest yielding boreholes in Freetown.	This facility is fully functional. MWR to continue monitoring
25.Mayenkineh	Borehole	Community	3,000 and above	10	Yes	Fully Functional	Routine maintenance by MWR required.
26.PCMH	Rainwater Harvesting	Children's Hospital	Moving Population	5	No	Water harvesting infrastructure completed. The hospital can now connect the reservoir to their storage tanks.	MWR to monitor the implementation of the remaining works to achieve this.
27.Bishop Johnson Memorial School	Rainwater Harvesting	School	More than 1,500 Primary and Secondary school pupils.	8	No	The water harvesting and delivery system is now fully installed, and water connected to the ablution blocks.	**The water has been analyzed for portability and found unsuitable.** MWR will conduct further tests to establish what needs to be done to improve water quality. This is an urgent issue as there are a lot of young children who might be tempted to consume this water.
28.Water Directorate	Rainwater Harvesting	Staff of MWR		Supply to Office Building	No	All works completed and water reticulation to staff ablution facilities fully functional.	Constant monitoring by MWR required.
29.Bio-Energy Training Centre	Rainwater Harvesting	Institution	Moving Population	Supply to Office Building	NA	Construction works completed but beneficiaries complain that the reservoir has a leak and water is being lost.	The reservoir will require repair works next dry season.
30.Funimah, Goderich	Borehole	Community and school	More than 3000 people	10	Community Management Committee has been set up but will require training.	All the project facilities have been constructed and tested. Water is now available to communities in the area.	Monitoring of the facilities will be required post project completion.

Name of Community	Facility	Beneficiaries	People served (Nos.)	Number of stand posts	WASH Committee formed	Status / Reasons for non-operation	Recommended Remedial Measures
31.Calaba Town	Borehole	Community	3,000 and above	10	Community engagement is weak with members who have rights to land on which project facilities have been or will be constructed requiring assurances that their rights to land will not be in jeopardy in future.	The borehole has been drilled and water tower constructed.	Community needs to engage to allow for completion of this project as without this the project will not be sustainable.
32.U.M.C Primary School	Borehole	School/Community	1,000	10	No community management structure set up.	Community engagement has been poor. Materials delivered to site have been stolen requiring replacement by the contractor.	The community leaders have enlisted the support of the local Member of Parliament in addressing the problem of theft of critical project components.
33.B&S Junction, Hill Top-Hill Station	Borehole	Community	3,000 and above	10	No community management committee in place.	The infrastructure facilities have had to be reconstructed due to poor workmanship.	This site will need monitoring post-project closure to make sure all works are completed.
34. Immat	Spring Box	Community members	More than 2000	6	Community structures set up are weak and will need support	Spring Box and water tower and distribution services are in place but require maintenance.	Further support for infrastructure maintenance and building of community structures.
35. Mayinkinei-Calaba Town	Spring Box	Community members	More than 2000 community beneficiaries	6	WASH committee has been set up and they are will start collecting fees from members.	The infrastructure to protect the spring box, water tower and tanks as well as the solar pumping system and water distribution system has been completed.	The community members at Mayinkieni started drawing water from the standpipes during the month of November. This facility could be used as a flagship for the launch of the project in Freetown due to the direct impact it has had on water supply services to this poor community in the eastern area of the city.

Name of Community	Facility	Beneficiaries	People served (Nos.)	Number of stand posts	WASH Committee formed	Status / Reasons for non-operation	Recommended Remedial Measures
36. Freetown Teachers College	Rainwater Harvesting	College community	Supplies water to ablution block and the Domestic Science Department	3	n/a	Construction of facilities completed in November after follow-up visits by Project management Team.	MWR need to monitor the performance of this facility to ensure that it works as expected.
37. Tree Planting	Borehole	Community	More than 2000 community members	6	Project just completed, so no community management committee is set up yet.	Construction completed and community's now drawing water.	Fully functional project. MWR monitoring required post Water Project completion.

[i]

Ratings for Effectiveness, Efficiency, Overall Project Outcome Rating, M&E, IA & EA Execution:	Sustainability ratings:	Relevance ratings:
6. Highly Satisfactory (HS): no shortcomings 5. Satisfactory (S): minor shortcomings 4. Moderately Satisfactory (MS): moderate shortcomings 3. Moderately Unsatisfactory (MU): significant shortcomings 2. Unsatisfactory (U): major shortcomings 1. Highly Unsatisfactory (HU): severe shortcomings	4. Likely (L): negligible risks to sustainability 3. Moderately Likely (ML): moderate risks 2. Moderately Unlikely (MU): significant risks 1. Unlikely (U): severe risks	2. Relevant (R) 1. Not relevant (NR)
Additional ratings where relevant: Not Applicable (N/A) Unable to Assess (U/A)		

[ii] HS: Highly Satisfactory, S: Satisfactory, MS: Moderately Satisfactory, MU: Marginally Unsatisfactory, U: Unsatisfactory, HU: Highly Unsatisfactory, L: Likely, ML: Moderately Likely, MU: Moderately Unlikely, U: Unlikely

[iii] The following Senior Government representatives attended the conference: Honourable Members of the Parliamentary Committee on Water Resources, Mr. T.R. Gbetuwa (Permanent Secretary, Ministry of Water Resources), Dr. Emmanuel Mannah, (Director General Sierra Leone Electricity and Water Regulatory Commission), Mr. Junisa Patrick Bangali (Director General, National Water

Resources Management Agency, who represented the Minister), and Mr. Augustine Tucker, Director of Water Resources. UNDP Sierra Leone was represented by Ms. Tanzila-Watta-Sankho (Team Leader–SLED).

[iv] Project-Level Monitoring: Guidance for Conducting Mid-term Reviews of UNDP-supported, GEF-financed projects (UNDP, 2014), Also taking into account elements of the Guidance for Conducting Terminal Evaluations of UNDP-supported, GEF-financed projects (UNDP, 2012).

[v] A comprehensive solution to the identified key barriers in ProDoc would include the following:

Improved knowledge and information

1. Enhanced capacity and understanding of climate risk management in the technical staff pool as well as within the decision-makers base will improve planning for resilience and climate risk management.

2. Effective climate risk assessment and contingency planning for Guma Reservoir based on an improved monitoring system. This will secure pre-planning for water access will also help toward building an Early Warning System.

Capacity support and human resources development

3. Enhanced capacity of key staff, coupled with an integrated and sustainable climate information and communication system will greatly enhance the information necessary for planning, including information necessary for climate smart investments and development.

4. With capacity building programmes at institutional and local level, a sample of working force will have a much better understanding of the risks and impacts of climate change, as well as the potential of supporting existing coping mechanisms and pioneering adaptation solutions.

5. Targeted capacity building approaches through both components of this project will focus on climate risk analysis and management, especially within the pool of engineers, community water supply practitioners, government officials, and the like.

Gender

6. Gender focuses and considerations in capacity building approaches with regard contextual gender differentiation of roles and responsibilities at community level will go a long way in efficient project implementation.

7. Gender inclusions as part of modules in capacity building approaches will support the integration of gender equality in the sustainability aspects of the project.

Gender sensitive and tailored technology innovations will be implemented to reduce vulnerability of women.

Support to policy processes and climate resilient decision-making

8. Capacity building initiatives of both technical staff and decision-makers will enhance understanding of climate resilience and risk management for effective integration of climate risk into planning and policy development.

9. The envisaged bottom-up approach in which dialogues are formed between all decision-makers will also create a platform in which planning can be conducted based on vulnerabilities within the water sector to climate change.

10. Effective monitoring, as well as a central climate communication and information system, will also aid planning and policy development in an integrated and climate smart manner.

Demonstrations and innovations

11. Putting in place climate smart infrastructure which is resilient as a pro-active approach will enhance overall access to water within a climate insecure future.

12. With support to various existing developments for climate smart infrastructure, specific to site, such as innovative and futuristic rainwater harvesting mechanisms to gain access to water in the dry season, could greatly enhance the water infrastructure in Sierra Leone.

13. Private Public Partnership building will support cooperative responsibilities in climate smart water supply infrastructure investments, create a platform for innovative entrepreneurships for effective water supply and harvesting mechanisms.

Lessons learning mechanism and upscaling

14. A sharing of information on existing coping mechanisms, adaptation alternative, what works, and what doesn't will help shape up country knowledge, at community level, the opportunities that exist within the adaptation arena to create and maintain resilient water supply infrastructure.

[vi] Adaptation alternative:

An important prerequisite for informed decision-making on adaptation is that it should be based upon the best available information on the implications of both the current and the future climate in the country. Improved information and tools on climate change risks and vulnerabilities is generated in Sierra Leone to enable evidence-based and informed policy decisions. This is will mainly support three strategic areas, (1) increased human resource capacities to lead the implementation of water policy, taking account of both vulnerability to climate changes (determined by engineering and environment) and adaptive capacity (ability to be adjusted or managed so as to cope in response to different climate conditions); (2) improved management of Guma reservoir to mitigate the overall risk that climate change may pose on the sustainability of water supply to the capital; and increased understading of climate risks by key water supply stakholders (parlementarians, traditional authorities, local communitites, Donors and Private sector, etc.) to cognise the climate related issues impacting on the water sypply and identify adaptation coping mechanisms based on lessons learned and best practicies demonstrated by the the project.

The EU Project on environmental governance is used as a vehicle to mainstream climate change considerations into the WASH policy as a prerequisite for enabling more climate smart investment. As part of advancing this key result, **LDCF resources are dedicated in part to finance the provision of relevant climate information and train government agencies to scale-up efforts to address climate change in water policies. The Meteorological Department plays an important role as data providers, and LDCF resources put in place the software (skills, competencies, mandates, process mechanisms) and hardware (tools) that are necessary to support policy formulation that is informed by relevant climate change information**.

[vii] See Annex D for rating scales. See UNDP-GEF TE Guidance section 3.5, page 37 for ratings explanations.

[viii] The Board contains three distinct roles, including: (1) **An Executive**: the individual representing the project ownership to chair the group, which will be the MWR. (2) The **Senior Supplier**: individual or group representing the interests of the parties concerned which provide funding for specific cost sharing projects and/or technical expertise to the project. The Senior Supplier's primary function within the Board is to provide guidance regarding the technical feasibility of the project. In the case of this project this will be UNDP. (3) The **Senior Beneficiary**: individual or group of individuals representing the interests of those who will ultimately benefit from the project. The Senior Beneficiary's primary function within the Board is to ensure the realization of project results from the perspective of project beneficiaries. This is the Ministry of Finance and Economic Development, on behalf of the Government of Sierra Leone.

[ix] **Transitional Joint Vision for Sierra Leone of the United Nations Family (2013-14): Cluster 3 indicators:**

(1) Percentage change in mortality and casualties and economic impacts of natural and man-made disasters compared to 2011

Percentage change in Sierra Leone's environmental performance index as compared to 2010 (as measured by UNDP's Human Development Reports)

[x] The following Senior Government representatives attended the conference: Honourable Members of the Parliamentary Committee on Water Resources, Mr. T.R. Gbetuwa (Permanent Secretary, Ministry of Water Resources), Dr. Emmanuel Mannah, (Director General Sierra Leone Electricity and Water Regulatory Commission), Mr. Junisa Patrick Bangali (Director General, National Water Resources Management Agency, who represented the Minister), and Mr. Augustine Tucker, Director of Water Resources. UNDP Sierra Leone was represented by Ms. Tanzila-Watta-Sankho (Team Leader–SLED).

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