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Interim Evaluation of the UNDP-supported GCF-financed project:

Accelerating the transformational shift to a low-carbon economy in the Republic of Mauritius (UNDP PIMS: 5681/ GCF: FP0033)

Final Report (October 2021)

Dilli Joshi – International Consultant
Toolseeram Ramjeawon – National Consultant

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The Evaluators wish to thank all stakeholders for sharing their views and opinions on the progress, achievements and challenges of the project and their recommendations for Phase II of the project. They provided valuable insights, shared their perspectives, and showed ownership to the project they have shaped over the past four years. In particular, the Evaluators wish to thank the UNDP Country Office and the Project Team. It is our hope that this report will be useful, not only in evaluating the events of the past but in helping to shape the future of renewable energy in Mauritius and other SIDS.

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LIST OF ACRONYMS AND ABBREVIATIONS

ADMS	Advanced Distribution and Management System
AGC	Automatic Generation Control
AFD	Agence Francaise de Développement
AMA	Accreditation Master Agreement (GCF)
AMI	Advanced Metering and Infrastructure
BESS	Battery Energy Storage Systems
CC	Climate Change
CEB	Central Electricity Board
CPB	Central Procurement Board
FAA	Funded Activity Agreement (GCF)
FiT	Feed-in Tariff
GCF	Green Climate Fund
GHG	Greenhouse Gas
GEF	Global Environment Facility
GoM	Government of Mauritius
GWh	Gigawatt hour
IPP	Independent Power Producers
IRENA	International Renewable Energy Agency
KM	Knowledge Management
kW	Kilowatt
kWp	Kilowatt peak
M&E	Monitoring and Evaluation
MARENA	Mauritius Renewable Energy Agency
MEPU	Ministry of Energy and Public Utilities
MoESDDBM	Ministry of Environment, Sustainable Development, Disaster and Beach Management
MoFEPD	Ministry of Finance, Economic Planning and Development
MOU	Memorandum of Understanding
MUR	Mauritian Rupee
MW	Megawatt
MWh	Megawatt hour
NDA	National Designated Authority
NDC	Nationally Determined Contribution
NGO	Non-Governmental Organization
NIM	National Implementation Modality
O&M	Operation and Maintenance
OIDC	Outer Island Development Corporation
PIR	Project Implementation Review
PV	Photovoltaic
RE	Renewable Energy
SDG	Sustainable Development Goal
SESP	Social and Environmental Screening Procedure (UNDP)
SIDS	Small Island Developing State
SIPP	Small Independent Power Producer
SSDG	Small-Scale Distributed Generation
tCO_2e	Tonnes of carbon dioxide equivalent
TOR	Terms of Reference

UNFCCC	United Nations Framework Convention on Climate Change
UNDP	United Nations Development Programme
UNDP CO	UNDP Country Office
UNDP-GEF	UNDP Global Environmental Finance
UNDP POPP	UNDP Programme and Operations Policies and Procedures
URA	Utility Regulatory Authority
USD	United States Dollar

TABLE A: PROJECT INFORMATION TABLE

Project Title	Accelerating the transformational shift to a low-carbon economy in the Republic of Mauritius		
GCF Project ID (FP#):	FP0033	Funding proposal approved	14 December 2016
UNDP Project ID (PIMS#):	5681	Signing of FAA FAA effectiveness	8 June 2017 11 July 2017
ATLAS Business Unit, Award # Proj. ID:	Award ID: 00105006 Output ID: 00106328	Project Document (ProDoc) Signature Date:	1 August 2017
Country:	Mauritius	Date Project Coordinator and Project Managers hired	Project Coordinator: 9 April 2018 C1 Project Manager: 25 March 2019 C2 Project Manager: 2 April 2018 Finance Assistant: 7 January 2019
Region:	Africa	Inception workshop date:	9 and 10 November 2017
Focal Area:	Climate Change - Mitigation	Interim Evaluation Completion Date:	20 October 2021
GCF Results Area:	Climate Change - Mitigation	Planned Closing Date:	10 July 2024
Fund	Green Climate Fund	If revised, proposed op. closing date	-
Accredited entity (AE)/Implementing Partner/executing entity (EE)	AE: United Nations Development Programme EE Ministry of Finance, Economic Planning and Development		
Other Execution Partners	Responsible parties: Ministry of Energy and Public Utilities, Central Electricity Board, Outer Islands Development Corporation		
Project Financing	At approval of funding proposal (US$)		At Interim Evaluation (US$)
1] GCF financing:	USD 28,210,000		USD 12,074,158
[2] UNDP contribution:	USD 1,380,000		USD 1,514,900
[3] Government:	USD 123,900,000		USD 4,098,872
4] Other partners: AFD	USD 37,900,000		Utility Regulatory Authority: USD 19,458 (*cost sharing; Mar 2020*) CEB: USD 58,872 (*cost sharing; Aug 2021*) AFD: USD 142,204
[5] Total co-financing [2 + 3+ 4]:	USD 163,180,000		USD 5,834,306
PROJECT TOTAL COSTS [1 + 5]	USD 191,390,000		USD 17,908,464

1. EXECUTIVE SUMMARY

With financial support of the Green Climate Fund (GCF), United Nations Development Programme (UNDP) is helping the Government of Republic of Mauritius in achieving its renewable energy targets through the project "Accelerating the Transformational Shift to a Low Carbon Economy in the Republic of Mauritius". The UNDP Country Office in Mauritius and Seychelles conducted an interim evaluation (IE) towards the end of the first phase of the project as a requirement set in Schedule 4 of the Funded Activity Agreement (FAA) for the project. The Interim Evaluation (IE) assessed the implementation of the project and its alignment with FAA obligations and progress towards the achievement of the project objectives and outcomes as specified in the Project Document. Due to COVID – 19 pandemic travel restrictions, the international consultant could not travel to Mauritius and most of the interviews were conducted virtually. All stakeholders were available for the interviews and showed their willingness to be interviewed remotely. However, the national consultant was able to visit the project sites and interact with the stakeholders.

Project Description

The project is aimed at enabling the Government of Mauritius to meet its target of using renewables to supply 35 percent of the country's electricity needs by 2025, under its Renewable Energy Roadmap 2030 for the Electricity Sector. It consists of 3 inter-related components:

- Component 1: Institutional strengthening for renewable energy
- Component 2: Improving Grid Absorption Capacity followed by PV deployment
- Component 3: PV mini grids on the Outer Island of Agalega

The project is implemented in a two-phase approach to reduce the implementation risks and ensure that the second funding disbursement is contingent upon successful completion of the first phase. Under Phase 1, which is the focus of this IE, the following components were to be executed:

- Component 1: Institutional strengthening for renewable energy
- Component 2 Phase 1: Improving Grid Absorption

Project Progress Summary

Overall, despite the challenge caused by the pandemic, significant progress has been made in the implementation of the project core activities in Phase I, bringing the project closer towards the achievement of intended outcomes on Fund level impacts of *Reduced emissions through increased low-emission energy access and power generation*. The total project delivery is 95%. Given that the direct emissions reductions attributable to the project will result from the direct installation of PV using GCF support only in phase II (as per the approved funding proposal), the current value is still nil. The intermittent RE generated increased from 53.8 GWh in 2017 to 163.8 GWh in 2020. The indirect emissions avoided in Phase I, with increasing installations of intermittent RE power on the grid (115.5 MW as of August 2021 compared to 34 MW at the start of the project) through increased grid absorption capacity for intermittent RE, is estimated at 181 500 tonnes of CO_2.

The contribution of the GCF project under Output 1.1 has materialised in a substantive manner with all the deliverables completed and an enabling environment created through an enhanced policy and regulatory framework and the strengthening of the Utility Regulatory Authority (URA) and the Mauritius

Renewable Energy Agency (MARENA)). URA and MARENA are both functional agencies with a core staff [1]and have been provided with the necessary tools and knowledge through the project. The key regulatory instruments (mainly the Electricity Act) are expected to be promulgated before the end of the year. The grid codes and tariff methodology are milestone deliveries of this project which will allow the Electricity Act to be proclaimed soon and the subsequent regulation of the electricity market. At a second level, regulations regarding Renewable Energy Technologies (RET) and Accreditation of Operators have been developed by MARENA. The project has helped URA to grow as a regulator. Without a good regulator for the electricity market and the elaboration of grid codes and the setting of tariffs for Renewable Energy (RE), it will be impossible to reach ambitious RE targets. The Government, in the 2021-2022 budget speech, announced an increase in the share of RE in the electricity mix from 40% to an ambitious target of 60% by 2030 and as such will need a strong advisory arm. MARENA is the nodal agency mandated to promote the adoption and use of renewable energy with a view to achieve sustainable development goals as per MARENA ACT 2015. The awareness sessions led by MARENA in its capacity and mandate to promote RE in the Republic of Mauritius as well as the training of women entrepreneurs in basic solar PV and entrepreneurship skills are activities which have contributed greatly to not only disseminating and enhancing knowledge and awareness of RE in the local population but also empowering women to utilize RE technologies to earn a living. All these activities will help in the deployment of rooftop Solar PV Panels in Phase II. The activities under Output 1.1 are on target to be achieved before the end of the year.

The activities under Output 2.1 are also on target to be achieved soon. The Automatic Generation Control (AGC) system is more than 85% completed. 14 MW of Battery Energy Storage System (BESS) out of the planned total of 18 MW (or 80%) have been installed at 5 Central Electricity Board (CEB) substations and are operational. CEB staffs have undergone a theoretical and hands-on-training during the installation and commissioning of the BESS as well as training aimed at enhancing their programming capabilities in view of better manipulating the new technologies being implemented. A 4 MW BESS was damaged during shipment to Mauritius and will be replaced and commissioned by November 2021. With the AGC software licenses to be purchased by October 2021, all the activities for Output 2.1 are foreseen to be completed by the end of the year. In 2018, as per CEB data, 34 MW of intermittent renewable energy systems was integrated to the grid. The 14 MW of BESS curently installed is now contributing to a larger share of intermittent RE on the grid (115.5 MW as of August 2021 based on CEB data).

AFD has confirmed in writing to UNDP the commitment of the loan facilities amounting to USD 19,200, 000 for the financing of Phase II and an action plan, evidencing continual operation of MARENA during the Funded Activity Implementation, is attached to this report. These are key conditions in the FAA precedent to the disbursement for Phase II.

[1] As at end of August 2021, MARENA has 10 staff (5 female staff including the CEO) and URA has 14 staff (9 female staff including the CEO). Recruitment of 3 additional staff at MARENA is expected to be completed in 2021.

Interim Evaluation Ratings & Achievement Summary Table

Table 1: Interim Evaluation Ratings & Achievement Summary Table

Measure	Interim Evaluation Rating	Achievement Description
Project Strategy	N/A	The funding proposal/project document (Pro-Doc) is well-written, and the project design analysed well the context, problem, needs and priorities. The project was developed following a broad consultation process with the executing entity and other national stakeholders and is backed by sound technical and financial analysis as well as strong political will. The Funding Proposal and ProDoc incorporate lessons of a series of other relevant past UNDP projects. The Theory of Change (ToC) of the project is logical and coherent in its description of its intervention strategy. The chosen project strategy, with three closely interlinked components each targeting specifically at a set of barriers, provides an effective route towards the intended result of a low carbon emission economy. It is also well aligned with national development policies, as reflected in the Funding Proposal and the ProDoc, and reiterated in the 2020-2024 Government Programme and recent budget speeches. A gender analysis was undertaken to enable gender mainstreaming throughout the project implementation as well as a thorough risk analysis with appropriate risk mitigation strategies worked out. In the project design the overall grant to co-financing ratio for the project duration is approximately 1:6 and the project proposes a good mix of GCF grants, AFD loans and Government's own resources to bring about the transformational change to energy systems being sought by the GCF. The Project Results Framework (PRF) however lacks SMART indicators. There is also no coherent Knowledge Management strategy.
Progress Towards Results	Objective (Reduced emissions through increased low-emission energy access and power generation): Satisfactory (S) at the end of Phase I	An enabling environment has been created through an enhanced policy and regulatory framework and the strengthening of URA and MARENA. Given that the **direct** emissions reductions attributable to the project will result from the direct installation of PV using GCF support in phase II (scheduled to start in 2022), the current value is still nil. The intermittent RE generated increased from 53.8 GWh in 2017 to 163.8 GWh in 2020. The **indirect** emissions avoided in Phase I, with increasing installations of intermittent RE power on the grid (115.5 MW as of August 2021 compared to 34 MW at the start of the project) through increased grid absorption capacity for intermittent RE, is estimated at 181,500 tonnes of CO_2. Considering the progress made during the phase 1 and ongoing activities, the progress is assessed as satisfactory.
	Outcome 1 (Strengthened institutional and regulatory system): Satisfactory (S)	An enabling environment has been created through an enhanced policy and regulatory framework and the strengthening of URA and MARENA, namely through the setting up of dedicated Enterprise Resource Platforms (ERPs) for each entity, recruitment of appropriate technical staff and drafting of a number of policy documents and regulations[2] Recent developments testify of the progress towards the proclamation of the Electricity Act soon and the project has been catalytic for this to happen. At a second level, regulations regarding RET and operators have been developed by MARENA.[3] Without a good regulator it will be impossible to reach ambitious RE targets and the

2 *Refer* to folder '*Footnote 02 – Deliverables under C1' in annexed* file or on link https://www.dropbox.com/sh/w3dv2mogdxliucn/AAArUsnrl_AvBvLvhva6__C_a?dl=0

3 *Refer* to folder '*Footnote 03 – Regulations and Standards for MARENA' or through link:* https://www.dropbox.com/sh/w3dv2mogdxliucn/AAArUsnrl_AvBvLvhva6__C_a?dl=0

		project has helped URA to grow as a regulator[4]. The grid codes and tariff methodology are milestones deliverables which will allow the Electricity Act to be proclaimed soon and the subsequent regulation of the electricity market[5]. The online licensing system will ensure the financial sustainability of URA[6]. Staffing of MARENA has been challenging. It currently has 10 staff. There was a delay in the recruitment of 5 more staff due to the economic impact of Covid-19. UNDP project team and MARENA CEO informed the evaluation that 3 additional staff (1 technical and 2 administrative) will be recruited within the next three months with profiles based on the capacity needs assessment[7]. With the new ambitious target of 60% RE in the electricity mix by 2030 as well as climate targets, Government needs a strong advisory arm and MARENA is the nodal agency for RE. It is currently spearheading the revision of the RE roadmap. There is the commitment from the parent Ministry (i.e MEPU) for continued *funding (ref. appended MARENA Operational Plan and budget in Appendix* and MARENA is bound to progress further. The technical reports will be useful in policy planning and project evaluation. Thanks to the support of the project, it also now has the necessary tools and staff have been provided training on RE and techniques for assessing RE projects. The UNDP-GCF project has also provided the institution with an Enterprise Resource Planning (ERP) for the running of the organization. MARENA is a young institution, gradually becoming more and more visible and with its branding strategy, various innovative and novel schemes, awareness sessions and the ambitious government target for RE, MARENA is now in the limelight. The awareness sessions have led to the training for women entrepreneurs, and this is being followed by a scholarship scheme launched by MARENA aimed at technical training. All these activities will help in the deployment of solar panels in Phase II. URA and MARENA are both functional agencies with a core staff and the key regulatory instruments shall be in place by the end of 2021. Considering that the activities of this output are still in progress (Electricity Act yet to be proclaimed and MARENA is still recruiting) the overall progress towards achievement for Outcome 1 is assessed as on track and has been rated as Satisfactory.
	Outcome 2 (Increased number of small, medium, and large low-emission power suppliers) Satisfactory (S)	In 2020, the proportion of RE generated in the electricity mix was 23.9%. In 2018, as per CEB-communicated data, 34 MW of renewable energy systems was integrated to the grid. The 14 MW of BESS currently installed[8] is now contributing to a larger share of intermittent RE on the grid (115.5 MW at IE, as per CEB-communicated data). CEB initiated request for proposals (RFPs) for utility scale solar (30 MW) and wind (40 MW) RE in August 2021[9] and is also supporting the deployment of solar panels (25 MW in Phase II). The 18 MW of BESS and the AGC will thus be contributing to this larger share of RE on the

[4] https://uramauritius.mu/

[5] *Refer* to folder '*Footnote 05 – Grid Code' or through link:* https://www.dropbox.com/sh/w3dv2mogdxliucn/AAArUsnrl_AvBvLvhva6__C_a?dl=0

[6] **(Link:** URA- Utility Regulatory Authority (uramauritius.mu)

[7] *Refer* to folder '*Footnote 07 –MARENA staff Analysis' or through link:* https://www.dropbox.com/sh/w3dv2mogdxliucn/AAArUsnrl_AvBvLvhva6__C_a?dl=0

[8] *Pictures available at https://tinyurl.com/39v6wzm4 Refer to folder 'Footnote 08 –BESS Pictures' or through link: https://www.dropbox.com/sh/w3dv2mogdxliucn/AAArUsnrl_AvBvLvhva6__C_a?dl=0*

[9] (https://ceb.mu/procurement/tender)

		grid. Accordingly, the progress towards results for Outcome 2 is rated as Satisfactory.
	Output 1.1 (Institutional strengthening of MARENA and URA): Satisfactory (S)	• Through the consultancies, 31 technical reports and publications have been produced (please refer to Annex 6) related to legislations, standards, strategic planning, grid codes, tariff methodology, feasibility studies, capacity needs assessment, toolkits, branding strategy, etc. • The National Grid Code and the Tariff Methodology for the Electricity Sector in Mauritius has been approved by URA, the regulatory body. This is a key component for URA to be able to regulate the electricity market. Following a policy change in the electricity market model, there were further amendments in Parliament to the Electricity and CEB Acts in December 2020 which has necessitated changes to the Grid Code and tariff methodology. It is now expected that the Electricity Act will be proclaimed in November 2021. • The MARENA (Standards for Renewable Energy Technologies) Regulations 2021 integrated under the MARENA Act have been submitted for legal vetting by the Attorney General's Office. • The Renewable Energy (Accreditation Mechanisms for Operators) Regulations 2021 integrated under the MARENA Act have been prepared and will soon be submitted by MARENA to the MEPU. • A Management Information Systems (MIS) has been implemented at both MARENA and the URA • An online Project Evaluation toolkit (PET) and a Levelized Cost of Electricity (LCOE) toolkit[10] have been produced for the evaluation of RE projects. • Technical reports have been prepared for policy planning and project evaluation and implementation. • Capacity Needs Assessment and HR roadmap for both MARENA and URA. The report for MARENA would allow the successful implementation of the Renewable Energy Strategic Plan (RESP) of MARENA (2018-2023) as required by the MARENA Act 2005. The HR roadmap has been used for consolidating the submission of MARENA to the Pay Research Bureau (PRB) aimed at adequately staffing MARENA and improving the conditions of service of the personnel that would enhance recruitment at MARENA and decrease staff turnover. • A Budget/Costing Plan for implementation of the RESP of MARENA (2018-2023) has been prepared and aims to support the effective operations of the agency. • A Monitoring, Evaluation and Reporting Framework for the implementation of the RESP of MARENA (2018-2023) has also been set up and supports the agency to monitor, evaluate and report on, as per best practice, the evolution of RE targets and landscape. • As at end of August 2021, 10 staff at MARENA (5 female staff including the CEO) and 14 staff at URA (9 female staff including the CEO) were in place. Recruitment of 3 additional staff at MARENA was ongoing at IE. • A Communication and Branding Strategy for MARENA has been prepared and aims to provide guideline strategies in order to help the agency communicate its goals, strategies and success more effectively as well as for stakeholder management purposes.

[10] *Refer* to folder '*Footnote 10 –LCOE' or through link:* https://www.dropbox.com/sh/w3dv2mogdxliucn/AAArUsnrl_AvBvLvhva6__C_a?dl=0

		• MARENA staff have successfully completed several online courses related to RE. • Awareness raising materials including a booklet on Solar Photovoltaic (in English and Mauritian Creole) have been developed and two portable solar photovoltaic demonstration kits were procured. • As of December 2020, a total of 1503 women at grassroots level have been sensitised on renewable energy through awareness sessions and can now, thanks to MARENA and the support of GCF project, better access RE and Solar PV schemes for low- and middle-income households.[11] • As of December 2020, 89 women have benefitted from a non-award training on 'Women Entrepreneurship and Basics of Solar PVs' delivered by the Mauritius Institute of Training and Development (MITD). They now have enhanced capacity to set up a small business in the sectors of RE and solar PV, again with the support of the agency and the GCF project[12]. An overview of the bullet points above clearly indicates that, overall, despite the challenge caused by the pandemic, the contribution of the GCF project under Output 1.1 has materialised in a substantive manner with all the consultancies completed and the creation of an enabling environment through an enhanced policy and regulatory framework and the strengthening of MARENA. Considering that some of the activities of this output are still in progress (Electricity Act yet to be proclaimed and MARENA is still recruiting) the overall progress towards achievement for Output 1.1 is assessed as on track and has been rated as Satisfactory.
	Output 2.1 (Improving Grid Absorption Capacity to accept 185 MW intermittent RE): Satisfactory (S)	About 80% of the BESS have been installed and are operational and about 85% of the AGC system is completed. A 4 MW BESS was damaged during shipment and will be replaced and commissioned by November 2021. With the AGC software licenses being procured by October 2021 after the opening of the borders and the fine tuning by consultants, all the activities for Output 2.1 will be completed by the end of the year. In 2018, as per CEB data, 34 MW of renewable energy systems was integrated to the grid. The 14 MW of BESS currently installed are operating as per requirements of the utility[13] and contributing to a larger share of intermittent RE on the grid (115.5 MW in August 2021, as per CEB-communicated data[14]. CEB launched RFPs for utility scale solar (30 MW) and wind (40 MW) RE in August 2021[15] and is also supporting the deployment of solar panels (25 MW) in Phase II. The 18 MW of BESS and the AGC will thus be contributing to this larger share of RE on the grid. CEB engineers and technicians have undergone a theoretical and hands-on-training during the installation and commissioning of the BESS have been trained for enhancing their programming capabilities in view of better manipulating the new technologies being implemented (BESS, AGC, ADMS etc.). The activities under Output 2.1 are fully on track and almost completed. The progress towards results for Output 2.1 is rated as Satisfactory.
Progress Implementation	Satisfactory	The evaluation team notes an overall effectiveness of the project in progressing to reach its set targets under Phase I. Of the 5 activity lines for

[11] *Refer* to folder '*Footnote 11 –Awareness' or through link:* https://www.dropbox.com/sh/w3dv2mogdxliucn/AAArUsnrl_AvBvLvhva6__C_a?dl=0

[12] *Refer* to folder '*Footnote 12 –Training' or through link:* https://www.dropbox.com/sh/w3dv2mogdxliucn/AAArUsnrl_AvBvLvhva6__C_a?dl=0

[13] https://ceb.mu/projects/battery-energy-storage-system

[14] *Refer* to folder '*Footnote 12 –Report on Performance of 14 MW BESS' or through link:* https://www.dropbox.com/sh/w3dv2mogdxliucn/AAArUsnrl_AvBvLvhva6__C_a?dl=0

[15] https://ceb.mu/procurement/tender

and Adaptive Management		Phase I, the 3 activities for Component 2 are assessed as fully on track or (almost) completed and the 2 activities for Component 1 are on target to be achieved before the end of the year. The IE believes that project effectiveness levels have been addressed, where possible, through the adaptive management strategies of the UNDP CO and the PMU. During Phase I, the GCF grants has been augmented by significant co-financing by Government (including CEB). Unplanned (i.e additional to the originally planned co-finance at the design stage) co-financing came from a grant from the SADC Secretariat through the Development Bank of Southern Africa (DBSA) to the tune USD 200,000 approx. and the Clinton Foundation Initiative (USD 5,000). The co-financing from AFD in the form of a loan to CEB has not yet materialized during the IE process because of procurement issues during the evaluation of bids for the tender for Gas Insulated Switchgear (GIS) at the level of the Central Procurement Board (CPB) *(ref. section 4.3.3 for further on this)*. The co-financing ratio at the end Phase I is approximately 2: 1. Following a meeting on 7th October 2021, the CPB and AFD have agreed to undertake the independent evaluation of the bids received and AFD plans to complete the evaluation by 21st December 2021 and the award of the contract will be made in mid-January 2022. It is now expected that the full co-financing amount will materialise within 2 years from the signature of the contract as per the ToR for the works. At present, the PMU is adequately staffed. Having specific Project Managers for each component enables them to follow activities closely. The workspace of the Project Managers within MARENA and CEB facilitates an informal and efficient working arrangement, with short lines to key stakeholders and direct and quick communication. Project implementation has responded to changing conditions and risks and taken advantage of opportunities for partnerships and actions that support the overall project objective. The PMU team adapted to the new working conditions created by the pandemic and provided necessary backstopping assistance to MARENA with staff turnover and delays in recruitments. The URA being also a young institution with new and inexperienced staff, extensive guidance was required for the review of key deliverables. Management arrangements are hands-on, and the PMU is assessed as dedicated and technically sound. The PMU team has to be commended for the way they have been able to bring the project on track after a slow start and to adapt to challenging conditions in the present pandemic to make tangible progress. However, there are remaining areas of improvement for ex in knowledge management and communication. Work planning is being done as per the provisions in the project design document. Financial management is assessed as satisfactory with no issues reported. No audit issues were flagged in the independent audit of 2020. The project has put in place an enabling environment for work by other donors and the potential for blending climate funds remains high. The internal reporting and obligatory reporting of the project is satisfactory, but there is ample scope to make use of the learning and knowledge it contains for broader knowledge management. The project documentation, minutes of meetings of project boards and the stakeholder consultations confirm a functional and practical stakeholder engagement. Stakeholder engagement is satisfactory but missing are linkages to CSOs/NGOs and only limited collaboration with academia. The mitigation measures presented in the risk log and the ESMP have been effective in preventing or reducing foreseen negative impact. However, the

		project design did not address the handling and disposal of used BESS and solar PV panels *and therefore appears in the recommendation list at the end of this report.* The project has established effective internal communication mechanisms between the Government agencies. On the other hand, the external communication of the project is currently relatively underdeveloped and there is clear scope to provide better visibility of the project to provide a "face" to the project. As the project is now progressing into a phase of implementation, with a wide range of interventions being established, there is a need for targeted focus on monitoring and evaluation and broader knowledge management, to document emerging good practices, extract lessons and learning and produce and disseminate knowledge products of good quality for all relevant stakeholders. UNDP has played an essential role in the conceptualization, formulation and presently in the implementation support of the project and providing supervision and quality assurance support to the PMU and PBs. The evaluation team noted that the GCF project is regarded as a key project for UNDP, forming an essential part of their work plan and budget, and thus receives ample attention. Stakeholders consulted express appreciation for the support provided by UNDP and the PMU and the close and frequent communication.
Sustainability (Overall)	Moderately Likely (ML)	Social and political interest in renewable energy development is high, as observed during interviews. The institutional framework exists with the operationalization of MARENA and URA and the commitment of CEB. Financial sustainability is moderately likely because MARENA depends directly on MEPU for funding and could conceivably be hindered by a shortage of funding in the future if economic growth remains sluggish because of the pandemic and it is not able to tap more into Green Funds. Environmental sustainability can be of concern if there is no proper disposal of used batteries and PV panels at the end of their lifetime.
Financial Risks	(Moderately Likely) ML	The risks to financial sustainability relate to continued availability of funds for MARENA and URA. These two young institutions are embedded in law and currently receive an annual budget from Government. The outlook for the long-term financial sustainability of MARENA remains closely connected to the interest of national government and commitment of international donors. With the 60% target for RE by 2030 announced by the Government, MARENA is bound to have a long-term future with a growing mandate and continued government funding. However, it should also, as part of its mandate, continue to look for green funds from International Financial Institutions (IFIs). The financial sustainability of URA will be ensured through licensing fees following the proclamation of the Electricity Act (2005) by the end of the year. CEB has committed far more than the original forecast in co-financing. This clearly shows CEB's continued commitment to sustaining the project and its outputs and outcomes. In the budget speech of 2021-22 it was announced that CEB will raise the absorption capacity of intermittent renewable energy through increased battery capacity to some 40 MW[16]. CEB will be able to re-invest the savings associated with avoided generation investment (through facilitating the ramp-up of IPP-generated renewable electricity instead of its own generation capacity to meet growing demand) in replacement batteries, since lithium-ion batteries have (predictable) finite lifetimes.

[16] *ref. measure 98 in 2021/22 Budget Speech available at* ***https://budgetmof.govmu.org/Documents/2021_22budgetspeech_english.pdf***

Socioeconomic	Moderately Likely (ML)	The consultations have confirmed the interest shown by the different stakeholders in pursuing the overall objective of the project. At present there is clear political support for the project and the socio-economic reality provides a conducive environment for the project, recently reconfirmed in the Government Programme 2020-24 and the commitment made by Government in the 2021-2022 budget speech to achieve 60% of RE in the electricity mix and the phasing out of coal by 2030. Compared to the 2015 INDC target of 30% GHG emissions reduction by 2030, the mitigation ambition of Mauritius in the updated NDC in 2021 (in the process of being published) has been significantly enhanced with a revised target of 40% GHG emissions reduction by 2030. These commitments have raised expectations and are supportive for longer-term socio-economic sustainability. Due to growth of Solar PV (largely roof top based small sized) installation in Mauritius since last four-five years, the demand for skilled manpower to install and maintain such systems has increased. In the short run, this can directly affect project implementation (e.g., delays in recruiting project staff or increase of project budgets for installations). Overall, future political leadership is needed from Government to operationalize trainings and capacity building support to have sufficient trained workforce to meet the projected growing demands for skilled technicians in the RE sector. It is noteworthy that MARENA has launched a MARENA Scholarship Scheme for Training of Renewable Energy Professionals to build the local capacity so that the RE target can be reached without a shortage of human capacity.[17]
Institutional Framework and Governance Risks	Moderately Likely (ML)	The long-term sustainability of MARENA and URA are assured through their mandate, as embodied in national law. Institutional knowledge and technical capability of the staff within the PMU, the UNDP CO, MOFED, MEPU, MARENA and CEB is assessed as sound. With the proclamation soon of the Electricity Act, URA as the regulator will play a prominent role in RE development. With the ambitious RE targets, MARENA will have a strong advisory role for Government. However, the technical capability of MARENA will need continued strengthening as per the developed HR roadmap [18]to help government meet its ambitious targets for RE. Furthermore, following the publication of the 2021 Pay Research Bureau (PRB) report[19] of public sector salary review, Government has agreed ot the creation of the following new positions at MARENA: Renewable Energy Development Officer, Administrative Assistant, Clerk/ Word Processing Operator, and Driver/ Office Attendant. However, should the need for other grades be felt at a later stage of development of the Agency, request for same may be considered, on an adhoc basis, provided that established procedures are followed. A more general constraint is the absence of specialized staff on the island and MARENA will continue to need the input of international consultants for specific projects. In the context of institutional sustainability MARENA, CEB, URA and MEPU are the key stakeholders enabling broader up-scaling of RE. Their commitment and support after Phase I is essential. Considering that the Government is committed to promotion of renewable sources of energy, it is expected that in case there are any policy or implementation issues these will be taken care at the highest level in the government and will get resolved. It is important that

[17] *https://www.mu.undp.org/content/mauritius_and_seychelles/en/home/news-centre/news/undp-co-funds-the-mauritius-renewable-energy-agency--marena--sch.html.* *https://www.lemauricien.com/actualites/energies-renouvelables-formation-des-bourses-detudes-pour-faciliter-la-transition-energetique/449223/*

[18] *Refer* to folder '*Footnote 18 –Staff Analysis' or through link:* https://www.dropbox.com/sh/w3dv2mogdxliucn/AAArUsnrl_AvBvLvhva6__C_a?dl=0

[19] **(Link:** psb_mar.pdf (govmu.org)**)**

		the project team after Phase I puts focus on knowledge management and documenting best practices to further build public awareness, including outreach to community representatives, including universities, professional societies, and schools.
Environmental Risk	Moderately Likely (ML)	Based on the interviews with stakeholders no high environmental risks to sustainability of the project have been identified except for the safe disposal of used batteries and PV Panels. This risk was not flagged in the UNDP Environmental and Social Screening of the ProDoc. Also, since the FAA signed in June 2017, no major cyclone event has been experienced in Mauritius and hence no disaster event was used to calibrate the exact needs of the project from an environmental and institutional perspective. The updated ESMP provides a detailed framework to monitor any negative impact during construction and after operation starts and provides through its grievance redress mechanism a channel to voice complaints and address these issues between parties. Monthly logs of events pertaining to the ESMP[20] are submitted by the main contractor for the 14MW BESS project as part of their monthly reporting obligation. Any substantial event or deviation is immediately flagged to the appropriate instance (CEB or even Sub-Board)
Country Ownership	Satisfactory (S)	Based on the feedback of the stakeholders from Government entities, there is considerable country ownership of the GCF project. This ownership has been reflected since the start of the formulation phase by keen interest of the Government in the project and its objectives. There is clear alignment with national development plans and policies, recently reiterated in the Government Programme (2020-2024) and budget speeches. It is noteworthy that the GCF project was mentioned in the Renewable Energy 2030 Roadmap for the Electricity Sector (launched in August 2019) as being a key support for the Government of Mauritius to achieve the target of 35% of renewable energy by 2025. Many recommendations of the consultancy reports have become budgetary measures. There is presently a lot of interest in post-pandemic economic recovery through a green economy and this project is viewed as one which can trigger it. MEPU has played a strong role policy wise and CEB utility wise. CEB has assumed full ownership of the project. The co-financing of CEB for Phase I is 160% of the sum originally committed. Interviews showed that, in project governance and coordination (Project Boards and sub boards) there is clear commitment and engagement by the key stakeholders in the implementation of the project.
Innovativeness in Result Areas	Satisfactory (S)	An area of innovativeness is the grid capacity strengthening where the project has introduced new technologies on the national grid such as the BESS and the AGC system. The arrangements being tried out by the project for community awareness-raising and training of women entrepreneurs through the NWC which has not been done before, provides an example of additional innovation aimed at and promoting local ownership by beneficiaries. GCF support to the expansion of the rooftop PV sector in Mauritius represents an innovative approach using an upfront partial grant mechanism for households and non-commercial adopters rather than a feed-in tariff. Ultimately, the overall project strategy, aimed at enabling a paradigm shift to a low carbon economy is itself an innovative approach. The Covid-19 pandemic has indirectly introduced an innovativeness in changing the way donor funded projects are

[20] *Refer* to folder '*Footnote 20 –ESMP monthly logs' or through link:* https://www.dropbox.com/sh/w3dv2mogdxliucn/AAArUsnrl_AvBvLvhva6__C_a?dl=0

		delivered. Virtual technology capacity has been formally introduced in the implementation of the project.
Unexpected Results	Satisfactory (S)	Although it is relatively early to assess results, with Phase II still to become operational, the evaluation team noted some unexpected results, based on the feedback of stakeholders. They reported "an improved social capital" in terms of creating a culture of working together and building trust among key stakeholders, perhaps due to the frequent and physical presence of project staff in the organization. One unexpected result is the raising of expectations among stakeholders following the announcement of the ambitious RE targets by Government in the 2021-22 budget speech. These revised targets are mainly attributed to the project. Unexpected results from the covid 19 pandemic are being slowly realized. A positive unexpected outcome is in terms of national stakeholders devising creative ways to ensure the project continues as programmed despite the Covid 19 challenges. An unexpected negative result was the delay in the disbursement of the AFD loan after procurement issues linked with the supply of two Gas Insulated Switchgear (GIS) stations for CEB. This delay in co-financing will however not impact the deployment of the 25 MW Solar Panels and the achievement of the targets in Phase II. Following a meeting on 11th October 2021 between the MoFED, CEB, AFD and UNDP, it was confirmed that the CPB and AFD have agreed to undertake the independent evaluation of the bids received (refer to Annex 11). AFD plans to complete the evaluation by 21 December 2021 and the award of the contract will be made in mid-January 2022. It is now expected that the full co-financing amount will materialise within 2 years from the signature of the contract as per the ToR for the works.
Replication and Scalability	Satisfactory (S)	Based on the considerations in the section on factors affecting sustainability of the project, the evaluation team sees good scope for replication of project interventions and scalability of activities implemented. Critical is the strong country ownership and the political priority given to renewable energy development. This is not only reflected in a conducive policy and regulatory setting, as reflected in the URA and MARENA Acts, but also through budgetary commitments. A further factor for replication potential is the recent ambitious RE targets announced in the 2021-22 budget speech. These targets are mainly attributed to the project. Realising the background work (mainly various studies and legislations in place) done by the project, the Government could have been confident in achieving the set target of 60% by 2030. The IE envisages good scope for replication of project interventions and scalability of activities implemented to date (AGC, BESS, feasibility studies, etc). For replication efforts to be successful the lessons learnt by the project must be documented and shared through an effective knowledge management strategy. Replicability in other Small Island Developing States (SIDS) is likely.
Gender Equity	Satisfactory (S)	The project has given due consideration on gender equity in all its activities. The gender action plan is actionable which explicitly calls for the hiring of a critical mass of women to work in MARENA and the training of women to install, operate and maintain solar PV systems. While the bulk of the gender related benefits will be reaped in Phase II, gender considerations are mainstreamed into all project activities, ranging from the composition of Project boards to the beneficiary of awareness raising and training undertaken under Component 2. At present, the lead role of the gender mainstreaming activities is assigned to the Gender and Monitoring and Evaluation Officer in

		the PMU. The project has emphasised on representation of at least 30% women members in the Project Board and Sub Boards, and women staff members among newly recruited staff at MARENA. At IE, 5 out of 10 staff at MARENA are women, while women account for 9 out of 14 staff at URA. Till date about 1500 women benefitted from awareness sessions and trainings organised under the project. For Phase II there has to be proactive participation of vulnerable households to ensure the inclusion of the most vulnerable, under the principle of no one is left behind. For instance, single mothers or other vulnerable households may not be able to prioritize and dedicate time to fill out the necessary forms, and hence may be left behind and miss out on the availability of rooftop solar panels. Documentation of these inclusive efforts together with the National Empowerment Foundation (NEF) will have to be part of the M&E.
Coherence in Climate Finance Delivery with Other Multilateral Entities	Satisfactory (S)	The project is helping to implement the provisions of the Climate Change Act (2020) which came into force in April 2021. Several activities are being implemented by CEB and URA under the component 2 of the 'Nationally Appropriate Mitigation Actions (NAMA) project for low carbon island development strategy', facilitated by UNDP through the GCF project. The SUNREF Program is an initiative developed by AFD to support financial institutions and their clients to boost financing for projects for sustainable natural resources management, with a focus on clean energy. AFD's action firstly involves offering long-term financial instruments and, secondly, contributing to building the technical capacities of banks and their client companies. The SUNREF Program forms part of Phase II. There are several donors interventions (AFD, World Bank, European Union, Commonwealth Secretariat, etc) and the GOM has adopted a very programmatic approach to the role of the UNDP-GCF project towards supporting specifically RE development. The project has put in place an enabling environment for work by other donors, such as AFD (as noted in the interview with the AFD representative) and the project has the potential to provide a catalyst for climate finance delivery by other development agencies.
Impact of COVID 19	Not rated	The project was designed for a world before COVID-19 and its implementation has been significantly impacted by the pandemic since March 2020. Owing to supply chain disruptions brought about by the pandemic to the installation of 14 MW BESS, a request for a 12-month extension for the submission of the first Interim Evaluation Report was made to GCF and granted on 21 October 2020 to be able to report on the completion of Phase I of the project, as per the FAA. It is most probable that the procurement and installation of the 25 MW solar PV Panels in Phase II will also be affected by the Covid 19 pandemic. There is need for a contingency plan to assess and mitigate against COVID 19 impacts in Phase II and which is to be included as a subsection in Quarterly and APR Reports.

Recommendations and Lessons Learned

The following IE recommendations (elaborated in Section 5.2) have been formulated with the aim of improving project effectiveness and enhancing the likelihood that project results will be sustained after Phase I:

Recommendations for Management

Recommendation 1: Immediate start of Phase II and completion of activities of Phase I by December 2021
Phase II can start immediately even if some of the activities of Phase I are not yet completed. There is strong government ownership for the project, MARENA is a functional agency, the grid has been sufficiently equipped to accommodate a higher percentage of intermittent renewable energy and the loan confirmation from AFD for Phase II has been received. Kick start Phase II with an inception workshop for enhancing stakeholder engagement.

Recommendation 2: Extension of Phase II by one year.
With the revised timeframe, Phase II, if it starts in January 2022, would involve the deployment of 25 MW in only 3.5 years**.** Over the past decade on average, 1 to 2 MW of SSDG rooftop solar PV systems are rolled out on a yearly basis. The rate of deployment required is a major challenge especially in the context of the present pandemic with possible procurement delays and supply chain disruption.

Recommendation 3: Use unspent funds for capacity building and technical support
Review the funding requirements of Phase II considering falling PV prices since the drafting of the project document in 2017 and use the available funds as well any remaining funds in Phase I to continue capacity building of RE professionals and awareness raising activities and provide technical support to CEB and MARENA. With the current economic impact of the pandemic, there is a demand for reskilling programs, and it is imperative to continue training activities for Solar PV technicians and small RE entrepreneurs. Enable MARENA to do more implementation through feasibility studies.

Recommendation 4: Set up a Public-Private Implementation committee for PV deployment in Phase II.
It is recommended that a Public Private implementation committee be set up to investigate the quota for each category for a faster deployment of the 25 MW rooftop Solar PV Panels. This committee can also look at capacity building activities, the alignment with CEB's existing renewable energy schemes to avoid a duplication of resources, the conditions for SUNREF loans, the organization of a green job fair at the beginning of Phase II, etc.

Recommendation 5: Launch a consultancy study on used BESS and Solar PV Panels recycling and disposal and help CEB with a decommissioning plan for the BESS at the end of their lifetime.
CEB need to prepare a decommissioning plan for the BESS before any decommissioning activities begin which must be in accordance with Mauritian Regulations. Such a plan would be a living document that is updated as technologies, experience with BESS, and relevant codes and regulations evolve over the project life cycle.

Recommendations for Project Design

Recommendation 6: Review the allocation of PV systems among the categories of end users
The deployment of an average of more than 5 MW of rooftop Solar PV per year is a major challenge given the current operational capacity. It requires a large resource mobilization from both CEB and the private sector. It is recommended, for a faster deployment, to reallocate the number of MW of PV systems in each category and to focus on high electricity end-users requiring larger PV systems**.**

Recommendation 7: Develop and Implement a communication and knowledge management strategy and organize an Annual Review workshop
The project needs a stronger communication /awareness outreach to enhance the visibility of the project in Phase II. This will be facilitated through formulation of a detailed communication and knowledge management strategy and action plan with related timelines and responsibilities.

Recommendations for Monitoring and Evaluation

Recommendation 8: Revision of some of the project indicators and update of the PRF
The PRF should be updated to reflect the indicators suggested in section 4.1.2. It is recommended to do a baseline study before the kick-off of Phase II to finalize the indicators and quantify the targets as per the deployment strategy.

Recommendation 9: Monitoring the performance of the BESS and AGC system
UNDP to request regular performance monitoring of the BESS and the AGC system from CEB for sharing with other SIDS through appropriate knowledge-sharing platforms

Recommendation 10: Monitoring and Evaluation of the RE policy
There must be an official monitoring process in place as well as an independent evaluation process established for the national RE policy. The results of the evaluation should be used in a defined and prompt amendment process of the policy. It is recommended that during Phase II such an evaluation is carried out.

The following are the key lessons learned during Phase I:

Lesson Learned 1: Recruitment process for staff to be initiated immediately after project approval.

Lesson Learned 2: Work planning to better anticipate delays in the procurement process.

Lesson Learned 3: In co-financing through a loan by another financial institution, there must be clear interpretation if the loan is part of the project or in parallel to it.

Lesson Learned 4: For more effective Monitoring and Evaluation(M&E), there must be due diligence in the formulation of indicators and targets during project design and at the start of the project.

Lesson Learned 5: A contingency plan is needed to assess and mitigate against COVID 19 impacts in Phase II.

2. INTRODUCTION

In Chapter 2 the purpose and objectives of the IE are presented together with the evaluation methodology followed and the limitations of the IE.

Purpose of the Interim Evaluation and objectives

The "Accelerating the Transformational Shift to a Low Carbon Economy in the Republic of Mauritius" Project started in July 2017. With financial support of the Green Climate Fund (GCF), United Nations Development Programme (UNDP) is providing assistance to the Government of Republic of Mauritius in achieving its renewal energy targets. The project is implemented over a period of 8 years through a two phased approach-Phase I: July 2017 to October 2021 (with extension) and Phase II: November 2021 to July 2025 -to reduce implementation risks to the GCF and ensure that the second funding disbursement is contingent upon successful completion of the first phase.

The United Nations Development Programme (UNDP) Country Office in Mauritius and Seychelles conducted an interim evaluation (IE) towards the end of the first phase of the project as a requirement set in Schedule 4 of the Funded Activity Agreement (FAA) for the project. As per the FAA, the criteria for assessing "successful completion" of Phase I is as follows (as per the funding proposal description):

- Successful completion of the first Mid-Term Review of the GCF project (which will act as a de facto terminal evaluation of Phase I) with a Satisfactory rating or better; and
- The improvement in the Grid Absorption Capacity process must have been at least 80% completed. In addition, all currently signed renewable energy Power Purchase Agreements (PPAs), amounting to an additional 40 MW installed capacity, must have been completed and connected to the grid.
  (Note: In 2018, as per CEB data, 34 MW of intermittent renewable energy systems was integrated to the grid compared to 115.5 MW in August 2021. All signed renewable energy PPAs at the time of the project design have been connected to the grid).

The IE started in early August and is prepared following the GCF and UNDP guidelines. The IE team reviewed the progress made in achieving the project outcomes, relevance, coherence, effectiveness, efficiency, sustainability, impact besides lessons learned and project implementation amidst COVID-19 pandemic. The team assessed the implementation of the project and its alignment with FAA obligations and progress towards the achievement of the project objectives and outcomes as specified in the Project Document. The evaluation also assessed early signs of project success or failure with the goal of identifying the necessary changes to be made to set the project on-track to achieve its intended results.

Scope & Methodology

The IE covers Phase I activities between July 2017 to the end of August 2021, which was the start of the IE. The geographical scope was the main island of Mauritius. The evaluation took into consideration assessment of the project in line with the evaluation criteria from the GCF IEU TOR (GCF/B.06/06) and draft GCF Evaluation Policy, UNDP Evaluation Guidelines along with guidance provided by the Organisation for Economic Co-operation and Development - Development Assistance Committee (OECD-

DAC). The IE followed a mixed method approach using both quantitative and qualitative methods[21]. Primary data was collected by interviews (computer-assisted and face to face), direct on-site observation, focus group discussions and key informant interviews (KIIs) by the evaluators. Secondary data was collected by review of existing project documentation and relevant literature and policy documents. Data/information were gathered through review of project documents, Government of Mauritius policy documents. The evaluation team conducted 18 KIIs with 25 participants representing project personnel, government officials, implementing agencies, UNDP senior management, and other stakeholders. The IE was an evidence-based assessment and relied on feedback from persons who have been involved in the design, implementation, and supervision of the project as well as beneficiaries of project interventions and review of available documents and findings of field visits. The IE was divided in three phases spread out over a total of 40 working days, as shown below.

Inception phase: in this initial stage of five days, the evaluators reviewed the documentation related to the Project, including the background literature of relevant policy documents, the Funding Proposal, the Project Document, the inception report, project monitoring and evaluation reports (quarterly and financial reports), baseline studies, materials and various additional reports made available by the Project management team. At the end of the desk review phase an inception report was submitted to ensure a common understanding of the evaluation approach during the mission, detailing the team's understanding of what is being reviewed and why, showing how each Interim Evaluation question will be answered (which methodologies will be used) and a proposed schedule of tasks. The Inception Report was shared with the UNDP CO, UNDP-GCF Regional Technical Advisor, and the Project staff before it was finalized.

Field work and data collection phase, of 25 days, to interview key stakeholders and to visit actual field implementation. Data collection, as needed, was sourced from project and government data/records, field observation visits, and any additional reports or publication to validate evidence of results and assessments (including but not limited to assessment of Theory of Change, activities delivery, and results/changes occurred). For the meetings with the Project team members and key stakeholders, a combination of focus group discussions and interviews were used. See Annex 1 for a detailed mission schedule and Annex 2 for an overview of the stakeholders consulted. A field visit to two project sites (A 4 MW BESS installed at CEB Henrietta sub-station and AGC system implemented at CEB ST Louis power station) was conducted to make observations on the implementation modality and interactions were held with 8 concerned officials. See Annex 4 for the details of the field visits and Annex 5 for the list of stakeholders consulted.

[21] http://web.undp.org/evaluation/guideline/

Reporting phase, a period of 6 days, to compile the Draft Interim Evaluation Report, based on the data collected during the inception phase and the field work and guided by the feedback and comments of UNDP members, key stakeholders, and informants. The Draft Interim Evaluation Report will be shared with the relevant stakeholders of the Interim Evaluation and the Final Interim Evaluation Report will be compiled (in 4 additional days) considering the comments and feedback received. An audit trail will be annexed to the Final Report to reflect the incorporation of suggested changes or edits and additions.

The conceptual framework chosen for the evaluation is consistent with result-based management (RBM) as widely applied with the UN system and addresses the five key evaluation criteria as proposed by OECD-DAC: relevance, efficiency, effectiveness, sustainability, and impact. The evaluation assessed the logical framework of the Project, with defined development and immediate objectives and related outputs, indicators, and targets of the Project's Monitoring & Evaluation mechanism, as a source of information to weigh the achievements made. The following categories of project progress, as outlined in the ToR and the template provided by the UNDP Guidance document and combined with the GCF evaluation guidelines draft, are assessed for the GCF Project:

- **Project Strategy,** with focus on the project design, its relevance and the Results Framework/Logframe,
- **Relevance,** seeking the appropriateness in terms of selection, implementation, and achievement of FAA/AE Project Document detailed logframe activities and expected results (outputs, outcomes, and impacts),
- **Progress Towards Results,** with attention for progress towards Fund level impacts, Outcome's analysis, effectiveness and efficiency, and identification of potential barriers/impediments
- **Project Implementation and Adaptive Management,** divided over management arrangements, work planning, finance and co-finance, project-level monitoring and evaluation systems, stakeholder engagement, reporting and communications
- **Sustainability,** with assessment of financial risks to sustainability, socio-economic risks to stability, institutional framework, and governance risks to sustainability and lastly, environmental risk to sustainability,
- **Replication and Scalability,** assessing the extent to which the activities can be sustained post project implementation and scaled up in other locations within the country or replicated in other countries
- **Country Ownership,** examining the extent of emphasis on sustainability post project through country ownership; on ensuring the responsiveness of the GCF investment to country needs and priorities including through the role that the country plays in the project,
- **Coherence in climate finance delivery with other multilateral entities -** looks at how GCF financing is additional and able to amplify other investments or de-risk and crowd-in further climate investment.
- **Gender equity,** ensuring integration of understanding on how the impacts of climate change are differentiated by gender, the ways that behavioural changes and gender can play in delivering paradigm shift, and the role that women play in responding to climate change challenges both as agents but also for accountability and decision-making,
- **Innovativeness in results areas,** focusing on identification of innovations (proof of concept, multiplication effects, new models of finance, technologies, etc.) and how changes that bring about paradigm shift can contribute or be attributed to GCF investment, and

- **Unexpected results, both positive and negative,** identifying the challenges and the learning, both positive and negative, that can be used by all parties (governments, stakeholders, civil society, AE, GCF, and others) to inform further implementation and future investment decision-making.
- **Impact of the Covid19 pandemic on the project implementation and performance**

The evaluation approach is reflected in the Evaluation Matrix (Annex 2) summarizing the evaluation questions, divided over the evaluation categories and information recorded for indicators and sources of information. Based on the ToR a list of questions was compiled (Annex 3), as reflected in the inception report, to be used during the stakeholder interviews and focus group discussions. The key questions were intended for the evaluators to have a systematic set of queries, clustered according to evaluation criteria, to guide the data collection. During interviews and focus group discussions other questions arose and were recorded by the evaluator accordingly.

Progress towards results and project implementation and adaptive management are rated according to a 6-point scale, ranging from highly satisfactory to highly unsatisfactory. Sustainability is evaluated across four risk dimensions, including financial risks, socio-economic risks, institutional framework and governance risks, and environmental risks according to a 4-point scale, including likely, moderately likely, moderately unlikely, and unlikely.

Limitations to the evaluation

Due to COVID – 19 pandemic travel restrictions, the international consultant could not travel to Mauritius and most of the interviews were conducted virtually. All stakeholders were available for the interviews and showed their willingness to be interviewed remotely. However, the national consultant was able to visit the project sites and interact with the stakeholders. The IE team feels that the information obtained during the desk review, site visits and virtual "Mission" phases of the review is sufficiently representative despite the challenge faced with the delivery of "virtual" meetings and the intended outcomes of the consultancy have been met.

Structure of the Interim Evaluation report

The IE followed the report structure as proposed in the Inception Report. In Chapter 2 the purpose and objectives of the IE are presented together with the evaluation methodology followed and the limitations. In Chapter 3 the project description and strategy are presented together with the background context, the chosen project implementation arrangement, project timeline and milestones and an overview of main stakeholders. Chapter 4 presents the key findings of the IE**,** based upon the review of the project documentation, interaction with the project management team, field visits and the consultations with the main takeholders during the evaluation. Chapter 5 gives the conclusion and recommendations**.** The appendices at the end of the report provide additional information and details to support the evaluation.

3. PROJECT DESCRIPTION AND BACKGROUND

In Chapter 3 the project description and strategy are presented together with the background context, the chosen project implementation arrangement, project timeline and milestones and an overview of main stakeholders are presented.

Development context

The Republic of Mauritius is a group of islands and archipelagos in the Indian Ocean comprising Mauritius, Rodrigues, Agalega, Tromelin, Cargados Carajos (Saint Brandon) and the Chagos Archipelago. The main islands of Mauritius and Rodrigues are fully grid connected, and in 2019, the island of Mauritius had an installed capacity of 834 MW, while the island of Rodrigues had an installed capacity of 14 MW. There is no electric utility on the Island of Agalega where the 300 inhabitants are supplied with electrical power using small diesel generators operating in 3 isolated mini grids. Like many Small Island Developing States (SIDS), Mauritius is still heavily reliant on fossil fuels to meet its demands for electrical energy and is vulnerable to external energy shocks. As per the Energy Statistics for the electricity sector for Mauritius, in 2019, 78.3% was generated from non-renewable sources, principally petroleum products and coal and 21.7% from renewable sources, mainly bagasse, hydro, wind, landfill gas and solar. The grid emission factor of Mauritius is extremely high (estimated at 1.01 tonnes CO2/MWh in 2017) with greenhouse gas emissions increasing at a rate of about 3% per year and those from the energy sector specifically by about 5% per year. Imported fossil fuels represent 20% of Mauritius' imports, exposing the country to commodity price volatility.

There is a broad national strategy to reduce the country's dependence on fossil fuels, to enhance energy security and climate change mitigation, democratise access to clean and affordable energy and to improve the country's balance of payments. The need to integrate more and more renewable energy (RE) in the electrical energy mix has been specifically recommended in the country's Nationally Determined Contribution (2016), the Second National Communication to the UNFCCC (2010) and the UNFCCC Technology Needs Assessment (2014), as well as in a comprehensive suite of Government strategies and policies contained in the Long-Term Energy Strategy (2011-2025) and the Renewable Energy Roadmap 2030. Under the latter, the Government announced a RE target of at least 35% of electricity production by 2025 and 40% by 2030. The Government Programme (2020-24), entitled "Towards an Inclusive, High Income and Green Mauritius, Forging Ahead Together" makes provision for boosting sustainable development by promoting more extensively the use of clean and renewable energy and continuing to encourage carbon-free energy generation by accelerating the development of renewable energy to reach 35% in 2025 and 40% in 2030. In the 2021-22 budget speech Government announced an even more ambitious target of producing 60% of the country's energy needs from green sources by 2030 as well as the total phasing out of the use of coal before 2030. Compared to the 2015 INDC target of 30% GHG emission reduction by 2030, the mitigation ambition of Mauritius in the updated INDC in 2021 has been significantly enhanced with a revised target of 40% GHG emission reduction by 2030.

Problems that the project sought to address threats and barriers targeted

Threats and barriers targeted: The following description of institutional and regulatory, financial and technology barriers is reflecting the description of these barriers in the Project Document (Pro-Doc), sections 14-24 and reflect the barriers identified in the Theory of Change.

Institutional and Regulatory Barriers: The current legal and institutional framework governing the energy sector is characterised by regulatory deficiencies, notably the fact that the Central Electricity Board (CEB), the dominant power supplier (accounting for 43% of electricity generation) and sole grid operator, also acts as the sector regulator. Parliament voted to establish an independent regulator -the Utility Regulatory Authority (URA)- in 2005 but the law has never been proclaimed**.** Government's capacity to establish and operationalise the URA and the Mauritius Renewable Energy Agency (MARENA) is limited as the Ministry of Energy and Public Utilities (MEPU) has only a small team of engineers responsible for overseeing the energy, water, and wastewater sectors. With the assistance of the GCF project, the MEPU has received the necessary assistance to develop a fit-for-purpose legal and institutional framework through MARENA and URA to allow the ambitious scale-up of renewable energy in Mauritius.

Financial Barriers: The Government's budgetary provisions to establishing MARENA is insufficient if the Agency is to live up to its market-catalytic potential. The GCF support is ensuring this potential is met. The budget constraints of the Central Electricity Board (CEB) also represent a significant barrier to the improvement of grid absorption capacity and GCF funding is ensuring this happens. GCF resources are also used to support users to partially cover the upfront cost of investing in small- and medium-scale PV systems which is a major barrier facing low- and middle-income households.

Technology Barriers: At project conception the national grid was only able to accept 60 MW of intermittent renewable energy. With the assistance of the GCF project for improving Grid Absorption Capacity (GAC), the CEB is being enabled to acquire and install the equipment necessary so that, in total, 185 MW of intermittent renewable energy can be connected to the grid without jeopardising grid stability. An additional barrier encountered during previous SSDG schemes was the limited capacity within Mauritius to design, install and maintain small-scale PV systems. There is also an absence of guidelines and technical standards for Renewable Energy Technologies (RETs). The principal barrier preventing the three villages of Agalega from operating solar-diesel hybrid mini grids is technical capacity.

The Theory of Change (ToC) as applied to this project, shown in Figure 1, is logical and coherent in its description of its intervention strategy. It aims to address the above barriers to deployment and scale-up of renewable energy, in the form of improvements to the GAC, the institutional strengthening of URA and MARENA and capacity development of RE personnel. An enabling environment will then have been created for the country to use more low-emission renewable energy technologies enabling it to meet its target of using 35% of renewable energy in the electricity grid by 2025.

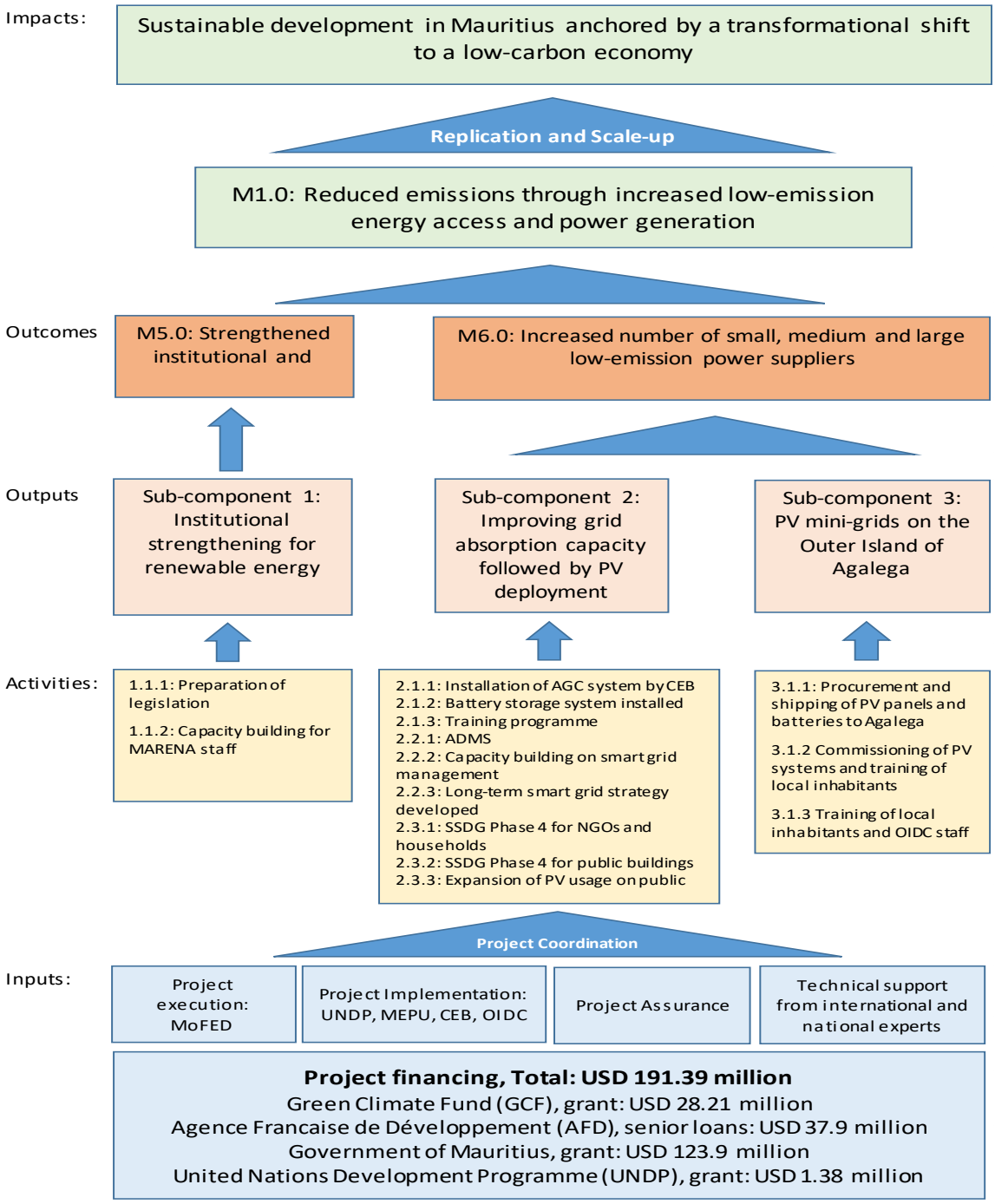

Figure 1: Theory of Change

3.3 Project Description and Strategy

The main goal of the project is to *provide the technical, legal, and financial incentives for the promotion of renewable energy in the Republic of Mauritius* and would be achieved through two outcomes. The first outcome aims to *strengthen institutional and regulatory systems to improve incentives for low-emission planning and development and their effective implementation*. Outcome two intends to *increase number of small, medium, and large low-emission power suppliers*. The project is designed to achieve the envisaged fund level impact of the project of *reduced emissions through increased low-emission energy access and power generation*.

The project is aimed at enabling the Government of Mauritius to meet its target of using renewables to supply 35 percent of the country's electricity needs by 2025, under its Renewable Energy Roadmap 2030 for the Electricity Sector. It consists of three inter-related components with objectives as given in Figure 1 below.

Component 1 — **Institutional strengthening of renewal energy**

This component creates conducive environment for enhanced development and investment into the renewable energy sector in Republic of Mauritius through the institutional strengthening of the Mauritius Renewable Energy Agency (MARENA) and the Utility Regulatory Authority (URA). Ministry of Energy and Public Utilities (MEPU) is the responsible for the implementation of this component.

Component 2 — **Improving grid absorption capacity followed by PV deployment**

This component carries out a number of grid strengthening/upgrading activities including the installation of 18 MW Battery Energy Storage System (BESS) and implementation of the Automatic Generation Control (AGC) in order to boost the grid absorption capacity by around an additional 125 MW, following by the deployment of 25MW of rooftop solar PV small and medium scale installations in Phase II of the project. Central Electricity Board (CEB) is the responsible for implementation of this component.

Component 3 — **PV mini-grids on outer island of Agalega**

This component shall install a 300kW, solar PV powered mini-grid in the outer island of Agalega. The Outer Island Development Corporation (OIDC) is responsible for implementation of this component.

Figure 2: The 3 components of the Project and their objectives

The project financing is summarized below:

FINANCING PLAN
GCF grant: USD 28,210,000
Cash co-financing to be administered by UNDP: USD 1,380,000
(1) Total Budget administered by UNDP: USD 29,590,000

PARALLEL CO-FINANCING
Government- MEPU: USD 1,000,000
Government- CEB: USD 122,000,000
Government- AFD: USD 37,900,000
Government- OIDC: USD 900,000

(2) Total co-financing: USD 161,800,000
(3) Grand-Total Project Financing: (1) +(2) USD 191,390,000

The project is implemented in a two-phase approach to reduce the implementation risks to the GCF and ensure that the second funding disbursement is contingent upon successful completion of the first phase. As per the Pro Doc, Phase I was to be implemented between 2017-2019 and Phase II was to be implemented between 2020-2024. Following approved extension request granted by GCF on 20th October 2020, the updated timeframe of the project is as follows:

i. Phase I: (July) 2017- (July) 2021
ii. Phase II: (July) 2021 - (June) 2025

Under Phase 1, which is the focus of this IE, the following components were to be executed:

- Component 1: Institutional strengthening for renewable energy (GCF finance: US$ 1.1 million; co-finance: US$ 1.08 million (Government (MEPU): US$ 1 million; UNDP: US$ 0.08))
- Component 2, Phase 1: Improving Grid Absorption Capacity (GCF finance: US$ 10.9 million; co-finance: US$ 20 million (UNDP: US$ 1 million; CEB: US$ 2 million; AFD: US$ 17 million)
- Component 3 is not addressed in Phase 1 of the project.

Phase I has two outputs and five activities designed to remove specific barriers that impede the deployment of renewable energy (See Table 2).

Table 2: Project Components, Outputs and Activities in Phase 1

Components	Outputs	Activities
Component 1: Institutional strengthening for renewable energy	1.1 Institutional strengthening of the Mauritius Renewable Energy Agency	1.1.1 Preparation of legislation
		1.1.2 Capacity building for MARENA staff
Component 2: Grid strengthening and PV deployment	2.1 Improving Grid Absorption Capacity to accept 185 MW intermittent	2.1.1 Installation of Grid Absorption Capacity (AGC) system by CEB
		2.1.2 Battery energy storage system installed
		2.1.3 Training programme

By the end of Phase I, the Government is to have the required legal framework and institutional capability for effectively managing the development of the renewable energy sector while CEB will have completed the centralised elements of its improvement of GAC (AGC system and batteries) to accommodate a total of 185 MW of intermittent RE. In Phase II, once the grid has been sufficiently equipped to accommodate a higher percentage of intermittent RE, 25MW of rooftop solar photovoltaic (PV) systems will be deployed across 3 main categories of end-users: residential (households), NGO's and public buildings.

3.4 Project Implementation Arrangements

The project is being implemented following UNDP's national implementation modality (NIM), with as implementing partner (IP) (i.e., executing entity in GCF terminology) the Ministry of Finance, Economic Planning and Development (MoFEPD). The MoFEPD oversees the project execution and ensure that it is implemented in accordance with the applicable national policies. The Project Board (PB), chaired by a representative of the MoFEPD, is the executive body responsible for making, by consensus, management decisions when guidance is required by the Project Coordinator (PC). The PB provides overall guidance and direction, addresses project issues, reviews project progress and reviews and endorses annual work plans and budgets. It convenes semi-annually or additionally when needed on demand. Responsible Parties for each Component under the project are:
Component 1: MEPU
Component 2: CEB
Component 3: Outer Islands Development Corporation

Each project component is overseen by a Project Director from the responsible party. At Component level, the governing entity is the Project Sub-Board. Each Project Director chairs the respective Project Sub-Board consisting of relevant stakeholders and meets on a quarterly basis. A Project Manager (PM) runs each component on a day-to-day basis on behalf of the relevant Responsible Party within the constraints laid down by the Board and the Sub-Boards. As with the PB, each Sub-Board is responsible for making, by consensus, management decisions when guidance is required by the PC and/or relevant PM. The PMs for Component 1 and Component 2 sits at MARENA and CEB respectively. The Project Management Unit (PMU), housed at the UNDP, runs the project on a day-to-day basis and is responsible for the day-to-day management and decision-making. The PMU is responsible for day-to-day management and decision-making for the project, within the constraints laid down by the PB. The unit ensures that the project produces the targeted project results, to the required standard of quality and within the specified constraints of time and cost. UNDP provides oversight and quality assurance involving the UNDP country office (CO) and regional and headquarter levels. As accredited entity to the GCF, UNDP delivers GCF-specific oversight and quality assurance services as an operational arm of the GCF and accountable to the GCF board, as reflected in the Accreditation Master Agreement (AMA) between UNDP and the GCF. The services include fund management, project design and development and project implementation, including quality assurance of annual work programmes/budgets, progress and financial reporting and support to monitoring and evaluation missions.

3.5 Project timing and milestones

- Funding Proposal submitted on 30 July 2015, GCF Board approval on 14th Dec 2016
- FAA signed on 8th June 2017, entered effectiveness on 11 July 2017.
- ProDoc signed on 1st August 2017
- Inception Report of 10 January 2018 , based on the Inception Workshop of 9th and 10th Nov 2017

- Updated time frame for Phase I: July 2017 to October 2021 (following approved extension request granted by GCF on 20 October 2020)
- Updated time frame for Phase II: November 2021- July 2025
- First interim evaluation – phase I: 20 October 2021
- Second interim evaluation: Within six (6) months after Year 5
- Closing Date: 10 July 2024
- Completion Date: 10 July 2025
- Completion report, within 3 months after completion date
- Final independent evaluation report, within 6 months after the completion date

3.6 Main stakeholders

Ministry of Finance, Economic Planning and Development (MoFEPD) (**Executing Entity)-** is responsible for coordination of all development partners, including multilateral funding agencies, regarding external assistance, including budget support programmes, grants, loans and technical assistance. All such external assistance is overseen by the Resource Mobilisation, Development Cooperation and Regional Initiatives Directorate of the Ministry who has been heavily involved in the formulation of the GCF project proposal.

Ministry of Energy and Public Utilities (MEPU) (Responsible Party for Component 1) – has the mandate to formulate policies in the energy, water, and wastewater sectors, and to maintain a responsive legal framework to govern these sectors. The following organizations directly related to the electricity sector fall under the purview of MEPU:

- Central Electricity Board (CEB): Generation, Transmission, Distribution and Sale of Electricity.
- Mauritius Renewable Energy Agency (MARENA): Promotion of Renewable Energy.
- Energy Efficiency Management Office (EEMO): Promotion of Energy Efficiency.
- Utility Regulatory Authority (URA): Regulation of Utility Services.

Central Electricity Board (CEB) (Responsible Party for Component 2)- is a state-owned enterprise operating under the direct reporting line of the Ministry of Energy and Public Utilities. CEB is responsible for generation (in collaboration with IPPs), transmission and distribution of electricity in Mauritius. CEB manages the database of electricity consumers and prosumers. Until the full operationalization of the regulator (URA), CEB acts as the regulator.

Mauritius Renewable Energy Agency (MARENA)- is a body corporate, owned by the Government of Mauritius, which operates under the aegis of the MEPU and is regulated by the MARENA Act of 2015. It is responsible to promote renewable energy and create an environment conducive to the development of renewable energy. It is a direct beneficiary of the project.

Utility Regulatory Authority (URA) -was set up in 2016 in accordance with the Utility Regulatory Authority Act 2004 to regulate utility services, namely electricity, water, and wastewater. The URA has started operation in 2017 but is yet to be fully operational. The Electricity Act 2005, which is yet to be proclaimed, is key for the URA to fully exert its powers. It is a direct beneficiary of the project.

Ministry of Environment, Solid Waste Management and Climate Change (MOESWMCC)- has the mandate to devise appropriate legal and policy framework regarding environment related issues such as climate change to effectively respond to emerging challenges. It is a member of the Project Board and Sub-boards.

Business Mauritius (BM)-is an independent association that represents over 1200 local businesses. It is the coordinating body and the voice of local business. It is a member of the Project sub-board for Component 2.

Agence Francaise de Developpement (AFD)-has been operating in Mauritius since 1975. After ceasing its development aid activities in 1995, due to the level of development achieved by the island, since 2006 it has been supporting its economic and ecological transition. It is involved primarily in the areas of infrastructure, energy transition, climate, and regional cooperation. It is co-financing the project to an amount of USD 37.9 million and is a member of the Project Board and Sub-boards.

The University of Mauritius (UoM) is the national university of Mauritius. It is the oldest and largest university in the country in terms of student enrolment and curriculum offered. It represents academia on the Project Board and Sub-boards.

National Women's Council (NWC), a parastatal body operating under the aegis of the Ministry of Gender Equality, Child Development and Family Welfare, works towards the promotion of women's empowerment and gender equality. It plays a major role in the implementation of awareness-raising workshops and training sessions for women and is a member of the Project sub-board for Component 2.

National Empowerment Foundation (NEF)-is a not-for-profit government owned company operating under the aegis of the Ministry of Social Integration and Economic Empowerment as its executive arm. It aims to provide the most vulnerable people with the ability to improve their living conditions**.** It is a member of the Project sub-board for Component 2 and will be involved mainly in Phase II.

4. FINDINGS

In this Chapter the key findings of the IE are presented, based upon the review of the project documentation, interaction with the project management team, field visits and the consultations with the main stakeholders during the evaluation. The findings are divided over the following main evaluation categories i). Project Strategy, ii). Progress towards results, iii). Project implementation and adaptive management and iv) Sustainability.

Project Strategy

4.1.1 Project Design

In October 2009, the GoM released its Long-Term Energy Strategy (LTES) 2009-2025 which sets the concepts underlying the economic and regulatory framework, established key objectives and action plan for the development of the energy sector in Mauritius. The project design analysed well the context, problem, needs and priorities and targeted the LTES. The project was developed following a broad consultation process by the executing entity and backed by sound technical and financial analysis as well as strong political will. UNDP, MoFEPD, MEPU and CEB personnel were involved directly in the project design and continue to be directly involved with its implementation to date. The Funding Proposal and ProDoc incorporate lessons of a series of other relevant past UNDP projects such as the UNDP-GEF financed 'Removal of Barriers to Energy Efficiency and Energy Conservation in Buildings' project (2008-14), the SIDS-DOCK-financed 'Energy Efficiency and Renewable Energy in Mauritius' project (2012-16) and the GEF financed "Removal of Barriers to Solar PV Power Generation in Mauritius, Rodrigues, and the Outer Islands' project (2011-16). The design also incorporated the recommendation of the grid absorption capacity study developed by CEB in 2014 with UNDP and World Bank support that grid stability was a critical concern in the context of the pipeline of renewable energy projects and with the integration of specific technologies the limit could be increased from 60 MW to 185 MW. GCF support to the expansion of the rooftop PV sector in Phase 2 builds on a strong baseline project – Phases 1, 2 and 3 of the Small-Scale Distributed Generation (SSDG) scheme. A gender analysis was undertaken to enable gender mainstreaming throughout the project implementation as well as a thorough risk analysis with appropriate risk mitigation strategies worked out.

The project formulation and the design phase were challenging, according to some stakeholders, partly due to tight deadlines, technical requirements and evolving GCF guidelines, as a reflection of being one of the first projects in the new GCF project cycle. Although the project was approved in Dec 2016, it took six months for the FAA to be signed and effective. The country's context was however factored in during the project's inception stage. The project Inception Workshop was held in November 2017 and the Gender Action Plan, Risk Log and Logical Framework were reviewed and amended as deemed appropriate. Pertinent comments were made during the inception workshop by NGOs related to incapacity of low/middle income housing to partially finance the PV systems. The design of the project involved mainly public institutions and during the consultation exercise the representative of Business Mauritius stressed on the need to have the private sector involved in the design of such projects in the future. The Pro-Doc is concise and encompasses the required details. The Theory of Change (ToC) of the project is logical and coherent in its description of its intervention strategy. The visual representation of the project intervention strategy in a flow diagram in the ToC in the Pro-Doc is helpful. A mix of the following four key ingredients is needed to attract investment in cost-effective renewable energy resources: Political priority to attract investment; Market framework for investment; Technical planning for investment and Capacity

to implement investment. With the political will already strong, the project is a good mix of the other three ingredients. The chosen project strategy, with three closely interlinked components each targeting specifically at a set of barriers, provides an effective route towards the intended result of a low carbon emission economy. It is also well aligned with national development policies, as reflected in the Funding Proposal and the ProDoc, and reiterated in the 2020-2024 Government Programme and recent budget speeches.

AFD and UNDP work closely together in Mauritius to deliver technical assistance in the most effective manner, and the UNDP-GCF project represents an example of the two agencies' coordinated approach. UNDP implements focused on technical assistance the GCF funded project, while AFD is providing concessional loans as co-finance for targeted elements of the project. Both agencies are leveraging and building on extensive experience and baseline projects in Mauritius. UNDP facilitated the discussion between AFD and CEB for the concessional loans. In the project design the overall grant to co-financing ratio for the project duration is approximately 1:6 and the project proposes a good mix of GCF grants, AFD loans and Government's own resources to bring about the transformational change to energy systems being sought by the GCF.

Owing to the proprietary nature of the AGC works and the existing agreement between GE Grid Solutions Ltd and CEB, no open tender exercise was required for the AGC activities. This was not recorded in the Project Document during the project formulation phase and after the approval of the sub-board committee (on 24 September 2018), it was decided that the USD 1 million initially earmarked for the AGC (through international procurement) be re-routed towards the procurement of 1.5 MW BESS for Rodrigues while the CEB will, with its own funds, invest in the AGC and hence their contribution be accounted as co-financing.

As per the project design, 25MW of rooftop, small-scale distributed generation system (SSDG) solar photovoltaic (PV) systems are to be deployed in Phase II across 3 main categories of end-users-residential (households) (10MW), NGO's (4MW) and public buildings (11MW). The number of household beneficiaries for the 10 MW is estimated at about 5000. The rolling out of an average of more than 5 MW of rooftop Solar PV per year is a major challenge given the current operational capacity of a maximum of 1 to 2 MW per year. The deployment will require a large resource mobilization from both CEB, and the private sector and this aspect has not been adequately addressed in the design. During the interview, the representative of Business Mauritius suggested the setting up of a Public-Private Implementation Committee for the effective deployment of the 25 MW of rooftop solar panels.

For households, NGOs, and public buildings, the GCF grant will cover an average of approximately 27% of the upfront system and installation cost (with the balance coming from loans (approx. 37% from AFD) or users' own resources. While doing so, the project will also enable the empowerment of low-income households especially, with a gender consideration. Even with the 27% grant, poorest households may not be able to install rooftop Solar PV Panels, as pointed out by NGOs during the inception workshop. A differentiated level of subsidy with some higher level of subsidy for the poorest households may have to be introduced.

The design lacks a coherent Knowledge Management (KM) strategy and a communication plan. As the project is now progressing into a phase of implementation, with a wide range of interventions being established, there is a need for targeted focus on monitoring and evaluation and broader knowledge

management, to document emerging good practices, extract lessons and learning and produce and disseminate knowledge products of good quality for all relevant stakeholders.

There are two aspects of the design probably unique to this project that are discussed below:

A. The project is implemented in a two-phase approach to reduce the implementation risks to the GCF and ensure that the second funding disbursement is contingent upon successful completion of the first phase. As per the FAA, the criteria for assessing "successful completion" of Phase I includes the successful completion of the first Mid-Term Review of the GCF project (which will act as a de facto terminal evaluation of Phase I) with a Satisfactory rating or better. A Satisfactory rating to the IE team for Phase 1 means that most of the outputs would have been completed, the overall progress towards achievement of the Outcomes is on track and the enabling conditions exist for the implementation of Phase 2.
B. As per Clause 8 of the FAA, the conditions precedent to disbursement are as follows:

- Conditions precedent to the second disbursement for Phase 1: Confirmation in writing by the Accredited Entity that the loan agreement between the Agence Francaise de Developpement (AFD) and the Central Electricity Board (CEB) in the amount of at least USD 18,700,000 for the financing of Phase 1 of component 2 is duly signed and effective.
- Conditions precedent to the first disbursement for Phase 2: Confirmation in writing by the Accredited Entity of the firm commitment of the loan facilities from AFD amounting to USD 19,200,000 for the financing of Phase II.

The loan agreement for USD 18,700,000, between CEB and AFD, was signed on 29 November 2018. This was a key milestone for the successful financing of CEB's Gas Insulated Switchgear (GIS) substations to improve reliability and increase the share of renewable energy. The first disbursement of the AFD's co-financing (142 204 USD) was released in April 2020 but the second disbursement of about 18 million USD has unfortunately been delayed because of procurement issues during the evaluation of bids for the tender for 'Supply, Installation and Commissioning of Gas Insulated Switchgear (GIS) in the Central Electricity Board (CEB) substations' at the Central Procurement Board (CPB). AFD had concerns whether the initial evaluation was done correctly by the CPB and requested for a new evaluation. At the time of this IE, the bid evaluation is yet to be concluded but all parties concerned were keen to find a solution. Legally the loan is committed but until the procurement is resolved the loan is not being disbursed. AFD has reiterated during the consultation that it is keen that the funding goes through. During the design phase, it was anticipated that the tendering process for the GIS will be completed without any delays. There was no clear GCF policy on co-financing at that time, a reflection of being one of the first projects in the new GCF project cycle. The condition mentions that the loan agreement should be signed but nothing is mentioned on how much co-finance should have materialized at the end of Phase I. The project has associated itself with a loan and there is no interpretation on whether the loan is part of the project or is in parallel. Co-financing should be assessed in a comprehensive manner in conjunction with other indicators as indicated in the new GCF Policy on co-financing released in 2019. The IE team recommends that the AFD loan be considered a parallel finance in the project context.

It is to be noted that the installation of the two Gas Insulated Switchgear (GIS) infrastructure with the AFD loan by CEB, as compared to the BESS and the AGC system, is not a necessity for the deployment of the 25 MW Solar Panels in Phase II. The targets for Phase 2 are not based on the assumption that the installation of the GIS is completed. In the budget speech of 2021-22 Government announced the setting up of 10 Gas Insulated Switchgear (GIS) substations for CEB. Funding sources for the implementation of this budgetary measure can be from any loan or from government's own resources.

4.1.2 Results Framework/Logframe

The Results Framework / Log-frame of the project as given in the Pro-Doc and as revised during inception are given in Table 4. The project objectives, different components of the project, the outcomes and outputs as mentioned in the Pro-Doc are clear and practical. Due to a delay of nine months (about 25% of the overall time frame for Phase I) in the actual start of the project due to administrative reasons and Covid impact, it might be very difficult to complete Phase II in 4 years without a time extension to the project. More details regarding the time extension required to achieve the outcomes and outputs of for Components 2 and 3 of the project is provided in next section (Progress towards Results).

The Project Results Framework of the project, ProDoc pages 23-25, has two project outcomes with three indicators and three distinct project outputs with a total of nine indicators. It is to be noted that the results framework has mid-term and end-of-project (EoP) targets for the project outcome indicators over the whole timeframe of the project (8 years) as well as mid-term and end-of-phase targets for the project outputs for both Phase I (3 years) and Phase II (5 years). Although the results framework is relatively simple and the indicators and related targets do qualify to a large extent to be SMART (Specific, Measurable, Attainable, Relevant, Time-Bound), some of the indicators are suggested to be revised for Phase II as discussed hereafter.

Fund Level core indicator M1.0 *Tonnes of carbon dioxide equivalent (tCO2eq) reduced or avoided as a result of Fund funded projects / programmes.* The avoided direct and indirect emissions can be calculated based on the installed capacity during the project lifetime.

Project Outcome Indicator M5.0 *Institutional and regulatory systems that improve incentives for low-emission planning and development and their effective implementation.* This is a qualitative indicator with an assessment of the institutional and legal framework and the capacity of the staff at MARENA. The specific key legal and regulations to be enacted must be given. Also, instead of putting a target of a specific number on staff to be recruited it is better to have a target that MARENA is fully staffed and trained as per a strategic action plan. A better indicator would be as follows: *"Extent to which institutional and regulatory systems that improve incentives for low-emissions planning and development are under implementation".* The targets can then be related to progress in implementing.

Project Outcome Indicator M6.0 *Proportion of low-emission power supply in a jurisdiction or market.* If the end of project target is given as 35%, then this refers to the % share of RE generated in the electricity mix and not to power supply. This indicator therefore needs to be revised as *Proportion of the electricity mix generated from renewable sources, disaggregated by type, in a jurisdiction or market*. This proportion at national level will fluctuate yearly depending on the water availability, bagasse production, economic activity, energy efficiency, etc. For example, in 2015, the RE proportion in the energy mix was 22.9% due to rainfall higher than average in that year which resulted in a higher contribution to the total electricity generation from hydro generation sources. The RE share was 20.7% in 2018. Given that the project is putting emphasis on RE intermittent energy through increasing the grid absorption capacity and PV deployment, it is recommended to have an additional indicator specifically on RE intermittent energy. The intermittent RE power supply in 2017 was 37 MW and this has increased significantly over Phase 1 with the intermittent RE power supply now over 115 MW. It is suggested to have the following additional indicator for this project outcome: *Installed capacity of intermittent RE power supply in a jurisdiction and market.* The target should be taken from the latest RE roadmap.

Number of households, and individuals (males and females) with improved access to low-emission energy sources: This indicator is based on estimate of low-emission MW divided by effective capacity of the power system, multiplied by total number of households / household composition in Mauritius and Rodrigues. This indicator is misleading as it would mean the other households do not have improved access to low-emission energy sources. All households are direct project beneficiaries and benefit from RE supply on the centralized grid through consumption of cleaner electricity. Better indicators would be *the number of electricity customers using RE and the number of households with rooftop solar PV Panels*. These indicators would be easily available from the CEB.

Project Output 1.1: *Mauritius Renewable Energy Agency Act in place; Institution staffed by mid-term.* Indicator is adequate.

Project Output 2.1: *Software purchased; Battery energy storage system procured*. Indicators are adequate.

Project Output 2.2: *Advanced Distribution Management system; Smart Grid Strategy.* Indicators are adequate for Phase 2 but better defined as *Advanced Distribution Management System operational; Smart Grid Strategy developed.*

Project Output 2.3: *Actual MW installed by category (gender- disaggregated data).* Indicator is adequate for Phase 2.

Project Output 3.1: *Capacity of PV systems installed; Number of OIDC staff trained.* Indicators are adequate for Phase 2.

Based on the above discussion on the indicators for the log frame the suggested revisions of some of the indicators for Phase 2 are compiled in **Table 3**. The result framework in overall has been found to be conducive for effective implementation. The output indicators for each year for each component are clearly indicated making effective monitoring of activities.

Table 3: Suggested revisions of log frame indicators

	Logframe Indicator	Suggested Revision
Fund level Impact: M1.0 Reduced emissions through increased low-emission energy access and power generation	Tonnes of carbon dioxide equivalent (tCO_2eq) reduced or avoided as a result of Fund funded projects / programmes	No revision
Project Outcome: M5.0 Strengthened institutional and regulatory systems	Institutional and regulatory systems that improve incentives for low-emission planning and development and their effective implementation	Extent to which institutional and regulatory systems that improve incentives for low-emissions planning and development are under implementation
Project Outcome: M6.0 Increased number of small, medium and large	Proportion of low-emission power supply in a jurisdiction or market	Proportion of RE generated in the electricity mix in a jurisdiction or market

low-emission power suppliers		Installed capacity of intermittent RE power supply in a jurisdiction and market.
	Number of households, and individuals (males and females) with improved access to low-emission energy sources	Number of electricity customers using RE. Number of households with rooftop solar PV Panels.
PHASE TWO		
Project Output: 2.2 Smart grid	Advanced Distribution Management system Smart Grid Strategy	Advanced Distribution Management system operational Smart Grid Strategy developed
Project Output: 2.3 PV deployment	Actual MW installed by category (gender-disaggregated data)	No revision
Project Output: 3.1 PV mini-grids on the outer island of Agalega	Capacity of PV systems installed Number of OIDC staff trained	No revision

Relevance

The project is fully aligned with the following key Government policies and strategies:

1. The Second and Third National Communication to the UNFCCC (2010 and 2016)
2. The UNFCCC Technology Needs Assessment (2012)
3. The Nationally Determined Contribution (NDC) Action Plan (2015)
4. The Long-Term Energy Strategy (LTES) 2009-2025
5. The Renewable Energy Roadmap 2030 for the electricity sector
6. The Electricity Act (passed in parliament in December 2020 but not yet proclaimed)
7. The Climate Change Act (2020)
8. The National Gender Policy Framework

It is to be noted that the project was formulated in 2015 taking into consideration the LTES with two key targets: (1) a RE target of at least 35% of electricity production by 2025; and (2) the establishment of MARENA. During implementation of Phase 1 the Renewable Energy Roadmap 2030 for the electricity sector was released in 2019 with a RE target of at least 35% of electricity production by 2025 and 40% by 2030. The roadmap makes specific reference to the GCF project. The latter therefore remains one of the key contributors to the government's target to reach a 35% share of RE in the energy mix by 2025. Government's commitment to fully engage in the decarbonisation of the economy despite the setbacks caused by the pandemic is evidenced in the Government's budget speeches for the financial year 2020/2021 and 2021/2022 in which various activities facilitated directly by the GCF project are mentioned. In the 2021-22 budget speech Government announced an even more ambitious target of producing 60 percent of the country's energy needs from green sources by 2030 as well as the total phased out of the use of coal before 2030. Compared to the 2015 INDC target of 30% GHG emissions reduction by 2030, the mitigation ambition of Mauritius in the updated INDC in 2021 has been significantly enhanced with a revised target of 40% GHG emissions reduction by 2030. All stakeholders interviewed highlighted that the

project was timely and still highly relevant, and it has been credited by all stakeholders for paving the way for more ambitious RE targets by Government. The transition to a low carbon economy is also now much more imperative for Government because of the economic impact of the pandemic. Less reliance on the import of fossil fuels will create the fiscal space to emerge from the impact of the pandemic.

Progress Towards Results

4.1.3 Progress towards outcomes analysis

Table 4 summarizes the progress towards the end-of-phase I targets with specific information per output and indicator (traffic light "Dashboard" of progress). In this Progress Towards Results Matrix information is presented based on the stakeholder interviews, progress reports and the results framework.

Given that the direct emissions reductions attributable to the project will result from the direct installation of PV Phase II, the current value is still nil. As per the Energy and Water Statistics from Statistics Mauritius, the intermittent RE (PV and Wind) generated in 2017, 2018, 2019 and 2020 was 53.8 GWh, 64.5 GWh, 143.7 GWh and 163.8 GWh respectively. The baseline maximum grid absorption capacity was 60 MW IRE or a yearly generation of 97.2 GWH. This maximum IRE generated was thus exceeded by 46.5 GWh and 66.6 GWh in 2019 and 2020 respectively. Assuming the same value for 2021 as for 2020, the already connected BESS has contributed to an increased capacity of 55.5 MW, which resulted in production of approximately 179 700 MWh of clean energy into the grid, thereby indirectly avoiding **about 181 500 tCO_{2e}** in Phase I till Dec 2021 (based on a grid emission factor of 1.01 tCO_{2e}/MWh). As per the approved Funding Proposal (FP), the project is on track to achieve GHG emission reductions (direct and indirect emission reductions) of ~681,000 tCO_{2e} by the end of the project (196,000 tCO_{2e} direct and 484,800 tCO_{2e} indirect).

The status of activities and actual achievements for the outputs at the end of Phase I for Outcome 1 of the project is as follows:

Output 1.1: **Institutional strengthening of the Mauritius Renewable Energy Agency and of the Utility Regulatory Authority (URA)**

- 31 technical reports and publications (see Annex 7 for the list) have been produced.
- The National Grid Code for the Electricity Sector in Mauritius has been approved by URA, the regulatory body. The Grid Code contains principles, operating procedures, and technical standards governing the operation of the electricity system and all interconnected generating facilities required to be used by the key players in the electricity sector. This is a key component for URA in order to be able to regulate the electricity market. Following a policy change in the electricity market model, there were further amendments in Parliament to the Electricity and CEB Acts in December 2020 which has necessitated changes to the Grid Code[22]. It is now expected, as per the interview with the CEO of URA, that the Electricity Act will be proclaimed in November 2021.
- The report on the Tariff Methodology and Guidelines has been approved by the URA Board. This report elaborates the specific tariff methodologies and guidelines for each sub sector in the electricity market.
- The MARENA (Standards for Renewable Energy Technologies) Regulations 2021 integrated under the MARENA Act have been submitted for legal vetting by the Attorney General's Office and are expected

- [22]https://pmo.govmu.org/CabinetDecision/2020/Cabinet_Decisions_taken_on__04_DECEMBER_2020.pdf

to assist in determining the conditions to obtain a Renewable Energy (RE) Certificate necessary to manufacture, supply or import renewable energy technology goods into Mauritius.

- The Renewable Energy (Accreditation Mechanisms for Operators) Regulations 2021 integrated under the MARENA Act have been prepared and will soon be submitted by MARENA to the MEPU. It defines the conditions under which a Renewable Energy and Related Technologies (RERT) Technician or Installer shall obtain the required license to provide RERT services.
- A Management Information Systems (MIS) has been implemented at both MARENA and the URA. Through the MIS, MARENA can automate its administrative and financial systems while the URA now has an up-to-date website[23] including a web-based application for its online licensing system integrated with its financial system and a web application for registering complaints. Through the GCF project, servers and related equipment were also bought to ensure that the URA has an appropriate environment to operate efficiently.
- An online Project Evaluation toolkit (PET) and a Levelized Cost of Electricity (LCOE) toolkit have been produced for the evaluation of RE projects. The PET tool is already being used to analyse the National Scheme for Emerging/Innovative Renewable Energy Technologies (NSEIRET) projects launched by MARENA in collaboration with the Mauritius Research and Innovation Council (MRIC) and CEB. The LCOE tool help experts in strengthening their capacity in undertaking financial and economic analysis so that they can provide advice to decision-makers in renewable energy investments.
- The following technical reports have been prepared for policy planning and project evaluation and implementation:
  (i) Report on socio-economic analyses of energy sources with an Excel tool to analyse the impact of implementation of energy systems. It is being used to review the roadmap.
  (ii) Report on Incentive Schemes for the Development of Renewable Energy.
  (iii) Report on Funding Strategies and Schemes for Accelerating RE Transition.
  (iv) Report on Framework for Green Jobs in the RE Sector (which will be included as an addendum to the RE Roadmap 2030).
  (v) Feasibility study for floating solar PV. This assessment led to a proposal to include the costs of installation of a 2 MW solar PV plant as a national budget measure in the Government Budget 2020/2021.
  (vi) Report on guidelines, norms and standards and institutional requirements for implementation.
  (vii) Report on Institutional Mapping of the Electricity Sector in Mauritius.
  (viii)Report on an operational framework for MARENA to efficiently deliver services in a customer-friendly, transparent and timely manner as a one-stop-shop for energy investors.
  (ix) Report on the institutional processes and policy recommendations for implementing and ensuring compliance with the guidelines and various standards set for different RETs
- Capacity Needs Assessment and HR roadmap for both MARENA and URA. The report for MARENA would allow the successful implementation of the Renewable Energy Strategic Plan (RESP) of MARENA (2018-2023) as required by the MARENA Act 2015. The HR roadmap has been used for consolidating the submission of MARENA to the Pay Research Bureau (PRB) aimed at adequately staffing MARENA and improving the conditions of service of the personnel that would enhance recruitment at MARENA and decrease staff turnover.
- A Budget/Costing Plan for implementation of the RESP of MARENA (2018-2023).
- A Monitoring, Evaluation and Reporting Framework for the implementation of the RESP of MARENA (2018-2023).

- 23 (https://uramauritius.mu/)

- As at end of August 2021, 10 staff at MARENA (5 female staff including the CEO) and 14 staff at URA (9 female staff including the CEO) were in place. Recruitment of 3 additional staff at MARENA was ongoing at IE.
- A Communication and Branding Strategy for MARENA has been prepared.
- MARENA staff have successfully completed the following online courses related to Renewable Energy: Renewable Energy Management and Finance; Renewable Energy Solutions; Solar photovoltaic; Electrics for Renewables; Wave and Hydro Power; Biomass; Project management for renewable energy projects.
- Awareness materials including a booklet on Solar Photovoltaic (in English and Mauritian Creole) have been developed for awareness raising.
- As of December 2020, a total of 1503 women at grassroots level have been sensitised on renewable energy through awareness sessions. It has helped these women to better understand the principles of RE and its benefits and stimulate their interest in the deployment phase (Phase 2) of the project, which will see low-income households benefit from rebates for solar PV equipment. The feedback gathered from the awareness session was used to also formulate a training programme on women entrepreneurship and basics of PV. Awareness sessions have been impacted by Covid 19 and at IE a last awareness session was ongoing.
- As of December 2020, 89 women have benefitted from a non-award training on 'Women Entrepreneurship and Basics of Solar PVs' delivered by the Mauritius Institute of Training and Development (MITD). The main objective of the training was to provide women employed or running micro/ small enterprises an entry level understanding of entrepreneurial skills and an overview on the technical requirements for the installation, operation, and maintenance of solar PV systems. The overall evaluation of the training, as captured by the participants in an anonymous evaluation sheet, was rated "very good". The training cost was initially planned to be covered under the GCF component 1 project. However, the Clinton Climate Initiative under the Clinton Foundation proposed to fund the training as part of its capacity building initiatives for 2020. Thus, the amount paid by the Clinton Foundation in 2020 has been accounted for as a cost sharing of the MEPU to the GCF project. Given the successful implementation of the training and the cost savings achieved, the Sub Board for component 1 approved the continuation of the training in 2021 to include men as well funded by the GCF project.

An overview of the bullet points above clearly indicates that, overall, despite the challenge caused by the pandemic, the contribution of the GCF project under Output 1.1 has materialised in a substantive manner with all the consultancies completed and the drafting of legislation/regulations and the strengthening of MARENA. The Electricity Act 2005, the Central Electricity Board Act 1964, the Utility Regulatory Authority (URA) Act 2004 and the Mauritius Renewable Energy Agency (MARENA) Act 2015, establish the foundations for the deployment for renewable energy in the country. In the (not yet proclaimed) Electricity Act 2005, are defined the licensing procedure, the obligations of licensees and the tariffication principles. This Act has remained in draft form for several years showing the underlying challenges for its proclamation. However, recent developments testify of the progress towards its proclamation soon and as confirmed during the interview with the CEO of URA, the project has been catalytic for this to happen. For instance, in December 2020 there was an amendment of the Electricity Act and CEB act harmonising the legislation, bringing amendments to some types of licences, and clarifying some provisions. At a second level, regulations regarding RET and operators have been developed by MARENA.

Without a good regulator it will be impossible to reach ambitious RE targets and the project has helped URA to grow as a regulator. The grid codes and tariff methodology are milestones deliveries of this project

which will allow the Electricity Act to be proclaimed and the regulation of the electricity market. But with change in the Electricity and CEB Act in Dec 2020 following a change in policy in the electricity market model, some provisions had to be amended in the grid code and tariff methodology. MARENA is assisting the URA with the DBSA co-funding for this consultancy. For URA to be functional the licensing system must be in place and the project has empowered URA for this purpose. As per the interview with the CEO of URA, the Electricity Act will be proclaimed by November 2021 after a stakeholder engagement process. The licensing system will ensure the financial sustainability of URA.

MARENA currently has 10 staff with a CEO who has worked internationally on RE as well as three research officers including an Energy Economist. It needs more technical staff as per the HR roadmap. There was a delay in the recruitment of more staff due to the economic impact of Covid-19 and instructions from the parent Ministry to cut down costs and to freeze recruitments in 2020. There has been an advertisement in 2021 for the recruitment of 3 additional staff before the end of the year with profiles based on the capacity needs assessment. There has been an issue of staff turnover at MARENA which will be attenuated with its operation under the Pay Research Bureau (PRB) scheme soon and staff will no longer be recruited on a contractual basis. The staff turnover had no significant impact on the outputs as the UNDP team and the Project sub-board provided the necessary technical assistance to MARENA. The main issue identified for the staff turnover during the interviews was the contractual recruitment. The capacity needs assessment and HR roadmap report for MARENA has been used for consolidating the Pay Research Bureau (PRB) report to MARENA's Board aimed at adequately staffing MARENA and improving the conditions of service of the personnel that would allow the successful implementation of the first national Renewable Energy Strategic Plan (RESP) for the Republic of Mauritius. The PRB Report has been approved by MARENA's Board, submitted to the PRB in 2020 and the report, at the time of IE , was expected to be approved 2021 for implementation as from January 2022.

With the new ambitious target of 60% RE in the electricity mix by 2030 as well as climate targets, Government will need a strong advisory arm. MARENA is the nodal agency for Government, the focal point for IRENA and is increasingly involved in inter-ministerial meetings and currently spearheading the revision of the RE roadmap. Since its creation, there has been a specific budgetary provision for MARENA in the annual budget. During the interviews MEPU and the MOFEPD confirmed the commitment of Government for continued funding, especially in the context of the revised ambitious targets announced in the 2021-22 budget. Budgetary provisions have been made for the next 3 years in the 2021-22 budget. MARENA is bound to progress further. The technical reports will be useful in policy planning. It also now has the necessary tools and staff have been provided training on RE and techniques for assessing RE projects. At IE, it launched an expression of interest for the provision of consultancy services required for conducting a feasibility study of ocean renewable energy technologies. The GCF project has also provided the institution with an ERP for the running of the organization. MARENA is a young institution, slowly becoming visible and with the branding strategy, feasibility studies, awareness sessions and the ambitious government target for RE, it will become more visible.

The awareness sessions have led to the training for women entrepreneurs, and this is being followed by a scholarship scheme launched by MARENA for technical training by the UoM and MITD with the support of UNDP and the British High Commission. All these activities will help in Phase II.

At IE, URA and MARENA are both functional agencies with a core staff and the key regulatory instruments soon to be in place. The activities under Output 1.1 are on target to be achieved before the end of the year. Considering that two important activities of this output are still in progress (Electricity Act yet to be

proclaimed and MARENA is still recruiting) the overall progress towards achievement for Outcome 1 is assessed as on track and has been rated as Satisfactory.

The country has set an ambitious RE target and has a strategy/roadmap drafting the transition towards higher RE shares. Experience has shown that deployment figures can be far below the amount required for target achievement. There must be an official monitoring process in place as well as an independent evaluation process established. A robust structure for monitoring (independent institution with access to all relevant data, following a transparent process subject to public reporting) must be established and in addition to monitoring, a regular (e. g. every 3-4 years) evaluation of the results achieved has to be performed. The assessment process must be transparent, independent, and fair. It should be executed by an independent institution not tied to any of the stakeholders involved (i.e. not from government, utilities etc.). The results of the evaluation should be used in a defined and prompt amendment process of the policy. It is recommended that during Phase II such an evaluation is carried out.

The status of the output and actual achievements at the time of the IE for Outcome 2 is as follows:

Output 2.1 Improving Grid Absorption Capacity to accept 185 MW intermittent RE

- The Automatic Generation Control (AGC) system is more than 85% completed with the fine-tuning exercise at Fort Victoria power station yet to occur due to experts unable to travel due to restricted flights and border closure in Mauritius. Once all tunings are done, the licenses will be procured (for both Saint Louis and Fort Victoria CEB Power Stations). This is now expected to happen just after the opening of the borders on 1st October 2021. The Automatic General Control (AGC) system aims to automate the regulation of power generation (as a function of demand), dispatching and system monitoring and control functions and is part of CEB-financing towards the project.
- 14 MW of BESS out of 18 MW (or 80%) have been installed at 4 CEB substations and are operational at IE. The commissioning of the remaining 4MW BESS (after the damage of a 4MW BESS during shipment) is expected in November 2021. These BESS are the basis for the absorption of excess energy from intermittent renewable energy sources and releasing them, when the need arises, back to the grid to achieve the functions of frequency and voltage stabilization.
- The Grid, at IE, was absorbing 115.5 MW, of intermittent RE.
- 30 CEB engineers and technicians have undergone a theoretical and hands-on-training during the installation and Commissioning of the BESS. They now have a better theoretical grasp and understanding of the BESS functionalities, parameters, and settings in order to ensure optimum performance .
- 28 staff from the CEB underwent a training on Basic Simatic S7 PLC & SCADA training from the Mauritius Institute of Training & Development (MITD), a local provider. The training is aimed at enhancing the programming capabilities of the SCADA operators.

With the 4 MW damaged BESS to be replaced by November 2021 and with the AGC software licenses to be purchased by October 2021, all the activities for Output 2.1 will be completed by the end of the year. In 2018, as per CEB data, 34 MW of renewable energy systems was integrated to the grid. The 14 MW of BESS currently installed is now contributing to a larger share of intermittent RE on the grid (115.5 MW at IE). CEB has recently launched RFPs for utility scale solar (30 MW) and wind (40 MW) RE and is also supporting SSDG and MSDG for solar panels (25 MW in Phase 2). The 18 MW of BESS and the AGC will thus be contributing to this larger share of RE on the grid. CEB engineers and technicians have undergone a theoretical and hands-on-training during the installation and commissioning of the BESS have been

trained for enhancing their programming capabilities in view of better manipulating the new technologies being implemented (BESS, AGC, ADMS etc.). The CEB is anticipating that in order to implement expeditiously upcoming RE projects with the view to meet the goals set for the GCF Project and by extension the national targets of 35% RE in 2025 and 60% in 2030, it will need the support of experts (technical, financial and legal) in the field of hybrid renewable energy facilities (solar PV + BESS, Wind + BESS or Solar PV + Wind + BESS) so as to assist in the preparation of tender documents, preparation of Power Purchase Agreement (PPA); and Capacity building for CEB officers in negotiation, legal, financial and technical related matters.

An overview of the bullet points above clearly indicates that overall, despite the challenge caused by the pandemic, the activities under Output 2.1 are on target to be achieved soon and whatever has not yet been completed is beyond the control of the project team (damaged BESS during shipment and border closure because of the pandemic). Accordingly, the progress towards results for Outcome 2 is rated as Satisfactory.

4.3.2 Effectiveness and Efficiency

The evaluation team notes an overall effectiveness of the project in progressing to reach its set targets, as detailed in section 4.3.1. Of the 5 activity lines for Phase I, the 3 activities for Component 2 are assessed as fully on track or (almost) completed and the 2 activities for Component 1 are on target to be achieved before the end of the year. The PMU team has shown to be adaptive in its coping with various delays and constraints affecting the implementation progress especially in the present pandemic. Delays in the recruitment of the project team resulted in delays (of 9 months) in the overall project implementation, meaning that the project effectively started implementation in the latter part of 2Q 2018 versus 3Q 2017 as indicated in Schedule 5 of the FAA. Accelerated progress was noted once the project team was in place and increasing efficiency over the years is evidenced by the clear timelines presented in the APRs of 2019 and 2020 for all activity lines, reflecting the PMU's attention to deliver planned interventions. A slow start is not unusual for such a complex project and as evidenced by the financial delivery development over the last years, with a total delivery of 95% in Phase 1, effectiveness and realistic work plan and execution and rated financial delivery efficiency has come to more than satisfactory levels. Overall, planned inputs and strategies have been appropriate and adequate to address the barriers identified during project design.

The introduction of the grid strengthening has unlocked private sector investment for 81.5 MW of intermittent RE by August 2021. The intermittent RE generated increased from 53.8 GWh in 2017 to 64.5 GWh, 143.7 GWh and 163.8 GWh in 2018, 2019 and 2020 respectively. The indirect emissions avoided in Phase 1 with increasing installations of intermittent RE power on the grid (115.5 MW as of August 2021 compared to 34 MW at the start of the project) through increased grid absorption capacity for intermittent RE is estimated at 181 500 tonnes of CO_2.

In the next sections assessment of the stakeholder engagement, together with knowledge management, with specific recommendations to enhance effectiveness within realistic margins are presented. During Phase I, the GCF grants have been augmented by significant co-financing by Government (including CEB). Unplanned co-financing came from a grant from the SADC Secretariat through the Development Bank of Southern Africa (DBSA) for consultancy services for the establishment of a National Grid Code and Development of Standards, Funding, and Incentive Strategy for Renewable Energy. In another instance through Clinton Foundation Initiative 89 women benefitted from a non-award training course on entrepreneurship and basics of PV. These unplanned co-financing contributed to achieve additional activities. The co-financing ratio at the end Phase I is approximately 2: 1. Had there been no procurement

issue and had the AFD loan been disbursed, the co-financing ratio would have been 1: 2. A significant delay was encountered in the procurement of the 14 MW BESS due notably to the lengthy technical evaluation (requiring clarifications from bidders), appeals from unsuccessful bidders, impact of Covid-19 on the supply chain, and damaged of a set of batteries during shipment which had to be replaced. This demanded a request for an extension for Phase I to show concrete deliverables, which has been approved.

4.3.3 Remaining risks to achieving the project objective

The key risks that remain that may influence the achievement of the project's objective in Phase 2 and the mitigation strategies proposed are included in Table 4.

Table 4: Summary of risks and mitigation strategies

Barrier	Description and Mitigation Strategy
Technical and Operational	
Lengthy public procurement processes	The project needs to implement forward planning and timely updating of the Procurement Plan to anticipate delays for Phase II. The work planning should take into account: to i. the need to work closely with the executing entity and the Project sub board for Component 2, ii) the review and confirmation/finalization of scope, specifications, and ToRs to facilitate a more efficient procurement process for the Solar PV Panels, iii) the time frame for the procurement process through the Central Procurement Board (CPB) and possible iV) appeals through the Independent Review Panel (IRP). The project team should fast track procurement or invite shortlisted consultants where appropriate. Also, for some matters. UNDP´s procurement systems may also be faster/more efficient for some of the procurement.
Capacity Issues	Under Component 2 of the GCF project, and in the second phase of its implementation, 25MW of rooftop Solar PV systems are to be deployed over a period of 5 years. This was always a challenge as, over the past decade and on average, 1 to 2 MW of small-scale distributed generation (SSDG) rooftop solar PV systems are rolled out on a yearly basis. Now with the revised timeline for Phase II, the target is to roll out more than 5 MW per year. There is a lack of human and technical capacity in public and private sector for such a rate of deployment in Phase II. It is recommended to set up a Public-Private Implementation committee for PV deployment in Phase II as a sub-committee of Project Sub-board for Component 2.
Covid-19	There is a need to enhance and use national contractors considering COVID 19 travel restrictions wherever possible. As new variants of COVID 19 are seen in some parts of the world, it could impact future activities which might supply chain disruption in Phase 2 as well. Digital solutions like webinars are to be used for more stakeholder engagement
Risk of Cyclonic winds to Solar PV Panels	The risk of cyclonic winds to PV Panels during Phase 2 is considered moderate and appropriate tender specifications and insurance cover needs to be ensured.
Environmental	
Batteries and PV Panels recycling/disposal	There is a risk of containment breach during the decommissioning of the BESS with potential spillage of electrolytes, contamination of environment and injury. A consultancy study on the best strategy for safe recycling and disposal of used batteries and Solar PV Panels must be carried out and CEB should have a decommissioning plan for the BESS. Ensure compliance with the environmental and social management plan and relevant waste management legislation.

Financial	
Access to Contingency Fund	Any unspent funding from Phase I (estimated at 5% of the disbursed fund in Phase I i.e about USD 60 000) is recommended to be carried over to Phase II for capacity building/awareness raising/technical support/feasibility studies. Any savings made in Phase II due to decreasing costs of solar PV Panels can also be used for these purposes
Economic Impact of Covid-19	For financial sustainability, MARENA needs to mobilize more green funds from International Financing Institutions (IFIs). There may be rising installation costs and increase of project budgets due to shortage of technical staff and more training will need to be delivered.

Table 5: Progress Towards Results Matrix (Achievement of indicators against End-of-project Targets)

Indicator Assessment Key

Green= Achieved	Yellow= On target to be achieved	Red= Not on target to be achieved

Project Strategy	Indicator	Baseline Level	Level in 1st APR (self-reported)	Midterm Target	End-of-project Target	Midterm Level & Assessment	Achievement Rating	Justification for rating
Fund level Impact M1.0 Reduced emissions through increased low-emission energy access and power generation	Indicator: Tonnes of carbon dioxide equivalent (tCO2eq) reduced or avoided as a result of Fund funded projects / programmes	0	0	24,240 (direct)	196,000 (direct) 484,800 (indirect)		N/A	Given that the direct emissions reductions attributable to the project will result from the direct installation of PV in phase II , the current value is still nil. The intermittent RE generated increased from 53.8 GWh in 2017 to 64.5 GWh, 143.7 GWh and 163.8 GWh in 2018, 2019 and 2020 respectively. The indirect emissions avoided in Phase 1 with increasing installations of intermittent RE power on the grid (115.5 MW as of August 2021 compared to 34 MW at the start of the project) through increased grid absorption capacity for intermittent RE is estimated at 181,500 tonnes of CO_2.
Outcome 1 Strengthened institutional and regulatory systems	Indicator: Institutional and regulatory systems that improve incentives for low-emission planning and development and their effective implementation	Renewable Energy Agency existing at Board level only (MARENA)	Progress made	Additional Legislation Enacted 10 Staff recruited for MARENA (mid-term phase I)	MARENA operational MARENA staff fully trained (End of Phase I)		S	An enabling environment has been created through an enhanced policy and regulatory framework and the strengthening of URA and MARENA. In the (not yet proclaimed) Electricity Act 2005, are defined the licensing procedure, the obligations of licensees and the tariffication principles. This Act has remained in draft form for several years showing the underlying challenges for its proclamation. However, recent developments testify of the progress towards its proclamation within 2021 and the project has been catalytic for this to happen. At a second level, regulations regarding RET and operators have been developed by MARENA. Without a good regulator it will be impossible to reach ambitious RE targets and the project has helped URA to grow as a regulator. The grid codes and tariff methodology are milestones deliveries of this project which will allow the Electricity Act to be proclaimed soon and the subsequent regulation of the electricity market. But with change in the Electricity and CEB Act in Dec 2020 following a change in policy in the electricity market model, some provisions had to be amended in the grid code and tariff methodology. For URA to be functional the licensing system must be in place and the project has empowered URA for this purpose. The licensing system will ensure the financial sustainability of URA.

								Staffing of MARENA has been challenging. It currently has 10 staff with a CEO who has worked internationally on RE as well as three research officers including an Energy Economist. There was a delay in the recruitment of more staff due to the economic impact of Covid-19 but 3 additional staff will be recruited soon with profiles based on the capacity needs assessment. There has been an Issue of staff turnover at MARENA which will be attenuated when it will be under the PRB scheme. With the new ambitious target of 60% RE in the electricity mix by 2030 as well as climate targets, Government will need a strong advisory arm and MARENA is the nodal agency for RE. It is increasingly involved in inter-ministerial meetings and currently spearheading the revision of the RE roadmap. There is commitment from the parent Ministry for continued funding and recruitment and MARENA is bound to grow. The technical reports will be useful in policy planning. It also now has the necessary tools and staff have been provided training on RE and techniques for assessing RE projects. The project has also provided the institution with an ERP for the running of the organization. MARENA is a young institution, slowly becoming visible and with the branding strategy, awareness sessions and the ambitious government target for RE, it will become more visible. The awareness sessions have led to the training for women entrepreneurs, and this is being followed by a scholarship scheme launched by MARENA for technical training. All these activities will help in Phase 2. URA and MARENA are both functional agencies with a core staff and the key regulatory instruments are soon to be in place. Considering that the activities of this output are still in progress (Electricity Act yet to be proclaimed and MARENA is still recruiting) the overall progress towards achievement for Outcome 1 is assessed as on track and has been rated as Satisfactory.
Output1.1 Institutional strengthening of the Mauritius Renewable Energy Agency	Indicators: Renewable Energy Agency Act in place	Act is in place (URA and MARENA Acts) and initial staff recruited for both Institutions.		Supplementary legislation/regulations drafted Licensing framework in place for URA	MARENA functioning as a fully-fledged agency with key regulatory instruments in place.		S	• 31 technical reports and publications have been produced. • The National Grid Code and the Tariff Methodology for the Electricity Sector in Mauritius has been approved by URA, the regulatory body. This is a key component for URA in order to be able to regulate the electricity market. Following a policy change in the electricity market model, there were further amendments in Parliament to the Electricity and CEB Acts in

	Institution staffed by mid-term	Electricity Act of 2005 not yet proclaimed		Electricity Act reviewed and proclaimed 10 staff recruited including at least 4 women	Supplementary legislation/regulations enacted. MARENA/URA staffed as per their strategic action plans 15 staff recruited and capacity built.			December 2020 which has necessitated changes to the Grid Code and tariff methodology. The changes have been made catered through DBSA's support. It is now expected that the Electricity Act will be proclaimed in November 2021. • The online licensing system for URA has been developed. • The MARENA (Standards for Renewable Energy Technologies) Regulations 2021 integrated under the MARENA Act have been submitted for legal vetting by the Attorney General's Office. • The Renewable Energy (Accreditation Mechanisms for Operators) Regulations 2021 integrated under the MARENA Act have been prepared and will soon be submitted by MARENA to the MEPU. • A Management Information Systems (MIS) has been implemented at both MARENA and the URA • An online Project Evaluation toolkit (PET) and a Levelized Cost of Electricity (LCOE) toolkit have been produced for the evaluation of RE projects. • Technical reports have been prepared for policy planning and project evaluation and implementation. • Capacity Needs Assessment and HR roadmap for both MARENA and URA. The report for MARENA would allow the successful implementation of the Renewable Energy Strategic Plan (RESP) of MARENA (2018-2023) as required by the MARENA Act 2015. The HR roadmap has been used for consolidating the submission of MARENA to the Pay Research Bureau (PRB) aimed at adequately staffing MARENA and improving the conditions of service of the personnel that would enhance recruitment at MARENA and decrease staff turnover. • A Budget/Costing Plan for implementation of the RESP of MARENA (2018-2023). • A Monitoring, Evaluation and Reporting Framework for the implementation of the RESP of MARENA (2018-2023). • As at end of August 2021, 10 staff at MARENA (5 female staff including the CEO) and 14 staff at URA (9 female staff including the CEO) were in place. Recruitment of 3 additional staff at MARENA was ongoing at IE. • A Communication and Branding Strategy for MARENA has been prepared. • MARENA staff have successfully completed a number of online courses related to RE.

								• Awareness materials including a booklet on Solar Photovoltaics (in English and Mauritian Creole) have been developed for awareness raising. • As of December 2020, a total of 1503 women at grassroots level have been sensitised on renewable energy through awareness sessions. • As of December 2020, 89 women have benefitted from a non-award training on 'Women Entrepreneurship and Basics of Solar PVs' delivered by the Mauritius Institute of Training and Development (MITD). An overview of the bullet points above clearly indicates that, overall, despite the challenge caused by the pandemic, the contribution of the GCF project under Output 1.1 has materialised in a substantive manner with all the consultancies completed and the creation of an enabling environment through an enhanced policy and regulatory framework and the strengthening of MARENA. Considering that the activities of this output are still in progress (Electricity Act yet to be proclaimed and MARENA is still recruiting) the overall progress towards achievement for Output 1.1 is assessed as on track and has been rated as Satisfactory.
Outcome 2 Increased number of small, medium and large low-emission power suppliers	Indicator: Proportion of low-emission power supply in a jurisdiction or market	20%	20%	28%	35% in 2024		S	In 2020 the proportion of RE generated in the electricity mix was 23.9%. In 2018, as per CEB data, 34 MW of renewable energy systems was integrated to the grid. The 14 MW of BESS currently installed is now contributing to a larger share of intermittent RE on the grid (115.5 MW at IE). CEB has recently launched RFPs for utility scale solar (30 MW) and wind (40 MW) RE and is also supporting SSDG and MSDG for solar panels (25 MW in Phase 2). The 18 MW of BESS and the AGC will thus be contributing to this larger share of RE on the grid. Accordingly, the progress towards results for Outcome 2 is rated as Satisfactory.
	Indicator: Number of households, and individuals (males and females) with improved access to low-emission energy sources	83,000 households Males: 124,828 Females: 127,350	No Change	100,000 households Males: 174,760 Females: 178,292	129,500 households Males: 218,450 Females: 222,865		S	Based on the proportion of RE in the electricity mix of 23.9% and as per the assumptions in the Pro-Doc: 111,900 households Males:195,555 Females:198,500

Output 2.1 Improving Grid Absorption Capacity to accept 185 MW intermittent RE	Indicators: Software purchased Battery energy storage system procured	No AGC software installed No batteries Grid able to accept 60 MW		AGC software and batteries purchased and installed Grid able to accept 100 MW	All equipment installed and grid able to accept a total of 185 MW installed RE capacity		S	About 80% of the BESS have been installed and are operational and about 85% of the AGC system is completed. With the 4 MW damaged BESS to be replaced by November 2021 and with the AGC software licenses to be purchased by October 2021, all the activities for Output 2.1 will be completed by the end of the year. In 2018, as per CEB data, 34 MW of renewable energy systems was integrated to the grid. The 14 MW of BESS currently installed is now contributing to a larger share of intermittent RE on the grid (115.5 MW at IE). CEB has recently launched RFPs for utility scale solar (30 MW) and wind (40 MW) RE and is also supporting SSDG and MSDG for solar panels (25 MW in Phase 2). The 18 MW of BESS and the AGC will thus be contributing to this larger share of RE on the grid. CEB engineers and technicians have undergone a theoretical and hands-on-training during the installation and commissioning of the BESS have been trained for enhancing their programming capabilities in view of better manipulating the new technologies being implemented (BESS, AGC, ADMS etc.). The activities under Output 2.1 are fully on track and almost completed and whatever has not yet been completed is beyond the control of the project team (damaged BESS during shipment and border closure because of the pandemic). Accordingly, the progress towards results for Output 2.1 .is rated as Satisfactory.

Project Implementation and Adaptive Management

4.1.4 Management Arrangements

The FAA effectiveness on 11 July 2017 is considered as the start date of project implementation. UNDP received the first disbursement in September 2017 and an inception workshop was held on 9 – 10 November 2017 to discuss and plan the project activities with relevant stakeholders including Ministries, Department, Agencies, Civil Society, private sector, and District Local Governments from the project areas. UNDP initiated the recruitment process after receiving the disbursement and Project Coordinator was recruited in April 2018 followed by project teams for component 1 and 2. The Finance Assistant, however, was on board only in December 2018.

UNDP is implementing the project following its National Implementation Modality (NIM) and in accordance with the Financial Regulations and Rules (FRR) of UNDP and the terms of the Standard Basic Assistance Agreement (SBAA) entered between UNDP and the Government of Mauritius on 29 August 1974. To operationalise the NIM UNDP signed subsidiary agreements with the Ministry of Finance, and Economic Development (MoFEPD) and responsible parties -- Ministry of Energy and Public Utilities (MEPU), and the Central Electricity Board (CEB), as well as the Outer Islands Development Corporation in accordance with the SBAA. The MoFEPD takes the overall responsibility of the project and has set up a Project Board consisting of the relevant stakeholders.

MARENA and URA execute Component 1 under the guidance of MEPU whereas Component 2 is executed by the CEB. Both components have separate Project Managers and the responsible agencies have set up separate project sub boards for their components. The UNDP Country Office on the other hand has set up a Project Management Unit comprising of Project Coordinator, Gender, and Monitoring and Evaluation Officer, and Finance Assistance. In addition, the Global Technical Advisor supports the project and facilitates as a liaison between GCF and the project. The evaluation found the project arrangement adequate.

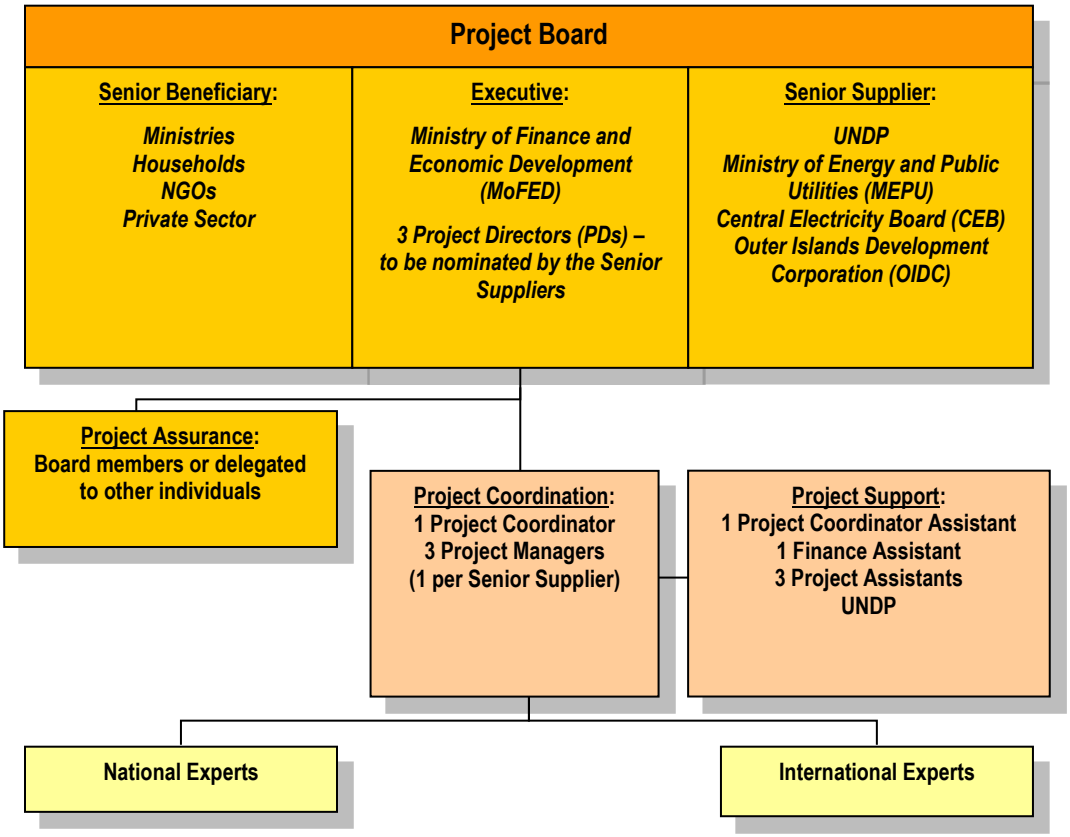

Figure 3: Project Organisation Structure

With substantial delays in team recruitment, the project activities started only after nine months of project approval. While the project was making good progress in Component 2, the Component 1 Project Manager resigned following an unsatisfactory performance appraisal. The evaluation was informed that poor performance of the PM resulted in delays in developing various terms of references (ToRs) required for completing the required consultancies on developing policy related activities for institutional strengthening of renewable energy. Component 1 activities are crucial as the funding proposal mentions -- *principal outcome of Component 1 will be the emergence of a strengthened institutional and regulatory system for renewable energy in Mauritius, which will directly facilitate the implementation of Component 2*. To catch-up with this delay, the project in consultation with MARENA and URA lumped different consultancies required for Component 1 in one single Call for tender. With the recruitment of new PM, Component 1 made good progress and most of the planned activities were accomplished or are in the process of accomplishment. The evaluation noted that there has been frequent staff turnover in MARENA, and to-date has 10 staff members instead of 15 as planned. The reasons as explained to the IE on staff turnover are mainly due to yearly contractual job and better opportunities. MARENA however will be hiring staff members as permanent employees and is believed to minimize the staff turnover. New recruitment, however, was due to restrictions imposed by the Government on hiring new staff due to COVID-19 pandemic. Also, a secondment strategy allowing experienced MEPU and CEB staff to work for MARENA for a limited period (1 – 2 years) to build capacity , as envisioned during the inception workshop,

did not materialise due to shortage of staff at these institutions. The CEO of MARENA assured the evaluation that three staff members would be recruited by November 2021.

At present, the PMU is adequately staffed except for the position of Assistants. Having specific Project Managers for each component enables them to "deep dive" in each component and follow their activities closely. This however increases the project cost but is considered as effective arrangement while working with two different Government entities. The workspace of the Project Managers within MARENA and CEB facilitates an informal and efficient working arrangement, with short lines to key stakeholders and direct and quick communication. Project implementation has responded to changing conditions and risks and taken advantage of opportunities for partnerships and actions that support the overall project objective. Several major adaptive management measures were necessary during project implementation. The Project Preparation and Development Facility (PPDF) of South African Development Community, awarded MARENA a USD 500,000 grant for renewable energy studies (through the Development Bank of South Africa- DBSA). Given the objectives of the DBSA funded project are complementary with the GCF project and to avoid duplication, a joint term of reference was developed with the support of the GCF project team. Support of Clinton Foundation for the training of women entrepreneurs was also secured by the project team. Owing to the proprietary nature of the AGC works and the existing agreement between GE Grid Solutions Ltd and CEB, no open tender exercise was required for the AGC activities. Following internal discussions between the CEB and UNDP, and after the approval of the sub-board committee (on 24 September 2018), it was decided that the USD1M initially earmarked for the AGC be re-routed towards the procurement of 1.5MW BESS for Rodrigues while the CEB will, with its own funds, invest in the AGC. With the impact of COVID, CEB staff couldot travel to Spain for the Factory Acceptance Test (FAT) for the procured BESS and the project team reacted well by recruiting a consultant in Spain for that purpose. The PMU team adapted to the new working conditions created by the pandemic and provided necessary backstopping assistance to MARENA with staff turnover and delays in recruitments. Project sub-board members, who are directly impacted by recommendations in consultancy reports, were requested to help in reviewing some of the technical deliverables. The URA being also a young institution with new and inexperienced staff, extensive guidance was provided by the PMU for the review of key deliverables. Management arrangements are hands-on, and the PMU is assessed as dedicated and technically sound. The PMU team has to be commended for the way they have been able to bring the project on track after a slow start and to adapt to challenging conditions in the present pandemic to make tangible progress and in retrospect, there is substantial learning in this how to prevent such slow start-up phases. All in all, it is commendable how the team has been adaptive (out of necessity) to the changing conditions and challenges they had to face. However, there are remaining areas of improvement, for example in knowledge management.

UNDP has played an essential role in the conceptualization, formulation and presently in the implementation of the project. As Accredited Entity it plays a pivotal role in liaising between GCF and GoM, but in the present phase of implementation the key role of UNDP is in providing supervision and quality assurance support to the PMU and PBs. The GCF project is regarded as a key project for UNDP, forming an essential part of their work plan and budget, and thus receives ample attention. Also, from a developmental perspective, UNDP has a strategy for SIDS and the project is also helping to reach out to other elements of programming with the GCF. The Government stakeholders appreciated the role and support provided by UNDP on the quality and timeliness of technical support, managing the risks, responsiveness on implementation issues, candour and realism in annual reporting, and other required project support besides close and frequent communication. UNDP as the accredited entity for the GCF

project is found to have been providing all required support including backstopping to the project through the PMU.

4.1.5 Work planning

Work planning is being done as per the provisions in the project design document. The funding proposal consists of a logical framework setting targets for overall project planning and reporting. The log frame is designed in accordance with the GCF's Result Management Framework and Performance Measurement Framework. The indicators in the log frame were defined for project objective, outcome, output, and detailed activities. The Minutes of the Project Board and Sub-Board meetings indicate that the stakeholders have been actively engaged in their support to the project and have provided guidance to the project team for specific focus. Based on the log frame, the project developed annual work plans (AWPs) for each year. The AWPs were developed in Atlas indicting broader key activities and corresponding budget by source of funding. The AWPs, however, failed to include activity descriptions as broadly given in the log frame for daily project management and implementation. For example, activity such as training, workshop, conference does not provide information on the scale of the activity indicating topic, number of workshops/ trainings/conferences, and number of expected participants, etc. The evaluation, however, notes that despite this lack of description, actual project management did not suffer in quality. Each Project Manager had their detailed tasks including activities and targets. A project management tool embedded with project accounting tool could be more effective for daily project management and link necessary details of daily planning with more general overview of log frame activities.

4.1.6 Financing

Financial management (planning, reporting, fund flow, etc) is assessed as satisfactory with no issues reported. Quarterly and annual financial reports document the financial delivery of the project. No audit issues were flagged in the independent audit of 2020.

Table 6: Financial delivery for 2017 - 2020 and Q2 2021 based on ATLAS budget data

Year	Budgeted	Expenditure	% Of expenditure
2017	264,000	263,287	99.73
2018	2,610,974	2,254,961	86.36
2019	4,695,532	1,549,529	33.00
2020	7,202,866	6,936,737	96.31
2021	1,716,935	1,136,917	66.22

The total delivery in Phase I is 95% (USD 11, 503,165 out of USD 12,074,158). The average project burn rate is 76.32%, which is good. Except for 2019, the project's planned and actual expenditure for all years is reasonable. The reason for the minimal expenditure in 2019 is due to the delayed award of the contract for the 14 MW BESS following a lengthy procurement process.

Table 7 gives an overview of co-financing sources, types, confirmed amounts at endorsement and actual amounts contributed at IE. Table 8 gives the co-financing from each specific source and how it was used in Phase I.

Table 7: Co-Financing Table

Project Financing	At approval of funding proposal (US$)	At Interim Evaluation (US$)
1] GCF financing:	USD 28,210,000 (12,074,158 for Phase 1)	USD 12,074,158
[2] UNDP contribution:	USD 1,380,000	USD 1,514,900
[3] Government:	USD 123,900,000	USD 4,098,872
4] Other partners: AFD	USD 37,900,000	Utility Regulatory Authority: USD 19,458 (*cost sharing; Mar 2020*) CEB: USD 58,872 (*cost sharing; Aug 2021*) AFD: USD 142,204
[5] Total co-financing [2 + 3+ 4]:	USD 163,180,000	USD 5,834,306
PROJECT TOTAL COSTS [1 + 5]	USD 191,390,000	USD 17,908,464

Table 8: Co-financing sources and use in Phase I

Source	Amount for Phase 1as per FAA (USD)	Amount achieved	%	Use
MEPU C1	1,000,000	779,291	77.9	Cost of Consultants and salaries of Staff of MARENA provided from Government and Rental of Premises for the MARENA
UNDP C1	80,000	77,952	97.4	Assistance from National Gender Expert and International Expert on Knowledge Management and Monitoring and Evaluation
CEB C2	2,000,000	3,319,581	166	Contribution to purchase of Battery Energy Storage System, and upgrade of the national grid
UNDP C2	1,000,000	1,436,948	143.7	Development of Ownership Models, economic studies connected thereto and Solar Map, Awareness raising activities, development of initial smart grid roadmap, contribution to Feed in Tariffs, etc.
AFD	18,700,000	142,204	0.8%	Upgrade of CEB grid.

Except for AFD, the co-financing from other institutions have materialised very satisfactorily, especially from CEB and UNDP. As per the GCF project document, an amount of USD 18.7M was budgeted as co-financing from AFD for Phase I of the project. The USD 18.7M was earmarked for a number of upgrades on the national grid to be implemented by the CEB, including two Gas Insulated Switchgear (GIS) sub-stations. Whilst the credit facility agreement, reflecting the same amount, was signed on 29 November 2018 between AFD and CEB, only about USD 142,200 have been disbursed so far during Phase I of the GCF project. The remaining loan amount is yet to be drawn down by CEB due to delays in the procurement for the GIS projects. Due to the value of the contract amount for the GIS, the procurement had to go through the Central Procurement Board (CPB) which is the centralized procurement authority for high value procurements for public bodies. The functions and operation of the CPB are clearly laid out in the Public Procurement Act 2016. The procurement process (review of bidding documents, bidding exercise, evaluation and up to award) is also clearly defined and regulated by the PPA 2016. As regards the procurement process for the two GIS sub-stations, considerable delays occurred, namely:

i. Delay in finalizing the bid documents and launch of RFP on 27 December 2019 (it was initially planned for mid-2019);
ii. Extension of deadline for bid submissions due to the 1st lockdown in 2020 from 2 Apr to 19 Aug 2020;
iii. Following the evaluation exercise and the delivery of the technical report to AFD for its no-objection (as per the conditions precedent to the 1st disbursement of the loan facility) on 6 November 2020, issues were observed at the level of the evaluation process (due to the strict confidentiality of evaluation of bids, UNDP does not have the exact details of the identified shortcomings).

Following a meeting on 11th October 2021 between the MoFED, CEB, CPB, AFD and UNDP, it was confirmed that the CPB and AFD have agreed to undertake the independent evaluation of the bids received (refer to Annex 11) . AFD has shared the terms of reference with the CPB with the award of the contract (for the independent evaluation team) set to be finalised by 15 November 2021. AFD plans to complete the evaluation by 21 December 2021 and the award of the contract will be made in mid-January 2022. It is expected that the full co-financing amount will materialise within 2 years from the signature of the contract as per the ToR. It is to be noted that AFD co-financing for Phase II has already been confirmed, through a letter of commitment dated 6 April 2020.

Despite delays in the GIS procurement and the upgrade of the two earmarked sub-stations, this should not affect the short-term deployment of intermittent RE projects. In fact, the CEB launched two tenders for a total of 70MW of RE in July 2021 (30MW for utility scale solar and 40MW for utility scale wind), with a project implementation period of maximum 24 months from date of signature of the ESPA. As at end of August 2021, the total capacity of intermittent RE connected to the grid was 115 MW. Together with the realization of the above-mentioned projects, and the 25MW of rooftop SSDG solar PV in Phase II, this will amount to a total of more than 200MW of IRE on the grid (not including other IRE projects which may be launched by the CEB during the course of Phase II) by end of Phase II.

It is also to be noted that, as per the 2021/22 Budget Speech of the Hon. Minister of Finance, Economic Planning & Development in June 2021, the battery energy storage capacity is projected to be boosted from the existing 18MW (as at end of Phase I of GCF project) to a total of 40MW within the next 3 years. This will help to increase further the grid absorption capacity for intermittent RE and enable the on-boarding of more intermittent RE projects by the utility. Though the installation of the GIS will contribute to the strengthening of the grid, the targets for Phase II are not based on the assumption that the installation of the GIS should be completed.

4.1.7 Coherence in climate finance delivery with other multilateral entities

The project is directly supporting the Climate Change Act (2020) and is contributing to the Mauritius 'Nationally Appropriate Mitigation Actions' (NAMA), with a clear mitigation focus. A number of activities are being implemented by CEB and URA under the component 2 of the NAMA project for low carbon island development strategy' (NAMA) project, facilitated by UNDP through the GCF project. The project has also been successful in getting support from other agencies. MARENA received USD 500,000 grant for studies on renewal energy through the Development Bank of Southern Africa in collaboration with Project Preparation and Development Facility of the South African Development Community. Similarly, the Clinton Foundation supported the project in conducting a train-the-trainers programme for women entrepreneurs.

AFD and UNDP work closely together in Mauritius to deliver technical assistance in the most effective manner, and the GCF project represents an example of the two agencies' coordinated approach. The SUNREF Program is an initiative developed by AFD to support financial institutions and their clients to boost financing for projects for sustainable natural resources management, with a focus on clean energy. AFD's action firstly involves offering long-term financial instruments and, secondly, contributing to building the technical capacities of banks and their client companies. The SUNREF Program forms part of Phase II. There are several donor interventions at present (AFD, World Bank, European Union, Commonwealth Secretariat, etc) and the GOM has adopted a very programmatic approach to the role of the GCF project towards supporting RE development. The project has put in place an enabling environment for work by other donors, such as AFD (as noted in the interview with the AFD representative) and the British High Commission, and the potential for blending climate funds remains high. The project has the potential to provide a catalyst for other development agencies especially with the revised ambitious national targets for RE.

4.1.8 Project-level monitoring and evaluation systems

In line with the Monitoring and Evaluation Plan of the ProDoc (pages 36-40) and as presented in the inception report, M&E activities are reflected in quarterly and annual progress reports (APR). These reports were highlighting some of the delays and challenges the project was facing in initial years and the related risks were described in detail, with potential mitigation options. The M&E activities as implemented are in line with the activities as depicted in the M&E plan, that contains all the regular M&E elements. The M&E plan is adequately designed to cover the project indicators and will well aligned with the result framework. Quarterly reports provide a clear status of the project activities including financial expenditure. Annual reporting is done using a format. Quality of the reporting is assessed as satisfactory. It is suggested to add to the M&E plan an annual review workshop to offer a platform for all stakeholders to be informed of and discuss progress and challenges of the project, also serving as a knowledge sharing event. The evaluation team noted a relatively limited use of the present M&E system as a learning and reporting tool. This acknowledges that the internal reporting and obligatory reporting of the project is satisfactory, but that there is ample scope to make use of the learning and knowledge it contains for broader knowledge management.

The Project Board (PB) reviews the overall project activities whereas Project Sub Boards (PSB) set up at components level review the component activities. The Project Board held its meeting once each in 2017 and 2018, and twice each in 2019 and 2020. Similarly, Component 1 and 2 Project Sub Boards met 11 and 9 times respectively between 2017 and 2020. Besides being briefed on the project activities, the boards guided the project. The project initially did not envision for any M&E personnel in their organogram but as from 2021, is getting the assistance of a Gender, Monitoring and Evaluation Officer in the UNDP CO.

Apart from the Country Office staff supporting PMU, there is also regular quality assurance through regional UNDP staff (Regional Technical Advisor), taking part in monitoring missions. In the initial phase of project execution, when through various sources of delays implementation was slow, UNDP has been proactive in addressing together with PMU sources of delay and in finding solutions to gain momentum in delivery and efficiency. The quarterly and annual reporting reviewed by the evaluators is realistic and sufficiently detailed and includes sections on risk perception, mitigation and assessment of environmental and social risks and their potential impact and possible mitigation mechanisms.

4.1.9 Stakeholder engagement

The project documentation and the stakeholder consultations confirm a functional and practical stakeholder engagement. A wide range of stakeholders were involved in the project from initiation. A Local Project Appraisal Committee Meeting was held on 16 July 2015 involving a wide range of stakeholders including Government, UNDP, NGO, private sector, and academia prior to submitting the proposal to GCF. The Committee endorsed the project budget and management approach. All key stakeholders are represented in the Project Boards and sub-boards, which acts, besides being a formal body to review and endorse annual work plans and budgets, as a technical forum to give guidance and advice to the project management team and review project reports of consultants. The Minutes of Project Board and Sub-board meetings indicate that the stakeholders have been actively engaged in their support to the project and have provided guidance to the project team for specific focus. Further technical guidance and advice to the PMU and PMs are provided by the sub boards that convenes bi-annually or on need basis. By establishing a project board and sub-boards with broad involvement from ministries and Government departments, the project has promoted interaction between various ministries and institutions. This large-scale participatory dynamic can be expected to have positive catalytic effects on projects requiring cross-ministerial and cross institution cooperation in the future. This was observed to an extent already during the interviews, where representatives from various entities were in contact and shared ideas largely through their common participation on the project boards.

Relations with stakeholders are pragmatic, with the PMU housed at the UNDP and component 1 within the MARENA and component 2 in CEB. The location of the project managers within MARENA and CEB allows direct and informal collaboration and information exchange with other investments and donor funded initiatives in the sector. In addition, the Project Boards and sub boards provide a dialogue platform for the stakeholders to inform each other on existing or emerging projects to ensure complementarity and avoid thematic overlap. Stakeholder engagement is satisfactory but missing are linkages to CSOs/NGOs active in energy (while acknowledging there are few relevant NGOs in the country) and only limited collaboration with academia. The National Women Council was engaged in conducting awareness sessions on PV and entrepreneurship trainings to women.

4.1.10 Social and Environmental Standards

The project prepared an ESMP, including risks identified at the project preparation phase. As covered under the section on environmental risks a series of environmental risk were identified and are reflected in the UNDP risk log, initially in the ProDoc, but updated when needed. The mitigation measures presented in the risk log and the ESMP have been effective in preventing or reducing foreseen negative impact. The ESMP, together with its implementation and reporting requirements, has been annexed to the tender document of the 14MW BESS. Similarly, a grievance mechanism is in place to communicate on the different activities pertaining to the BESS. The related grievance redress mechanism is functional, as

evidenced from a complaint of prolonged noise at one of the BESS at a CEB substation on 29th June 2021. The evaluation team understands that so far only minor issues have been brought forward, which could be easily addressed at island level. No major grievances have been received by the project. CEB's website is also informing the public of the 14 MW BESS with contact details of CEB inserted for recording of grievances: https://ceb.mu/projects/battery-energy-storage-system

The evaluation noted that the project did not envision on handling battery and solar panels after they expire. A suitable modality must be designed for managing them after their lifetime. Most BESS have only recently been installed and system lifetimes can span more than 15 years; therefore, few systems around the world have confronted end-of-life issues and undergone decommissioning. The lessons learned from used Electric Vehicles (EV)Li-ion batteries may also help develop sustainable pathways for decommissioned BESS. The country needs to develop rules and processes regarding decommissioning, transportation, disposal and reuse of BESS and Solar PV panels. CEB need to prepare a decommissioning plan for the BESS before any decommissioning activities begin which must be in accordance with Mauritian Regulations. Such a plan would be a living document that is updated as technologies, experience with BESS, and relevant codes and regulations evolve over the project life cycle.

For Phase II there must be proactive participation of vulnerable households to ensure the inclusion of the most vulnerable, under the principle of no one is left behind. For instance, single mothers or other vulnerable households may not be able to prioritize and dedicate time to fill out the necessary forms, and hence may be left behind and miss out on the availability of rooftop solar panels. Documentation of these inclusive efforts together with the National Empowerment Foundation (NEF) will have to be part of the M&E.

4.1.11 Reporting

The project followed a GCF reporting template for annual reporting containing project output implementation status, progress on the log frame indictors, changes made during implementation, implementation challenges and lessons learnt, etc. The project adopted a standard monitoring and evaluation system as required by GCF and UNDP including required periodic oversight of activities and formal evaluations. The template used for APR was found to be suitable for monitoring the project progress. Quality of project reporting is assessed as being satisfactory and reports do outline the causes of any delay in implementation.

4.1.12 Communications

The project has established effective internal communication mechanisms with the Government agencies. Through the Project Board and Sub Boards, the project is successful in sharing project progress to different stakeholders. Besides, project offices are set-up for both Component 1 and 2 in their respective responsible agencies (i.e., MARENA for Component 1 and CEB for Component 2). This helps in coordination and effective communication of the project activities. To give more visibility to MARENA a digital marketing company (Ennovatek) was contracted to review the brand identity .

The external communication of the project is currently relatively underdeveloped: there is clear scope to provide better visibility of the project through more elaborate use of social media, videos, newsletters, and fact sheets to provide a "face" to the project. It is recommended that the UNDP CO communication staff and the UNDP regional expert support the project in formulating a targeted communication plan and strategy for national and global exposure to increase the project's visibility.

As the project now moves into an implementation phase, there is a stronger emphasis needed to record, document, and share the lessons and experiences of the project, in collaboration with its key stakeholders. The M&E system should assist the team in the remaining implementation period to document and generate essential learning, moving from more internal focus of the monitoring and evaluation to more external dissemination of lessons learned. In this respect it is suggested to organize a (annual) review workshop with all key stakeholders to focus on lesson learning, identify emerging good practices and evaluate interventions to enhance lasting impact of the project interventions. The organization of a review workshop is intended to facilitate an effective knowledge management/M&E system of the project through a coordinated effort to identify, document and share key learning emanating from the project interventions and to ensure broad awareness of the stakeholders of progress of the various project outputs. This would also ensure a better understanding of the overall and longer-term impacts of these outputs and support the formulation and consensus building on a strong exit strategy as well, with is a shared vision among all stakeholders, even beyond the project period.

Sustainability

Sustainability is the likelihood of continued, lasting benefits and impact post-phase 1 and post-project. At the design stage a thorough risk analysis was carried out and appropriate risk mitigation strategies were worked out. The overall risk rating for this project as reflected in the ProDoc was moderate, with 10 risks identified in the risk log, incorporating 5 risks identified through the social and environmental risk screening, 4 technical and operational risks and 1 political risk. On the latest UNDP ATLAS risk log 4 primary risks are identified related to procurement delays, Covid-19 impact, political will and capacity development of partners. The IE team confirms the existing moderate risk rating for Phase 2. It is suggested that in the Risk Vulnerability to Climate change, cyclonic winds are considered as a moderate risk to the Solar PV Panels and in the Risk Generation of wastes, disposal of used batteries and PV panels is included as a moderate risk. It is suggested to add a specific social and environmental risk related to the Covid-19 pandemic.

Assessment of sustainability at the end of phase I must consider the risks that are likely to affect the continuation of project outcomes in Phase II and beyond. This sustainability assessment regards four categories of sustainability: financial, socio-economic, institutional framework and governance and environmental risks to sustainability.

4.1.13 Financial risks to sustainability

The risks to financial sustainability relate to continued availability of funds for MARENA and URA. These two young institutions are embedded in law and currently receive an annual budget from Government.
The outlook for the long-term financial sustainability of MARENA remains closely connected to the interest of national government and commitment of international donors. With the 60% target for RE by 2030 announced by the Government, MARENA is bound to have a long-term future with a growing mandate. As confirmed in the interviews with MOFEPD and MEPU, MARENA will continue to get government funding. However, it has also been encouraged, as part of its mandate, to look for green funds-rather than loans- from International Financial Institutions (IFIs). It is understood that at this early-stage government funding is required but as MARENA reaches maturity level it should be diversifying its funding sources. It is encouraging to note that MARENA has applied to become a GCF accredited agency for government and recently secured a grant from the British High Commission and the UNDP for a

scholarship scheme for Training of technicians on PV. During the consultation AFD showed their enthusiasm about the 60% RE target in the electricity mix announced by Government and expressed the wish to help MARENA.

The financial sustainability of URA will be ensured through licensing fees following the proclamation of the Electricity Act (2005) soon. In the current economic context, Government wants URA to be operational as soon as possible and the licensing fees will help in financial sustainability.
CEB has committed far more than the original forecast in co-financing. This clearly shows CEB's continued commitment to sustaining the project and its outputs and outcomes. It has also committed to allowing a greater proportion of intermittent renewable energy on the grid through new Requests for Proposals for Solar and Wind Power. This will require regular and timely investment in BESS**.** In the budget speech of 2021-22 it was announced that CEB will raise the absorption capacity of intermittent renewable energy through increased battery capacity to some 40 MW**.** CEB will be able to re-invest the savings associated with avoided generation investment (through facilitating the ramp-up of IPP-generated renewable electricity instead of its own generation capacity to meet growing demand) in replacement batteries, since lithium-ion batteries have (predictable) finite lifetimes.
Financial sustainability is Moderately Likely (ML).

4.1.14 Socio-economic risk to sustainability

The consultations have confirmed the interest shown by the different stakeholders in pursuing the overall objective of the project. At present there is clear political support for the project and the socio-economic reality provides a conducive environment for the project, recently reconfirmed in the Government Programme 2020-24 and the commitment made by Government in the 2021-2022 budget speech to achieve 60% of RE in the electricity mix and the phasing out of coal by 2030. These commitments have raised expectations and are supportive for longer-term socio-economic sustainability.

Due to fast growth of Solar PV (largely roof top based small sized) installation in Mauritius since last four-five years, the demand for skilled manpower to operate and maintain such installations has increased. In the short run, this can directly affect project implementation (e.g., delays in recruiting project staff or increase of project budgets for installations). This is being addressed in Phase 2 of the project by having a component pertaining to training of manpower. Also, in the 2021-22 budget speech it was announced that, to support the development of the RE industry, the CEB's "Centre de Formation et de Perfectionnement Professionel" will become an accredited centre to provide training in the fields of Renewable Energy and Energy Efficiency. Overall, future political leadership is needed from Government to operationalize trainings and capacity building support to have sufficient trained workforce to manage the projected growing demands for skilled technicians in the RE sector

The socioeconomic sustainability is considered as Moderately Likely (ML).

4.1.15 Institutional framework and governance risks to sustainability

The long-term sustainability of MARENA and URA are assured through their mandate, as embodied in national law. Institutional knowledge and technical capability of the staff within the PMU, the UNDP CO, MoFEPD, MEPU, MARENA and CEB is assessed as sound. With the proclamation soon of the Electricity Act URA as the regulator will play a prominent role in RE development. With the ambitious RE targets MARENA will have a strong advisory role for Government. However, the technical capability of MARENA will need continued strengthening as per the developed HR roadmap to help government meet its ambitious targets

for RE. There is however a risk of losing staff with built capacity and knowledge of the project to other employers (projects or private enterprises) as their skills and experiences are rare and in demand. The upcoming PRB report should help in decreasing the staff turnover. A more general constraint is the absence of specialized staff on the island and MARENA will continue to need the input international consultants for specific projects.

In the context of institutional sustainability MARENA, CEB, URA and MEPU are the key stakeholders enabling broader up-scaling of RE. Their commitment and support after Phase 1 are essential. Considering that the Government is committed to promotion of renewable sources of energy, it is expected that in case there are any policy or implementation issues these will be taken care at the highest level in the government and will get resolved.

It is important that the project team after Phase 1 puts focus on knowledge management and documenting best practices to further build public awareness, including outreach to community representatives, including universities, professional societies, and schools.

From the viewpoint of Institutional framework and governance risks, the sustainability of the project is Moderately Likely (ML)

4.1.16 Environmental risks to sustainability

Based on the interviews with stakeholders no high environmental risks to sustainability of the project have been identified except for the safe disposal of used batteries ad PV Panels. This risk was not flagged in the UNDP Environmental and Social Screening of the ProDoc. It is to be noted that a "10-year electric vehicle integration roadmap for Mauritius has been commissioned by the Ministry of Energy and Public Utilities in 2020". Following that, the Government of Mauritius has set up an EV Implementation and Monitoring Committee to devise the way forward for the safe disposal of batteries and recycling/upcycling of batteries, in line with the Government's circular economy vision.
Also, since the FAA signed in July 2017, no major cyclone event has been experienced in Mauritius and hence no disaster event was used to calibrate the exact needs of the project from an environmental and institutional perspective. The updated ESMP provides a detailed framework to monitor any negative impact during construction and after operation starts and provides through its grievance redress mechanism a mechanism to voice complaints and address these issues between parties.

Environmental sustainability is Moderately Likely (ML).

Based on the assessment of the categories above the overall sustainability rating is **Moderately Likely (ML**). Social and political interest in renewable energy development is high, as observed during interviews. The institutional framework exists with the operationalization of MARENA and URA and the commitment of CEB. Financial sustainability is moderately likely because MARENA depends directly on MEPU for funding and could conceivably be hindered by a shortage of funding in the future if economic growth remains sluggish because of the pandemic and it is not able to tap more into Green Funds. Environmental sustainability can be of concern if there is no proper disposal of used batteries and PV panels at the end of their lifetime. It is suggested to work out a concise exit strategy as phasing out plan for the project, identifying interventions to enhance lasting impact of the project and improve overall sustainability of the investments and interventions. Such critical factors include government investment in capacity development, MARENA diversifying its sources of funding and proper decommissioning of BESS and Solar PV Panels.

Country Ownership

Based on the feedback of the stakeholders, from Government entities, there is considerable country ownership of the GCF project. This ownership has been reflected since the start of the formulation phase by keen interest of the Government in the project and its objectives. There is clear alignment with national development plans and policies, recently reiterated in the Government Programme (2020-2024) and budget speeches. It is noteworthy that the GCF project was mentioned in the Renewable Energy 2030 Roadmap for the Electricity Sector (launched in August 2019) as being a key support for the Government of Mauritius to achieve the target of 35% of renewable energy by 2025. Many recommendations of the consultancy reports have become budgetary measures. The Deputy Prime Minister and Minister of Energy and Public Utilities attended the inauguration ceremony of the first BESS in the country in October 2018. The revision of the RE target in the electricity mix to 60% and the phasing out of coal by 2030 in the 2021-22 budget speech is another sign of longer-term engagement and national ownership **(**https://budgetmof.govmu.org/Documents/2021_22budgetspeech_english.pdf**).** The Minister of Energy and Public Utilities himself chairs a high-level meeting with the main stakeholders in the GCF project (MEPU, CEB and MARENA) on the revision of the RE roadmap. The Government has also maintained no-VAT on the different components of photovoltaic systems and has pledged to fill the vacant positions at MARENA despite the difficult economic situation in the present pandemic, thereby confirming the commitment of the government to promote clean energy. There is presently a lot of interest in post-pandemic economic recovery through a green economy and this project is viewed by both Government and the UNDP CO as one which can trigger it. As per the interviews with government officials, government has put a lot of trust and hope in this project.

The Ministry has played a strong role policy wise and CEB utility wise. CEB has assumed full ownership of the project. The co-financing of CEB for Phase I is estimated at 3 million $ which is 160% of the sum originally committed. It recently launched an RFP for utility scale solar (30 MW) and wind (40 MW) RE and continues to support SSDG and MSDG for solar panels. The installed 18 MW BESS will be contributing to this larger share of intermittent RE on the grid. It recently launched a tender for an additional 22 MW of BESS. It has also launched a Request for Information (RFI) for hybrid sources of RE t and 49 proposals have been received which were being evaluated at IE.

Interviews showed that, in project governance and coordination (Project Boards and sub boards) there is clear commitment and engagement by the key stakeholders in the implementation of the project. Project staff report directly to the relevant Ministries (Finance and Energy), linking the project to country level monitoring systems. The meetings of the Project Board and sub boards has generated significant project buy-in and appropriation by targeted partners and beneficiaries.

Innovativeness in results areas

Having specific Project Managers for each component enables them to “deep dive” in each component and follow their activities closely. This however increases the project cost but is considered as effective arrangement while working with two different Government entities. Project implementation has responded to changing conditions and risks and taken advantage of opportunities for partnerships and actions that support the overall project objective.

An area of innovativeness to consider is the grid capacity strengthening where the project has introduced new components, such as the BESS and the AGC system. The arrangements being tried out by the project for community awareness- raising and training of women entrepreneurs through the NWC which has not been done before, provides an example of additional innovation aimed at and promoting local ownership by beneficiaries. GCF support to the expansion of the rooftop PV sector in Mauritius represents an innovative approach using an upfront partial grant mechanism for households and non-commercial adopters rather than a feed-in tariff. The overall grant to co-financing ratio for the project duration is approximately 1:6 and the project proposes a good mix of GCF grants, AFD loans and Government's own resources to bring about the transformational change to energy systems being sought by the GCF. Ultimately, the overall project strategy, aimed at enabling a paradigm shift to a low carbon economy is itself an innovative approach.

The Covid-19 pandemic has indirectly introduced an innovativeness in changing the way donor funded projects are delivered. Zoom technology capacity has been formally introduced in the implementation of the project.

Unexpected results, both positive and negative

Although it is relatively early to assess results, with Phase II still to become operational, the evaluation team noted some unexpected results, based on the feedback of stakeholders. They reported "an improved social capital" in terms of creating a culture of working together and building trust among key stakeholders, perhaps due to the frequent and physical presence of project staff in the organization.

One unexpected result is the raising of expectations among stakeholders following the announcement of the ambitious RE targets by Government in the 2021-22 budget speech of producing 60 percent of the country's energy needs from green sources by 2030 as well as the total phased out of the use of coal before 2030. The project has been credited by all stakeholders for paving the way for the more ambitious RE targets by Government. Unexpected results from the Covid 19 pandemic are being slowly realized. A positive unexpected outcome is in terms of national stakeholders devising creative ways to ensure the project continues as programmed despite the Covid 19 challenges. An unexpected negative result was the delay in the disbursement of the AFD loan after procurement issues linked with the supply of GIS stations for CEB and which was not anticipated in the FAA.

Replication and Scalability

Based on the considerations in the section on factors affecting sustainability of the project, the evaluation team sees good scope for replication of project interventions and scalability of activities implemented. Critical is the strong country ownership and the political priority given to renewable energy development. This is not only reflected in a conducive policy and regulatory setting, as reflected in the URA and MARENA Acts, but also through budgetary commitments. A further factor for replication potential is the recent ambitious RE targets announced in the 2021-22 budget speech. These targets are mainly attributed to the project. Realising the background work (mainly various studies and legislations in place) done by the project, the Government could have been confident in achieving the set target of 60% by 2030. In addition to increased investments in intermittent RE, the 2021-22 budget makes provision for an additional 22 MW of BESS and 10 GIS for CEB. The IE envisages good scope for replication of project interventions and scalability of activities implemented to date (AGC, BESS, feasibility studies, etc). For replication efforts to be successful the lessons learnt by the project must be documented and shared through an effective

knowledge management strategy. UNDP supports a substantial portfolio of projects in Small Island Developing States (SIDS) and replicability of project interventions in other Small SIDS is likely.

Gender Equity

The project has given due consideration on gender equity in all its activities. The gender action plan is actionable which explicitly calls for the hiring of a critical mass of women to work in MARENA and the training of women to install, operate and maintain solar PV systems. While the bulk of the gender related benefits will be reaped in Phase II, gender considerations are mainstreamed into all project activities, ranging from the composition of Project boards to the beneficiary of awareness raising and training undertaken under Component 2. At present, the lead role of the gender mainstreaming activities is assigned to the Gender and Monitoring and Evaluation Officer in the PMU, and the project has emphasised on representation of at least 30% women members in the Project Board and Sub Boards, and women staff members among newly recruited staff at MARENA. Also, at IE, 5 out of 10 staff at MARENA are women, while women account for 9 out of 14 staff at URA. To date 1500 women have benefitted from awareness sessions and trainings organised under the project.

Women awareness of RE and Solar PV

As part of meeting the Sustainable Development Goal (SDG) 5 on gender equality, awareness campaigns were organised by UNDP under the GCF project to target women to increase the participation of women in the renewable energy sector. The targeted women were mostly housewives or entrepreneurs running micro and small businesses. These women were targeted to enhance their understanding of renewable energy so that they can be grassroots agents/champions of change in the shift to RE. The sessions have helped many women better understand the principle of RE and its benefits and stimulate their interest in the deployment phase (Phase 2) of the project, which will see low-income households benefit from rebates for solar PV equipment.

Training of women in Basic entrepreneurship and solar PV

In line with the project target of training 100 female entrepreneurs in micro-enterprises to understand the technical aspects of PV systems, 89 women benefitted from an 18-hour training course on ‘Entrepreneurship and the Basics of PV system’. The main objective of the training is to provide women employed or running micro/ small enterprises an entry level understanding of entrepreneurial skills and an overview of the technical requirements for the installation, operations, and maintenance of solar PV systems. The training has been designed and run by the Mauritius Institute for Training and Development (MITD). The training cost was initially planned to be covered under the GCF project component 1 based on the Annual Work planned approved in a Sub-board Committee meeting dated 28 August 2020. However, the Clinton Climate Initiative under the Clinton Foundation proposed to fund the training as part of its capacity building initiatives for 2020. This has been accounted for as a cost sharing of the MEPU to the GCF project. Given the success of the training programme in 2020 and savings made on this line item, it was agreed that the training will continue in 2021 including male participation.

The groundwork for gender and socio-economic profiling of beneficiaries has already been kickstarted by the Component 2 PMU and the Implementing Partner (CEB) on the deployment schemes to be adopted for households, NGOs, and public buildings. At the household level, the project will inevitably target low-income households (as identified either from existing Tariff 110A at the level of the CEB or from the National Social Register of Mauritius) as well as women-headed households (from same lists through identifying the female account holders or house owners or tenants). The custodian and administrator of the Social Register, the National Empowerment Foundation (NEF), has been included in the Project Steering Committee for Component 2. For Phase II there must be proactive participation of vulnerable households to ensure the inclusion of the most vulnerable, under the principle of no one is left behind. For instance, single mothers or other vulnerable households may not be able to prioritize and dedicate time to fill out the necessary forms, and hence may be left behind and miss out on the availability of rooftop solar panels. Documentation of these inclusive efforts together with the NEF will have to be part of the M&E.

Impact of the Covid19 pandemic on the project implementation and performance

The project was designed for a world before COVID-19 and its implementation required international consultants to travel to Mauritius. However, since 20th March 2020, consultants have no longer been able to do so easily. The first case of Covid-19 was registered in Mauritius on 18 March 2020 and a national curfew was imposed from 20th March 2020 to 1st June 2020. Most economic activities were resumed except for tourism sector where mandatory quarantine was imposed for entering tourist. During the lockdown project staff worked remotely. Given the flight restrictions, consultants engaged under Component 1 were unable to fly for their scheduled missions and all consultations were held remotely with local stakeholders having to adjust to the new working configuration. As for the BESS, the supply chain was heavily impacted with components manufactured in France, Italy, China, and Korea while assembly was conducted in Spain. The BESS was delivered on site in December 2020, instead of May 2020 as initially planned, and overall commissioning was delayed by 6 months. Flight restrictions also impacted the completion of the AGC system with consultants unable to fly in to fine-tune the systems. The economic impact of the pandemic also resulted in the delay of the recruitment of the personnel at MARENA, which was initiated only in December 2020. Following a new wave of local transmission in early March 2021, a second lockdown was imposed between 10th and 30th March 2021 and a gradual deconfinement applied for the resumption of economic activities. This second lockdown has resulted in further delays in the fine tuning of the AGC system, in staff recruitment at MARENA and in conducting awareness sessions South-South Cooperation also did not happen because of the pandemic and travel restrictions.

There is no clarity in the project FAA regarding “Force majeure” related issues such as a pandemic.
Guidance was issued in 2020 by GCF from which to address issues such as the Covid-19 pandemic issue.
Owing to supply chain disruptions brought about by the pandemic, a request for a 12-month extension for the submission of the first Interim Evaluation Report was made to GCF and granted on 21 October 2020 to be able to report on the completion of Phase I of the project, as per the FAA. It is most probable that the procurement and installation of the 25 MW solar PV Panels in Phase II will be affected by the Covid 19 pandemic. There is need for a contingency plan to assess and mitigate against COVID 19 impacts in Phase II. It is noteworthy that the impact of Covid 19 has been reported in Quarterly and APR Reports. It is recommended that a Covid-19 contingency plan should be prepared and included as a specific subsection within existing Quarterly reports to help identify potential solutions.

5. CONCLUSIONS, RECOMMENDATIONS AND LESSONS LEARNED

*In this Chapter a series of conclusions is presented, based on the key findings discussed in Chapter **4**. After the conclusions follows a series of recommendations directed to the project management and relevant stakeholders to enhance implementation progress and optimize sustained impact of the project outcomes in Phase II. Finally, the lessons learned during Phase I is presented.*

Conclusions

Project Strategy

The project document is well-written, and the project design is well aligned with national development policies. The Theory of Change of the project is logical and coherent in its description of its intervention strategy. Because MARENA and URA are new institutions, the project was designed adequately to assist them in capacity building. The overall grant to co-financing ratio for the project duration proposes a good mix of GCF grants, AFD loans and Government's own resources.

Revision of the Project Results Framework (PRF) is needed to have SMART indicators and there is a need for a more coherent Knowledge Management strategy.

An unexpected negative result was the delay in the disbursement of the AFD loan after procurement issues linked with the supply of GIS stations for CEB. At the time of design and approval for this project GCF did not have a policy on co-financing as it does now.

Progress Towards Results

Assessing the progress made for the two outputs, the progress is seen as Satisfactory (S). Of the 5 activity lines for Phase I, the 3 activities for Component 2 are assessed as fully on track or (almost) completed and the 2 activities for Component 1 are on target to be achieved before the end of the year.

An enabling environment has been created through an enhanced policy and regulatory framework and the strengthening of URA and MARENA. Recent developments testify of the progress towards the proclamation of the Electricity Act soon and the project has been catalytic for this to happen. At a second level, regulations regarding RET and operators have been developed by MARENA. URA and MARENA are both functional agencies with a core staff and have been provided with the necessary training and tools.

The 14 MW of BESS currently installed is now contributing to a larger share of intermittent RE on the grid. The BESS and the AGC will be contributing to a larger share of RE on the grid. The intermittent RE generated increased from 53.8 GWh in 2017 to 163.8 GWh in 2020. The indirect emissions avoided in Phase I with increasing installations of intermittent RE power on the grid (115.5 MW as of August 2021 compared to 34 MW at the start of the project) through increased grid absorption capacity for intermittent RE is estimated at 181 500 tonnes of CO_2.

Progress Implementation and Adaptive Management

Project implementation has responded to changing conditions and risks and taken advantage of opportunities for partnerships and actions that support the overall project objective. Having specific project managers for each component has enabled them to follow activities closely. The PMU team adapted to the new working conditions created by the pandemic and provided necessary backstopping assistance to URA and MARENA at the start of the project. Management arrangements are hands-on, and the PMU is assessed as dedicated and technically sound. However, there are remaining areas of improvement in knowledge management and communication. Work planning is being done as per the provisions in the project design document.

Financial management is assessed as satisfactory with no issues reported. No audit issues were flagged in the independent audit of 2020.

The project has put in place an enabling environment for work by other donors through the institutional strengthening of URA and MARENA and the grid strengthening for investments in more intermittent RE. The potential for blending climate funds remains high. The project has the potential to provide a catalyst for other development agencies.

The quality of project reporting is assessed as being satisfactory and reports do outline the causes of any delay in implementation. It is suggested to add to the M&E plan an annual review workshop to offer a platform for all stakeholders to be informed of and discuss progress and challenges of the project, also serving as a knowledge sharing event. The internal reporting and obligatory reporting of the project is satisfactory, but there is ample scope to make use of the learning and knowledge it contains for broader knowledge management.

The project documentation and the stakeholder consultations confirm a functional and practical stakeholder engagement. By establishing a project board and sub-boards with broad involvement from Ministries and Government departments, the project has promoted interaction between various ministries and institutions. Stakeholder engagement is satisfactory but missing are linkages to CSOs/NGOs active in energy (while acknowledging there are few relevant NGOs in the country) and only limited collaboration with academia.

The mitigation measures presented in the risk log and the ESMP have been effective in preventing or reducing foreseen negative impact. The project design did not address the handling and disposal of used BESS and solar PV panels.

The project has established effective internal communication mechanisms between the Government agencies. The external communication of the project is currently relatively underdeveloped and there is clear scope to provide better visibility of the project to provide a “face” to the project.

Sustainability

The existing moderate risk rating for Phase II is confirmed. It is suggested that in the Risk Vulnerability to Climate change, cyclonic winds are considered as a moderate risk to the Solar PV Panels and in the Risk Generation of wastes, disposal of used batteries and PV panels is included as a moderate risk. It is also suggested to add a specific social and environmental risk related to the Covid-19 pandemic.

The overall sustainability rating is Moderately Likely (ML). Social and political interest in renewable energy development is high, as observed during interviews. The institutional framework exists with the operationalization of MARENA and URA and the commitment of CEB. Financial sustainability is moderately likely because MARENA depends directly on MEPU for funding and could conceivably be hindered by a shortage of funding in the future if economic growth remains sluggish because of the pandemic and it is not able to tap more into Green Funds. Environmental sustainability can be of concern if there is no proper disposal of used batteries and PV panels at the end of their lifetime.

Country Ownership

There is considerable country ownership of the GCF project. There is clear alignment with national development plans and policies, recently reiterated in the Government Programme (2020-2024) and budget speeches. It is noteworthy that the GCF project was mentioned in the Renewable Energy 2030 Roadmap for the Electricity Sector (launched in August 2019) as being a key support for the Government of Mauritius to achieve the target of 35% of renewable energy by 2025. Many recommendations of the consultancy reports have become budgetary measures. The revision of the RE target in the electricity mix to 60% and the phasing out of coal by 2030 in the 2021-22 budget speech is another sign of longer-term engagement and national ownership.

Innovativeness in results areas

Having specific Project Managers for each component enables them to "deep dive" in each component and follow their activities closely. The grid capacity strengthening has introduced new components for the utility, such as the BESS and the AGC system. The awareness- raising of women and the training of women entrepreneurs provides an example of additional innovation aimed at and promoting local ownership by beneficiaries. The Covid-19 pandemic has indirectly introduced an innovativeness in changing the way donor funded projects are delivered through "virtual" meetings.

Unexpected results, both positive and negative

An improved "social capital" in terms of creating a culture of working together and building trust among key stakeholders (MEPU, CEB, MARENA and URA) has been created through the project implementation arrangements. One unexpected result is the raising of expectations among stakeholders following the announcement of the ambitious RE targets by Government in the 2021-22 budget speech. A positive unexpected outcome is in terms of national stakeholders devising creative ways to ensure the project continues as programmed despite the covid 19 challenges. An unexpected negative result was the delay in the disbursement of the AFD loan co-finance after procurement issues. Following a meeting on 7th October 2021, the CPB and AFD have agreed to undertake the independent evaluation of the bids received and AFD plans to complete the evaluation by 21st December 2021 and the award of the contract will be made in mid-January 2022. It is expected that the full co-financing amount will materialize within 2 years from the signature of the contract as per the ToR for the works.

Replication and Scalability

There is good scope for replication of project interventions and scalability of activities implemented. Critical is the strong country ownership and the political priority given to renewable energy development.

A further factor for replication potential is the recent ambitious RE targets announced in the 2021-22 budget speech. For replication efforts to be successful the lessons learnt by the project must be documented and shared through an effective knowledge management strategy. Replicability in other Small Island Developing States (SIDS) is likely.

Gender Equity

The gender action plan is actionable which explicitly calls for the hiring of a critical mass of women to work in MARENA and the training of women to install, operate and maintain solar PV systems. While the bulk of the gender related benefits will be reaped in Phase II, gender considerations are mainstreamed into all project activities, ranging from the composition of Project boards to the beneficiary of awareness raising and training undertaken under Component 2. For Phase II there must be proactive participation of vulnerable households to ensure the inclusion of the most vulnerable, under the principle of no one is left behind.

Impact of the Covid19 pandemic

Owing to supply chain disruptions brought about by the pandemic, a request for a 12-month extension for the submission of the first Interim Evaluation Report was made to GCF and granted to be able to report on the completion of Phase I of the project, as per the FAA. It is most probable that the procurement and installation of the 25 MW solar PV Panels in Phase II will be affected by the Covid 19 pandemic. There is need for a contingency plan to assess and mitigate against COVID 19 impacts in Phase II.

Recommendations

The following IE recommendations have been formulated with the aim of improving project effectiveness and enhancing the likelihood that project results will be sustained after Phase I.

Recommendations for Management

Recommendation 1: Immediate start of Phase II and completion of activities of Phase I by December 2021

The following conditions in the FAA precedent to the disbursement for Phase II have been met:
(i) Delivery to the fund by the Accredited Entity of the first interim independent evaluation report upon completion of Phase I
(ii) Confirmation in writing by the Accrediting Entity of the firm commitment of the loan facilities from AFD amounting to USD 19,200,000 for the financing of Phase 2 of output 2.3. AFD confirmed in writing to UNDP the commitment of the loan facilities on 6th April 2020.
(iii) Delivery to the Fund by the Accredited Entity of an action plan, evidencing continual operation of MARENA during the Funded Activity Implementation, as part of the fist interim independent evaluation report. The action plan is attached to this report (Annex 12).
(iv) Confirmation that at least 70% of funds previously disbursed have been spent. This is currently at 95%.

The IE team recommends allowing activities of Phase I to be implemented fully by December 2021. This includes the following:

(i) Commissioning of the new 4 MW BESS at Jin-Fei CEB sub-station

(ii) Fine-tuning of the AGC system and purchase of the licenses
(iii) Training of the last batches of women entrepreneurs
(iv) Proclamation of the Electricity Act
(v) Recruitment of additional staff at MARENA

Phase II can start immediately even if the above activities are not yet completed. The enabling conditions exist for the implementation of Phase II. There is strong government ownership for the project, MARENA is a functional agency, the grid has been sufficiently equipped to accommodate a higher percentage of intermittent renewable energy and the loan confirmation from AFD for Phase II has been received. The project team is already working on a deployment strategy for the 25 MW of Solar PV Panels for Phase II about the procurement strategy, the ownership model for each category of users (Households, NGOs, public buildings) as well as GCF grant channelling. It is recommended to kick start Phase II with an inception workshop for knowledge management and to appraise stakeholders of the challenges regarding the deployment strategy.

Recommendation 2: Extension of Phase II by one year.
In the original design, in Phase II and under Component 2, 25MW of rooftop, small-scale distributed generation system (SSDG) solar photovoltaic (PV) systems were to be deployed within a timeframe of 5 years. With the revised timeframe, Phase II, if it starts in January 2022, would involve the deployment of 25 MW in only 4 years**.** Over the past decade on average, 1 to 2 MW of SSDG rooftop solar PV systems are rolled out on a yearly basis. The target now is to roll out more than 5 MW per year. This is a major challenge with the lack of operational capacity at both CEB and in the private sector, more players being involved and in the context of the present pandemic with possible procurement delays and supply chain disruption. The IE team estimates that an extension for a period of one year is reasonable for Phase II and for the overall project period to enable its successful implementation

Recommendation 3: Use unspent funds for capacity building and technical support
With the help of an Energy Economist, review the funding requirements of Phase II considering falling PV prices since the drafting of the project document in 2017 and use the available funds as well any remaining funds in Phase I to continue capacity building of RE professionals and awareness raising activities and provide technical support to CEB and MARENA. With the current economic impact of the pandemic, there is a demand for reskilling programs, and it is imperative to continue training activities for Solar PV technicians and small RE entrepreneurs. The training already being delivered could be “institutionalized” as a certificate or diploma through an existing higher education institution. As announced in the 2021-22 budget, to support the development of the RE industry, the CEB’s “Centre de Formation et de Perfectionnement Professionel” will become an accredited centre to provide training in the fields of RE and the Project could support this initiative.

The CEB is anticipating that in order to implement expeditiously upcoming RE projects with the view to meet the goals set for the GCF Project and by extension the national targets of 35% RE in 2025 and 60% in 2030, it will need the support of experts (technical, financial and legal) in the field of hybrid renewable energy facilities (solar PV + BESS, Wind + BESS or Solar PV + Wind + BESS) so as to assist in the preparation of tender documents, preparation of Power Purchase Agreement (PPA) and Capacity building for CEB officers in negotiation, legal, financial and technical related matters.

Phase I was very much consultancy based for MARENA and to achieve the ambitious RE targets of Government, there is now a need to move towards implementation. Several RE technologies still need to be explored through feasibility studies with cost covered from any unspent amounts from Phases I and II.

Recommendation 4: Set up a Public-Private Implementation committee for PV deployment in Phase II.
It is recommended that a Public Private implementation committee-which can be under the Sub-board for Component 2 -with representatives from Business Mauritius, MEPU, CEB, MARENA, DBM, NEF, MOH, MOE, AFD, MACOSS and UNDP be set up to investigate the quota for each category for a faster deployment of the 25 MW rooftop Solar PV Panels. The implementation of such a committee was recommended by Business Mauritius, AFD and CEB during the interviews. This committee can also look at capacity building activities, the alignment with CEB's existing renewable energy schemes to avoid a duplication of resources, the conditions for SUNREF loans, the organization of a green job fair at the beginning of Phase II, etc. The Project Board would assume a key advisory role during Phase II and rope in participants from the private sector, NGOs, and academia.

Recommendation 5: Launch a consultancy study on used BESS and Solar PV Panels recycling and disposal and help CEB with a decommissioning plan for the BESS at the end of their lifetime.
Most BESS have only recently been installed and system lifetimes can span more than 15 years; therefore, few systems around the world have confronted end-of-life issues and undergone decommissioning. The lessons learned from used Electric Vehicles (EV)Li-ion batteries may also help develop sustainable pathways for decommissioned BESS. The country needs to develop rules and processes regarding decommissioning, transportation, disposal and reuse of BESS and Solar PV panels.
CEB needs to prepare a decommissioning plan for the BESS before any decommissioning activities begin which must be in accordance with Mauritian Regulations. Such a plan would be a living document that is updated as technologies, experience with BESS, and relevant codes and regulations evolve over the project life cycle.

Recommendations for Project Design

Recommendation 6: Review the allocation of PV systems among the categories of end users
25MW of rooftop, small-scale distributed generation system (SSDG) solar photovoltaic (PV) systems are to be deployed in Phase II across 3 main categories of end-users-residential (households) (10MW), NGO's (4MW) and public buildings (11MW). The number of household beneficiaries for the 10 MW is estimated at about 5000. For households, NGOs, and public buildings, the GCF grant will cover an average of approximately 27% of the upfront system and installation cost (with the balance coming from loans (approx. 37% from AFD) or users' own resources. While doing so, the project will also enable the empowerment of low-income households especially, with a gender consideration. As stated earlier, the rolling out of an average of more than 5 MW of rooftop Solar PV per year is a major challenge given the current operational capacity. It requires a large resource mobilization from both CEB and the private sector. Also, even with the 27% grant, poorest households will not be able to install rooftop Solar PV Panels. A differentiated level of subsidy with some higher level of subsidy for the poorest households may have to be introduced.

It is recommended, for a faster deployment, to reallocate the no of MW of PV systems in each category and to focus on high electricity end-users and particularly on public buildings like schools, universities, hospitals and DBM industrial estates instead of thousands of households which will be very time

consuming. Opening the scheme to other categories of beneficiaries may also be considered. It may also be worthwhile to consider commercial buildings like supermarkets where the interest is high for Solar PV as the commercial electricity tariff is high. Installation on schools and universities will also enhance teaching and raise awareness about RE. Among the households the priority should be on the estimated 200 low-income households as recommended by the NEF.

Recommendation 7: Develop and Implement a communication and knowledge management strategy and organize an Annual Review workshop

As the project is now progressing into a phase of implementation, with a wide range of interventions being established, there is a need for targeted focus on monitoring and evaluation and broader knowledge management, to document emerging good practices, extract lessons and learning and produce and disseminate knowledge products of good quality for all relevant stakeholders. The project needs a stronger communication /awareness outreach (including social media and human interest stories), to enhance the visibility of the project in Phase II. This will be facilitated through formulation of a detailed communication and knowledge management strategy and action plan with related timelines and responsibilities. The M&E system should assist the team in the remaining implementation period to document and generate essential learning, moving from more internal focus of the monitoring and evaluation to more external dissemination of lessons learned. In this respect it is suggested to organize a (annual) review workshop with all key stakeholders to focus on lesson learning, identify emerging good practices and evaluate interventions to enhance lasting impact of the project interventions.

Recommendations for Monitoring and Evaluation

Recommendation 8: Revision of project indicators, targets, and update of the PRF

The PRF should be updated to reflect the indicators suggested (see Table 2). Realistic end-of-project targets should be redefined which will allow a good monitoring and terminal evaluation. It is recommended to do a baseline study before the kick-off of Phase II to finalize the indicators and quantify the targets as per the deployment strategy. Also, the project team is to anticipate and plan by accounting for potential further impacts of the pandemic for Phase II activities, especially when procuring items from abroad. The impact of Covid19 on the global PV market including manufacture and shipping must be investigated further by specialist in the domain of Solar PV**.** A Covid-19 contingency Plan must be annexed as a subsection within existing Quarterly reports or APRs**.**

Recommendation 9: Monitor the performance of the BESS and AGC system

UNDP to request a performance monitoring of the BESS and the AGC system from CEB for sharing with other SIDS through appropriate knowledge-sharing platforms.The performance data would be of great value for analyzing and planning the installation of the additional BESS by Government as announced in the latest budget.

Recommendation 10: Monitoring and Evaluation of the RE policy

The country has set an ambitious RE target and has a strategy/roadmap drafting the transition towards higher RE shares. Experience has shown that deployment figures can be far below the amount required for target achievement. There must be an official monitoring process in place as well as an independent evaluation process established. A robust structure for monitoring (independent institution with access to all relevant data, following a transparent process subject to public reporting) must be established and in

addition to monitoring, a regular (e. g. every 3-4 years) evaluation of the results achieved must be performed. The assessment process must be transparent, independent, and fair. It should be executed by an independent institution not tied to any of the stakeholders involved (i. e. not from government, utilities etc.). The results of the evaluation should be used in a defined and prompt amendment process of the policy. It is recommended that during Phase II such an evaluation is carried out.

Table 9: Overview of Recommendations

Rec#	Recommendation	By when	By whom
1	Immediate start of Phase II, inception workshop and completion of activities of Phase I by December 2021	December 2021	PMU, UNDP, GCF
2	Extension of Phase II by one year	By Q1 2022	GCF
3	Use unspent funds for capacity building and technical support	By Q4 2023	PMU, UNDP, GCF
4	Set up a Public-Private Implementation committee for PV deployment in Phase II.	By Q1 2022	PMU and Project Board
5	Launch a consultancy study on used BESS and Solar PV Panels recycling and disposal and help CEB with a decommissioning plan for the BESS at the end of their lifetime.	By Q4 2022	PMU and Project sub-board for component 2
6	Review the allocation of PV systems among the categories of end users	By Q1 2022	PMU, UNDP, GCF
7	Develop and implement a communication and knowledge management strategy and organize Annual Review workshops	By Q2 2022	PMU and UNDP
8	Revision of project indicators, targets, and update of the PRF	By Q1 2022	PMU, UNDP, GCF
9	Monitor the performance of the BESS and AGC system	By Q4 Yearly	PMU and Project sub board for component 2
10	Monitoring and Evaluation of the RE policy	By Q1 2024	UNDP and GCF

5.3 LESSONS LEARNED

Lesson Learned 1: Recruitment process for staff to be initiated immediately after project approval
With substantial delays in team recruitment, the project activities started nine months after project approval. The team has been able to overcome the initial delays and very slow delivery progress to the present level of energy. In retrospect, there is substantial learning in this how to prevent such slow start-up phases. The recruitment process should start immediately after project approval and the team should be in place before the inception workshop.

Lesson Learned 2: Work planning to better anticipate delays in the procurement process

The PMU should anticipate and plan by accounting for potential further impacts of the pandemic for Phase II activities, especially when procuring items from abroad. Reduce impact of the pandemic by planning alternative procurement routes for essential items in the supply chain. The time frame for the procurement process through the Central Procurement Board (CPB) and possible appeals through the Independent Review Panel (IRP) needs to be considered in the work planning. The impact and probability of this risk occurring must be properly evaluated in the risk log.

Lesson Learned 3: In co-financing through a loan by another financial institution, there must be clear interpretation if the loan is part of the project or in parallel to it.

The experience with the AFD loan to CEB has shown that it is advisable not to link two financial institutions with a loan in co-financing**.** In case it is so, there must be clear interpretation if the loan is part of the project or in parallel to it Also, planning for co-financing disbursement should factor in possible delays to adjust for implementation hurdles.

Lesson Learned 4: For more effective Monitoring and Evaluation(M&E), there must be due diligence in the formulation of indicators during project design and at the start of the project.

Some of the indicators and related targets in the Project Results Framework (PRF) were not found to be SMART (Specific, Measurable, Attainable, Relevant, Time-Bound) and this impacts on the quality of the M&E. It is important that there is due diligence in the formulation of indicators during the project design, inception workshop and at the start of the project.

Lesson Learned 5: A contingency plan is needed to assess and mitigate against COVID 19 impacts in Phase II.

It is noteworthy that the impact of Covid 19 has been reported in Quarterly and APR Reports. It is recommended that a Covid-19 contingency plan should be prepared and included as a specific subsection within existing Quarterly reports to help identify potential solutions. It is also important to ensure proper stakeholder engagement and that appropriate stakeholders are involved in the review of key deliverables.

6. ANNEXES

Annex 1: Interim Evaluation ToR
Annex 2: Interim Evaluation evaluative matrix
Annex 3: Interview Guide used for data collection
Annex 4: Field Visits
Annex 5: List of persons interviewed
Annex 6: List of documents reviewed
Annex 7: List of technical reports and publications
Annex 8: Signed UNEG Code of Conduct form
Annex 9: Signed Interim Evaluation final report clearance form
Annex 10: Audit trail from received comments on draft Interim Evaluation report

Annex 1: Interim Evaluation Terms of Reference (without annexes)

Type of Contract: Individual Contract
Post Level: International Consultant
Duty Station: Home based
Languages Required: English
Starting Date: xxxxx*2021*
Duration of Contract: *40* working days (*xxxx2021 through xxxxxx2021)*

1. Introduction

This is the Terms of Reference (ToR) for the International Consultant for the first Interim Evaluation (IE) of the UNDP-supported GCF-financed project titled *Accelerating the transformational shift to a low carbon economy in the Republic of Mauritius'* (PIMS 5681) implemented through the Ministry of Finance, Economic Planning and Development, which is to be undertaken in 2021. The project started on the 11 July 2017 (with the Funded Activity Effectiveness date); with the first disbursement received for the project in September 2017; and it is in its 3rd year of implementation. This ToR sets out the expectations for this Interim Evaluation which is a requirement set in Schedule 4. of the Funded Activity Agreement (FAA) for the project.

2. Project Background information

Project goal
The Green Climate Fund (GCF), through the United Nations Development Programme (UNDP), is providing financial support and expertise to assist the Government of Mauritius in achieving their targets set in the Long-Term Energy Strategy (2011-2025) (LTE) in terms of share of renewable energy in the electricity mix (the LTE (2011-2025) has been replaced by the Renewable Energy Roadmap 2030 for the Electricity Roadmap with a renewed target of achieving 35% of RE by 2025 and 40% of RE by 2030). It is implemented in a two-phase approach so as to reduce the implementation risks to the GCF and ensure that the second funding disbursement is contingent upon successful completion of the first phase.

Objectives
The objectives of the project are to:

i. through Component 1, create a conducive environment for enhanced development and investment into the renewable energy sector in Republic of Mauritius through the institutional strengthening of the Mauritius Renewable Energy Agency (MARENA) and the Utility Regulatory Authority. The responsible party for the implementation of Component 1 is the Ministry of Energy and Public Utilities (MEPU);

ii. through Component 2, carry out a number of grid strengthening/upgrading activities including the installation of 18 MW Battery Energy Storage System (BESS) in order to boost the grid absorption capacity by around an additional 125 MW, following by the deployment of 25MW of rooftop solar PV small and medium scale installations in Phase II of the project.

The responsible party for the implementation of Component 2 is the Central Electricity Board (CEB);

iii. through Component 3, install a 300kW, solar PV powered mini-grid in the outer island of Agalega. The responsible party for the implementation of Component 3 is the Outer Island Development Corporation (OIDC);

Impacts,

As per the logical framework (ref. project document), the fund-level impact is to achieve reduced emissions through increased low-emission energy access and power generation. This is translated, at the outset of the project, with the attainment of the 35% target of renewable energy in the electricity mix by 2025 (40% by 2030) and an approximate reduction in greenhouse gas emissions of 4.27 million tCO2e over the lifetime of the investments enabled, at a cost to the GCF of just USD 6.6/tCO2e

Key outputs

The main outputs of each component are as follow:

i. Component 1 – institutionally strengthened MARENA with fully trained and capacitated staff able to favourably, effectively and efficiently respond to the challenges and targets set by the Government for renewable energy sector;

ii. Component 2 – strengthened and technologically enhanced electricity grid able to accept/connect an additional 125MW of intermittent renewable energy in Phase I (through the installation of a number of technologies including BESS and AGC) followed by the installation of 25MW of rooftop solar PV small and medium scale systems in Phase II; and

iii. Component 3 – installed and operational mini grid at Agalega able to supply stable and clean power to the islanders (main village 25).

Key outcomes

The key outcomes for each component are:

i. Component 1 - Institutional and regulatory systems that improve incentives for low-emission planning and development and their effective implementation;

ii. Component 2 - Increased number of small, medium and large low-emission power suppliers through the increase in the grid absorption capacity on Phase I and roll-out of 25MW of rooftop installations in Phase II of the project.

Timeframe and location

The FAA was signed in June 2017 with the planned start date for activities set in September 2017. The Inception Workshop was held on 11 and 12 November 2017. The project is implemented in the Republic of Mauritius comprising of the main island of Mauritius and the outer islands of Rodrigues and Agalega.

The updated timeframe of the project is as follows:

i. Phase I: (July) 2017- (July) 2021 (following approved extension request granted by GCF on 20 October 2020)

ii. Phase II: (July) 2021 - (June) 2025

Budget

The project, which is implemented at national level, is funded by the GCF grant resources of USD 28.21 million, where it is split across phase 1 (USD 12 million) and phase 2 (USD 16.21 million), to overcome identified barriers to low-carbon investment.

Planned Co-financing

A total of USD 161,800,000 of co-financing is expected to be achieved during the project duration per the following breakdown:

Co- Financing Institution	Amount (USD)
Government- MEPU	USD 1,000,000
Government- CEB	USD 122,000,000
Agence Francaise de Developpement (AFD)	USD 37,900,000
Government- OIDC	USD 900,000
Total co-financing	**USD 161,800,000**

Additional note on impact of COVID 19 on project timeline

The first case of Covid-19 was registered in Mauritius on 18 March 2020 and a national curfew was imposed on 20 March 2020 and further extended till 1 June 2020. Most economic activities were resumed except for tourism sector where mandatory quarantine was imposed for entering tourist. Following a new wave of local transmission in early March 2021, a second lockdown was imposed and a gradual deconfinement applied for the resumption of economic activities

As at June 2020, the country has registered approximately 1,500 cases and 18 death and economic activity is expected to shrink due to reduced activity in the tourism sector. Project implementation was also affected owing to disruption in supply chain, travel restrictions and curfew imposed for sanitary reasons. While most of the consultations were held remotely on the project, some activities like the setting up of the 18 MW Battery Energy Storage System (BESS) was severely impacted as the various components of the system were manufactured in Korea, China, and France and the assembly in Spain. Moreover, as at August 2020, travel restrictions are still in place in Mauritius with uncertainty remaining on when these restrictions will be waived. As the commissioning and testing of the BESS will require support from technical expertise outside of Mauritius, the exact date for the completion of the installation of the BESS, corresponding with the end of Phase1, is expected to be delayed by up to 1 year from the project start (FAA effectiveness).

3. OBJECTIVES OF THE INTERIM EVALUATION

The IE will assess implementation of the project and progress towards the achievement of the project objectives and outcomes as specified in the UNDP Project Document and GCF Funded Activity Agreement (FAA), and assess early signs of project success or failure with the goal of identifying the necessary changes to be made in order to set the project on-track to achieve its intended results. The Interim Evaluation will also review the project's strategy and its risks to sustainability.The IE team will assess implementation of the project and its alignment with FAA obligations and progress towards the achievement of the project objectives and outcomes as specified in the Project Document. The evaluation will assess early signs of project success or failure with the goal **of identifying the necessary changes** to be made in order to set the project on-track to achieve its intended results.

The IE will take into consideration assessment of the project in line with the following evaluation criteria from the **GCF IEU TOR** (GCF/B.06/06) and **draft GCF Evaluation Policy**, along with **guidance** provided by the Organisation for Economic Co-operation and Development (OECD) Development Assistance Committee (DAC). Additional evaluation criteria can be assessed, as applicable. The IE must assess the following

- **Implementation and adaptive management** – seeks to identify challenges and propose additional measures to support more efficient and effective implementation. The following aspects of project implementation and adaptive management will be assessed: management arrangements, work planning, finance and co-finance, project-level monitoring and evaluation systems, stakeholder engagement, reporting, and communications.

- **Risks to sustainability** – seeks to assess the likelihood of continued benefits after the project ends. The assessment of sustainability at the Interim Evaluation stage considers the risks that are likely to affect the continuation of project outcomes. The IE should validate the risks identified in the Project Document, Annual Project Reports, and the ATLAS Risk Management Module and whether the risk ratings applied are appropriate and up to date.

- **Relevance, effectiveness and efficiency** - seeks to assess the appropriateness in terms of selection, implementation and achievement of FAA and project document results framework activities and expected results (outputs, outcomes and impacts).

- **Coherence in climate finance delivery with other multilateral entities** - looks at how GCF financing is additional and able to amplify other investments or de-risk and crowd-in further climate investment.

- **Gender equity** - ensures integration of understanding on how the impacts of climate change are differentiated by gender, the ways that behavioural changes and gender can play in delivering paradigm shift, and the role that women play in responding to climate change challenges both as agents but also for accountability and decision-making.

- **Country ownership of projects and programmes** - examines the extent of the emphasis on sustainability post project through country ownership; on ensuring the responsiveness of the GCF

investment to country needs and priorities including through the roles that countries play in projects and programmes.

- **Innovativeness in results areas** - focuses on identification of innovations (proof of concept, multiplication effects, new models of finance, technologies, etc.) and the extent to which the project interventions may lead to a paradigm shift towards low-emission and climate-resilient development pathways..

- **Replication and scalability** – the extent to which the activities can be scaled up in other locations within the country or replicated in other countries (this criterion, which is considered in document GCF/B.05/03 in the context of measuring performance could also be incorporate d in independent evaluations).

- **Unexpected results, both positive and negative** - identifies the challenges and the learning, both positive and negative, that can be used by all parties (governments, stakeholders, civil society, AE, GCF, and others) to inform further implementation and future investment decision-making.

- **Impact of the Covid19 pandemic on the project implementation and performance**

4. INTERIM EVALUATION APPROACH & METHODOLOGY

The IE team must provide evidence-based information that is credible, reliable and useful.

The IE team will review all relevant sources of information including documents prepared during the preparation phase (i.e. baseline Funding proposal submitted to the GCF, FAA, the Project Document, project reports including Annual Performance Reports, Quarterly Progress Reports, UNDP Environmental & Social Safeguard Policy, project budget revisions, records of surveys conducted, national strategic and legal documents, stakeholder maps, and any other materials that the team considers useful for this evidence-based review).

The IE team is expected to follow a collaborative and participatory approach[24] ensuring close engagement with the Project Team, Implementing Partner, NDA focal point, government counterparts, the UNDP Country Office, Regional Technical Advisers, and other principal stakeholders and beneficiaries.

Engagement of stakeholders is vital to a successful IE. Stakeholder involvement should include (where possible) surveys/questionnaires, focus groups, interviews with stakeholders who have project responsibilities, including but not limited to executing agencies, senior officials and task team/component leaders, key experts and consultants in the subject area, Project Steering Committee, project stakeholders, local government, CSOs, project beneficiaries, etc. Additionally, the Interim Evaluation team is expected to conduct field missions to project sites in Mauritius, to be decided in consultation with the project team. Data collection (government data/records, field observation visits, CDM verifications, public expenditure reporting, GIS data, etc.) will be used to validate evidence of results and assessments

[24] **For ideas on innovative and participatory Monitoring and Evaluation strategies and techniques, see** UNDP Discussion Paper: Innovations in Monitoring & Evaluating Results**, 05 Nov 2013.**

(including but not limited to: assessment of Theory of Change, activities delivery, and results/changes occurred).

The specific design and methodology for the IE should emerge from consultations between the IE team and the above-mentioned parties regarding what is appropriate and feasible for meeting the IE purpose and objectives and answering the evaluation questions, given limitations of budget, time and data. The IE team must, however, use gender-responsive methodologies and tools and ensure that gender equality and women's empowerment, as well as other cross-cutting issues and SDGs are incorporated into the IE report.

The final methodological approach including interview schedule, field visits and data to be used in the IE must be clearly outlined in the Inception Report and be fully discussed and agreed between UNDP, stakeholders and the IE team.

The final Interim Evaluation report should describe the full evaluation approach taken and the rationale for the approach making explicit the underlying assumptions, challenges, strengths and weaknesses about the methods and approach of the review. The final report must also describe any limitations encountered by the Interim Evaluation team during the evaluation process, including limitations of the methodology, data collection methods, and any potential influence of limitation on how findings may be interpreted, and conclusions drawn. Limitations include, among others: language barriers, inaccessible project sites, issues with access to data or verification of data sources, issues with availability of interviewees, methodological limitations to collecting more extensive or more representative qualitative or quantitative evaluation data, deviations from planned data collection and analysis set out in the ToR and Inception Report, etc. Efforts made to mitigate the limitations should also be included in the Interim Evaluation report.

Owing to the travel restrictions since 18 March 2020, there is a possibility that the international consultant might not be able to reach the country for the evaluation. In this case, the evaluation team should develop a methodology that takes this into account the conduct of the evaluation virtually and remotely, including the use of remote interview methods and extended desk reviews, data analysis, surveys and evaluation questionnaires. This should be detailed in the Inception report and agreed with the Project team.

If all or part of the evaluation is to be carried out virtually then consideration should be taken for stakeholder availability, ability or willingness to be interviewed remotely. In addition, their accessibility to the internet/ computer may be an issue as many government and national counterparts may be working from home. These limitations must be reflected in the evaluation report.

UNDP Mauritius will be providing the necessary support in the implementation of remote/ virtual meetings and will provide the evaluation team with an updated stakeholder contact list.

If a data collection/field mission is not possible then remote interviews may be undertaken through telephone or online (skype, zoom etc.). International consultants can work remotely with national evaluator support in the field if it is safe for them to operate and travel. No stakeholders, consultants or UNDP staff should be put in harm's way and safety is the key priority.

A short validation mission may be considered if it is confirmed to be safe for staff, consultants, stakeholders and if such a mission is possible within the evaluation schedule. Equally, qualified and

independent national consultants can be hired to undertake the evaluation and interviews in country as long as it is safe to do so.

5. DETAILED SCOPE OF THE INTERIM EVALUATION

The Interim Evaluation team will assess the following categories of project progress. The following questions are intended to guide the Interim Evaluation team to deliver credible and trusted evaluations that provide assessment of progress and results achieved in relationship to the GCF investment, can identify learning and areas where restructuring or changes through adaptive management in project implementation are needed, and can make evidence-based clear and focused recommendations that may be required for enhancing project implementation to deliver expected results and to what extent these can be verified and attributed to GCF investment.

i. Project Strategy

Project design:

- Review the problem addressed by the project and the underlying assumptions. Review the effect of any incorrect assumptions or changes to the context to achieving the project results as outlined in the Project Document.

- Review the relevance of the project strategy and assess whether it provides the most effective route towards expected/intended results. Were lessons from other relevant projects properly incorporated into the project design?

- Review how the project addresses country priorities. Review country ownership. Was the project concept in line with the national sector development priorities and plans of the country (or of participating countries in the case of multi-country projects)?

- Review decision-making processes: were perspectives of those who would be affected by project decisions, those who could affect the outcomes, and those who could contribute information or other resources to the process, taken into account during project design processes?

- Review the extent to which relevant gender issues were raised in the project design. See Annex 9 of *Guidance For Conducting Midterm Reviews of UNDP-Supported, GEF-Financed Projects* for further guidelines.

- If there are major areas of concern, recommend areas for improvement.

Results Framework/Logframe:

- Undertake a critical analysis of the project's logframe indicators and targets, assess how "SMART" the midterm and end-of-project targets are (Specific, Measurable, Attainable, Relevant, Time-bound), and suggest specific amendments/revisions to the targets and indicators as necessary.

- Are the project's objectives and outcomes or components clear, practical, and feasible within its time frame?
- Examine if progress so far has led to, or could in the future catalyse beneficial development effects (i.e. income generation, gender equality and women's empowerment, improved governance, etc.) that should be included in the project results framework and monitored on an annual basis.
- Ensure broader development and gender aspects of the project are being monitored effectively.
- Ensure that the indicators (gender-disaggregated) are SMART, aligned with GCF/Results Management Framework (RMF)/Performance Measurement Frameworks (PMFs) and the guidance in the **GCF programming manual.**

ii. Relevance, Effectiveness and Efficiency

- Were the context, problem, needs and priorities well analysed and reviewed during project initiation?
- Are the planned project objectives and outcomes relevant and realistic to the situation on the ground?
- How is the project Theory of Change (ToC) used in helping the project achieve results/ How is the ToC applied through the project?
- Do outputs link to intended outcomes which link to broader paradigm shift objectives of the project?
- Are the planned inputs and strategies identified realistic, appropriate and adequate to achieve the results? Were they sequenced sufficiently to efficiently deliver the expected results?
- Are the outputs being achieved in a timely manner? Is this achievement supportive of the ToC and pathways identified?
- What and how much progress has been made towards achieving the overall outputs and outcomes of the project (including contributing factors and constraints)?
- To what extent is the project able to demonstrate changes against the baseline (assessment in approved Funding Proposal) for the GCF investment criteria (including contributing factors and constraints)?
- How realistic are the risks and assumptions of the project?
- How did the project deal with issues and risks in implementation?
- To what extent did the project's M&E data and mechanism(s) contribute to achieving project results?
- Have project resources been utilized in the most economical, effective and equitable ways possible (considering value for money; absorption rate; commitments versus disbursements and projected commitments; co-financing; etc.)?
- Are the project's governance mechanisms functioning efficiently?
- To what extent did the design of the project help or hinder achieving its own goals?

- Were there clear objectives, ToC and strategy? How were these used in performance management and progress reporting?
- Were there clear baselines indicators and/or benchmark for performance measurements? How were these used in project management? To what extent and how the project apply adaptive management?
- What, if any, alternative strategies would have been more effective in achieving the project objectives?

iii. Progress Towards Results

Progress Towards Outcomes and Outputs Analysis:

- By reviewing the aspects of the project that have already been successful, identify ways in which the project can further expand these benefits.

- Review the logframe indicators against progress made towards the end-of-project targets using the Progress Towards Results Matrix and colour code progress in a "traffic light system" based on the level of progress achieved; assign a rating on progress for each indicator; make recommendations from the areas marked as "Not on target to be achieved" (red).

Table. Progress Towards Results Matrix (Achievement of indicators against End-of-project Targets)

Project Strategy	Indicator[25]	Baseline Level[26]	Level in 1st APR (self-reported)	Midterm Target[27]	End-of-project Target	Midterm Level & Assessment[28]	Achieve-ment Rating[29]	Analysis: status of indicator; justification for rating (triangulated with evidence and data); how realistic it is for target to be achieved
Fund Level Impact:	Indicator:							
Outcome 1:	Indicator:							
	Indicator:							
Output	Indicator:							
Output	Indicator:							
Outcome 2:	Indicator:							
	Indicator:							

[25] **Populate with data from the Logframe and scorecards**
[26] **Populate with data from the Project Document**
[27] **If available**
[28] **Colour code this column only**
[29] **Use the 6 point Progress Towards Results Rating Scale: HS, S, MS, MU, U, HU**

Output	Indicator:							
Output	Indicator:							
Etc.								

Indicator Assessment Key

Green= Achieved	Yellow= On target to be achieved	Red= Not on target to be achieved

Remaining barriers to achieving the project objective

- Identify remaining barriers to achieving the project objective in the remainder of the project.
- Assess impact of Covid-19 on project and recommend budget reallocation
- By reviewing the aspects of the project that have already been successful, identify ways in which the project can further expand these benefits.

iv. Project Implementation and Adaptive Management

Management Arrangements:

- Review overall effectiveness of project management as outlined in the FAA and Funding proposal. Have changes been made and have these been approved by GCF? Are responsibilities and reporting lines clear? Is decision-making transparent and undertaken in a timely manner? Recommend areas for improvement.
- Review the quality of execution of the Executing Agency/Implementing Partner(s) and recommend areas for improvement.
- Review the quality of support provided by UNDP and recommend areas for improvement.

Work Planning:

- Review any delays in project start-up and implementation, identify the causes and examine if they have been resolved.
- Are work-planning processes results-based? If not, suggest ways to re-orientate work planning to focus on results?
- Examine the use of the project's results framework/ logframe as a management tool and review any changes made to it since project start.
- Assess the feasibility of completing the proposed activities within the given project timeline (if extension was sought for any project milestone; please consider the revised timelines as well) and make recommendations for extensions, as need be.

Financing:

- Consider the financial management of the project, with specific reference to the cost-effectiveness of interventions.
- Have project resources been utilized in the most economical, effective and equitable ways possible (considering value for money; absorption rate; commitments versus disbursements and projected commitments; co-financing; etc.)?
- Does the project have the appropriate financial controls, including reporting and planning, that allow management to make informed decisions regarding the budget and allow for timely flow of funds?
- Informed by the co-financing monitoring table to be filled out, provide commentary on co-financing: is co-financing being used strategically to help the objectives of the project? Comment on the use of different financial streams (parallel, leveraged, mobilized finance), as applicable in the context of the project – see GCF policy on co-finance[30]. Discuss whether co-finance related conditions and covenants, as listed in the FAA, have been fulfilled, as applicable.
- Is the Project Team meeting with all co-financing partners regularly in order to align financing priorities and annual work plans?
- If co-finance is not materialising as planned, discuss the impact of that on the project and results on the ground.
- Assess factors that contributed to low/high expenditure rate

Coherence in climate finance delivery with other multilateral entities

- Who are the partners of the project and how strategic are they in terms of capacities and commitment?
- Is there coherence and complementarity by the project with other actors for local other climate change interventions?
- To what extent has the project complimented other on-going local level initiatives (by stakeholders, donors, governments) on climate change adaptation or mitigation efforts?
- How has the project contributed to achieving stronger and more coherent integration of shift to low emission sustainable development pathways and/or increased climate resilient sustainable development (GCF RMF/PMF Paradigm Shift objectives)? Please provide concrete examples and make specific suggestions on how to enhance these roles going forward.

Project-level Monitoring and Evaluation Systems:

[30] https://www.greenclimate.fund/sites/default/files/document/policy-cofinancing.pdf

- Review the monitoring tools currently being used: Do they provide the necessary information? Do they involve key partners? Do they use existing information? Are they efficient? Are they cost-effective? Are additional tools required? How could they be made more participatory and inclusive?

- Is project reporting and information generated by the project linked to national SDGs, NDC and other national reporting systems?
- Examine the financial management of the project monitoring and evaluation budget. Are sufficient resources being allocated to monitoring and evaluation? Are these resources being allocated effectively?

Stakeholder Engagement:

- Project management: Has the project developed and leveraged the necessary and appropriate partnerships with direct and tangential stakeholders?

- Participation and country-driven processes: Do local and national government stakeholders support the objectives of the project? Do they continue to have an active role in project decision-making that supports efficient and effective project implementation?

- Participation and public awareness: To what extent has stakeholder involvement and public awareness contributed to the progress towards achievement of project objectives?

- Is a grievance mechanism in place? If so, assess its effectiveness

Social and Environmental Standards (Safeguards)

- Validate the risks identified in the project's most current SESP/ESIA, and those risks' ratings; are any revisions needed?

- Summarize and assess the revisions made since Board Approval (if any) to:
    - The project's overall safeguards risk categorization.
    - The identified types of risks[31] (in the SESP).
    - The individual risk ratings (in the SESP) .

- Describe and assess progress made in the implementation of the project's social and environmental management measures as outlined in the SESP submitted at the Funding Proposal stage (and prepared during implementation, if any), including any revisions to those measures. Such management measures might include Environmental and Social Management Plans (ESMPs) or other management

[31] **Risks are to be labeled with both the UNDP SES Principles and Standards, and the GEF's "types of risks and potential impacts": Climate Change and Disaster; Disadvantaged or Vulnerable Individuals or Groups; Disability Inclusion; Adverse Gender-Related impact, including Gender-based Violence and Sexual Exploitation; Biodiversity Conservation and the Sustainable Management of Living Natural Resources; Restrictions on Land Use and Involuntary Resettlement; Indigenous Peoples; Cultural Heritage; Resource Efficiency and Pollution Prevention; Labor and Working Conditions; Community Health, Safety and Security.**

plans, though can also include aspects of a project's design; refer to Question 6 in the SESP template for a summary of the identified management measures.

A given project should be assessed against the version of UNDP's safeguards policy that was in effect at the time of the project's approval.

Reporting:

- Assess how adaptive management changes have been reported by the project management and shared with the Project Board.
- Assess how well the Project Team and partners undertake and fulfil GCF reporting requirements (i.e. how have they addressed poorly-rated APRs, if applicable?)
- Assess how lessons derived from the adaptive management process have been documented, shared with key partners and internalized by partners.

Communications:

- Review internal project communication with stakeholders: Is communication regular and effective? Are there key stakeholders left out of communication? Are there feedback mechanisms when communication is received? Does this communication with stakeholders contribute to their awareness of project outcomes and activities and investment in the sustainability of project results?
- Review external project communication: Are proper means of communication established or being established to express the project progress and intended impact to the public (is there a web presence, for example? Or did the project implement appropriate outreach and public awareness campaigns?)
- For reporting purposes, write one half-page paragraph that summarizes the project's progress towards results in terms of contribution to sustainable development benefits, as well as global environmental benefits.

v. Sustainability

- Validate whether the risks identified in the FAA and Funding proposal, APRs and the ATLAS Risk Management Module are the most important and whether the risk ratings applied are appropriate and up to date. If not, explain why.
- In addition, assess the following risks to sustainability:

Financial risks to sustainability:

- What is the likelihood of financial and economic resources not being available once the GCF assistance ends (consider potential resources can be from multiple sources, such as the public and private

sectors, income generating activities, and other funding that will be adequate financial resources for sustaining project's outcomes)?

Socio-economic risks to sustainability:

- Are there any social or political risks that may jeopardize sustainability of project outcomes? What is the risk that the level of stakeholder ownership (including ownership by governments and other key stakeholders) will be insufficient to allow for the project outcomes/benefits to be sustained? Do the various key stakeholders see that it is in their interest that the project benefits continue to flow? Is there sufficient public / stakeholder awareness in support of the long-term objectives of the project? Are lessons learned being documented by the Project Team on a continual basis and shared/ transferred to appropriate parties who could learn from the project and potentially replicate and/or scale it in the future?

Institutional Framework and Governance risks to sustainability:

- Do the legal frameworks, policies, governance structures and processes pose risks that may jeopardize sustenance of project benefits? While assessing this parameter, also consider if the required systems/ mechanisms for accountability, transparency, and technical knowledge transfer are in place.

Environmental risks to sustainability:

- Are there any environmental risks that may jeopardize sustenance of project outcomes?

vi. Country Ownership

- To what extent is the project aligned with national development plans, national plans of action on climate change, or sub-national policy as well as projects and priorities of the national partners?
- How well is country ownership reflected in the project governance, coordination and consultation mechanisms or other consultations?
- To what extent are country level systems for project management or M&E utilized in the project?
- Is the project, as implemented, responsive to local challenges and relevant/appropriate/strategic in relation to SDG indicators, National indicators, GCF RMF/PMF indicators, AE indicators, or other goals?
- Were the modes of deliveries of the outputs appropriate to build essential/necessary capacities, promote national ownership and ensure sustainability of the result achieved?

vii. Gender equity

- Does the project only rely on sex-disaggregated data per population statistics?
- Are financial resources/project activities explicitly allocated to enable women to benefit from project interventions?
- Does the project account in activities and planning for local gender dynamics and how project interventions affect women as beneficiaries?

- Do women as beneficiaries know their rights and/or benefits from project activities/interventions?
- How do the results for women compare to those for men?
- Is the decision-making process transparent and inclusive of both women and men?
- To what extent are female stakeholders or beneficiaries satisfied with the project gender equality results?
- Did the project sufficiently address cross cutting issues including gender?
- How does the project incorporate gender in its governance or staffing?

viii. Innovativeness in results areas

- What are the lessons learned to enrich learning and knowledge generation in terms of how the project played in the provision of "thought leadership," "innovation," or "unlocked additional climate finance" for climate change adaptation/mitigation in the project and country context? Please provide concrete examples and make specific suggestions on how to enhance these roles going forward.

ix. Unexpected results, both positive and negative

- What has been the project's ability to adapt and evolve based on continuous lessons learned and the changing development landscape? Please account for factors both within the AE/EE and external.
- Can any unintended or unexpected positive or negative effects be observed as a consequence of the project's interventions?
- What factors have contributed to the unintended outcomes, outputs, activities, results?
- Do any of the unintended results constitute a major change?[32]

x. Replication and Scalability

- What are project lessons learned, failures/lost opportunities to date? What might have been done better or differently?
- Assess the effectiveness of exit strategies and approaches to phase out assistance provided by the project including contributing factors and constraints? Is there a need for recalibration?
- What factors of the project achievements are contingent on specific local context or enabling environment factors?
- Are the actions and results from project interventions likely to be sustained, ideally through ownership by the local partners and stakeholders?
- What are the key factors that will require attention in order to improve prospects of sustainability, scalability or replication of project outcomes/outputs/results?

Conclusions & Recommendations

[32] **See Section '9.4 Major Changes and Restructuring' in the** GCF Programming Manual

The Interim Evaluation team will include a section of the report setting out the evaluation's evidence-based conclusions, in light of the findings. Explain whether the project will be able to achieve planned development objective and outcomes by the end of implementation.

Recommendations should be succinct suggestions for critical intervention that are specific, measurable, achievable, and relevant. A recommendation table should be put in the report's executive summary.

The Interim Evaluation team should make no more than 10 recommendations total.

Ratings

The Interim Evaluation team will include its ratings of the project's results and brief descriptions of the associated achievements in an *Interim Evaluation Ratings & Achievement Summary Table* in the Executive Summary of the Interim Evaluation report. See Annex E for ratings scales. No rating on Project Strategy and no overall project rating is required.

Table. Interim Evaluation Ratings & Achievement Summary Table for the GCF funded project – '*Accelerating the transformational shift to a low carbon economy in the Republic of Mauritius*'

Measure	Interim Evaluation Rating[33]	Achievement Description
Project Strategy	N/A	
Progress Towards Results	Objective Achievement Rating: (rate 6 pt. scale)	
	Outcome 1 Achievement Rating: (rate 6 pt. scale)	
	Outcome 2 Achievement Rating: (rate 6 pt. scale)	
	Outcome 3 Achievement Rating: (rate 6 pt. scale)	
	Etc.	
Project Implementation & Adaptive Management	(rate 6 pt. scale)	
Sustainability	(rate 4 pt. scale)	

33 Ratings for Objective/Outcome Achievement and Project Implementation & Adaptive Management: 6 = Highly Satisfactory (HS): exceeds expectations and/or no shortcomings; 5 = Satisfactory (S): meets expectations and/or no or minor shortcomings; 4 = Moderately Satisfactory (MS): more or less meets expectations and/or some shortcomings; 3 = Moderately Unsatisfactory (MU): somewhat below expectations and/or significant shortcomings; 2 = Unsatisfactory (U): substantially below expectations and/or major shortcomings; 1 = Highly Unsatisfactory (HU): severe shortcomings, Unable to Assess (U/A): available information does not allow an assessment

Ratings for Sustainability: 4 = Likely (L): negligible risks to sustainability; 3 = Moderately Likely (ML): moderate risks to sustainability; 2 = Moderately Unlikely (MU): significant risks to sustainability; 1 = Unlikely (U): severe risks to sustainability; Unable to Assess (U/A): Unable to assess the expected incidence and magnitude of risks to sustainability

6. TIMEFRAME

The total duration of the Interim Evaluation will be approximately 40 working days over a time period of 16 weeks. The tentative Interim Evaluation timeframe is as follows:

ACTIVITY	NUMBER OF WORKING DAYS	COMPLETION DATE
I. Desk review and Inception Report		
Document review and preparation of Interim Evaluation (IE) Inception Report; Submission of IE Inception Report (Inception Report due no later than 1 week before the evaluation mission)	*5 days*	*23 July 2021*
II. Mission and Data Collection		
IE mission: stakeholder meetings, interviews, field visits	*15 days*	*13 August 2021*
Presentation of initial findings- last day of the Interim Evaluation mission	*2 day*	*18 August 2021*
III. Report Writing		
Preparation and submission of Draft IE Report #1 *(at least 5 ½ weeks before final report due date)*	*9 days*	*31 August 2021*
Incorporation of comments on Draft IE Report #1; Preparation and submission of Draft IE Report #2 *(at least 5 weeks before final report due date)*	*4 days*	*7 September 2021*
Incorporation of comments from Draft IE Report #2 and Finalization of IE report + completed audit trail from feedback on draft report *(note: there might be a need to accommodate possible time delay in dates for circulation and review of the draft report, as some feedback/questions might be coming from the donor outside of this timeline; therefore flexibility within the contract period might be required)*	*5 days*	*8 October 2021*

Options for site visits should be provided in the Inception Report.

7. MIDTERM REVIEW DELIVERABLES

#	Deliverable	Description	Timing	Responsibilities
1	**Interim Evaluation (IE) Inception Report**	Proposed evaluation methodology, work plan and structure of the Interim Evaluation report, and options for site visits	by 23 July 2021	Interim Evaluation team submits to the Commissioning Unit and project management
2	**Presentation**	Initial Findings	End of evaluation mission by 18 August 2021	Interim Evaluation Team presents to project management

				and the Commissioning Unit
3	**Draft IE Report #1**	Full report (using guidelines on content outlined in Annex B) with annexes	by 31 August 2021	Interim Evaluation Team sends draft to the Commissioning Unit, reviewed by RTA, Project Coordinating Unit, NDA focal point
4	**Draft IE Report #2**	Full report (using guidelines on content outlined in Annex B) with annexes	by 7 September 2021	Interim Evaluation Team sends draft to the Commissioning Unit, reviewed by RTA, Project Coordinating Unit, NDA focal point
5	**Final Interim Evaluation Report* + Audit Trail**	Revised report with audit trail detailing how all received comments have (and have not) been addressed in the final report	by 8 October 2021	Interim Evaluation Team sends final report Commissioning Unit
6	**Concluding Stakeholder Workshop**	Meeting to present and discuss key findings and recommendations of the evaluation report, and key actions in response to the report.	Within 1-2 weeks of completion of final Interim Evaluation report	Led by Interim Evaluation team or Project Team and Commissioning Unit

*The final Interim Evaluation report must be in English. If applicable, the Commissioning Unit may choose to arrange for a translation of the report into a language more widely shared by national stakeholders.

8. INTERIM EVALUATION ARRANGEMENTS

The principal responsibility for managing this IE resides with the Commissioning Unit. The Commissioning Unit for this project's IE is *UNDP Mauritius/Seychelles Country Office.* During this assignment, the Interim Evaluation team will report to the M&E Focal Point in the Commissioning Unit who will provide guidance and ensure satisfactory completion of deliverables.

The Commissioning Unit will contract the IE team and ensure the timely provision of per diems and travel arrangements within Mauritius. The Project Team will be responsible for liaising with the Interim Evaluation team to provide all relevant documents, set up stakeholder interviews, and arrange field visits.

9. TEAM COMPOSITION

A team of *two independent consultants* will conduct the IE - one team leader (with experience and exposure to projects and evaluations in other regions globally) and one team expert, usually from the country of the project and/or with expertise in a relevant area) The consultants cannot have participated in the project preparation, formulation, and/or implementation (including the writing of the Project Document) and should not have a conflict of interest with project's related activities.

Education

- A Master's degree in Electrical engineering, Energy Economics, Renewable Energy, Management, or other closely related field (15 points)

Work Experience

- Minimum 10 years of experience with result-based management evaluation methodologies in an international development context (15 points);
- Experience applying SMART indicators and reconstructing or validating baseline scenarios (10 points);
- Competence in adaptive management, as applied to Electrical engineering, Energy Economics, Renewable Energy or similar fields (10 points);
- Experience working in Small Islands Developing States is an asset (10 points);
- Experience working with donors funded project (10 points);
- Demonstrated understanding of issues related to gender and social and environmental safeguards; experience in gender sensitive evaluation and analysis (15 points).
- Excellent communication skills (5 points);
- Project evaluation/review experiences within United Nations system (5 points);

Language

- Fluency in written and spoken English (5 points)

10. EVALUATOR ETHICS

The evaluation team will be held to the highest ethical standards and is required to sign a code of conduct (see ToR Annex D) upon acceptance of the assignment. This evaluation will be conducted in accordance with the principles outlined in the UNEG **Ethical Guidelines for Evaluation**. The IE team must safeguard the rights and confidentiality of information providers, interviewees and stakeholders through measures

to ensure compliance with legal and other relevant codes governing collection of data and reporting on data. The IE team must also ensure security of collected information before and after the IE and protocols to ensure anonymity and confidentiality of sources of information where that is expected. The information knowledge and data gathered in the IE process must also be solely used for the evaluation and not for other uses without the express authorization of UNDP and partners.

11. PAYMENT MODALITIES AND SPECIFICATIONS

20% upon satisfactory delivery and approval of the final Interim Evaluation Inception Report
50% upon satisfactory delivery of the of the first draft Interim Evaluation report
30% upon satisfactory delivery and approval of the final Interim Evaluation report by the Commissioning Unit, UNDP Nature, Climate and Energy (NCE) Regional Technical Advisor and UNDP NCE Principal Technical Advisor +submission of completed Audit Trail

Criteria for issuing the final payment of 30%:

i) The final IE report includes all requirements outlined in the IE TOR and is in accordance with the IE guidance.
ii) The final IE report is clearly written, logically organized, and is specific for this project (i.e. text has not been cut & pasted from other IE reports).
iii) The Audit Trail includes responses to and justification for each comment listed.
iv) RTA approvals are via signatures on the TE Report Clearance Form)

12. APPLICATION PROCESS

The International Consultant will be sourced from the GPN ExpRes roster from which a long list of CVs will be shared with the Country Office matching the selection criteria. The CO will formulate a shortlist of candidates who will be contacted by the GPN roster management team

Annex 2: Interim Evaluation evaluative matrix (evaluation criteria with key questions, indicators, sources of data, and methodology)

Evaluative Questions	Indicators	Sources	Methodology
1. Project Strategy: To what extent is the project strategy relevant to country priorities, country ownership, and the best route towards expected results?			
Design			
Is the project strategy relevant to the country priorities and aligned with development priorities?	Degree of coherence between the project and national priorities Appreciation from national stakeholders with respect to adequacy of project design and implementation to national realities	Project documents; national policies and strategies; key project partners	• Document review • Interviews with UNDP and project team • Interviews with key stakeholders
Has the country taken full ownership?	Level of involvement of government officials and other partners in the project design and implementation. Project Board meetings, replication of activities, budget lines reserved for project continuation.	Minutes, project documents, project staff and partners, budget speeches, websites	• Document review • Interviews with UNDP and project team • Interviews with key stakeholders
Is the project internally coherent in its design? Are there logical linkages between expected results of the project (log frame) and the project design(in terms of project components, choice of partners, structure, delivery mechanism, scope, budget, use of resources, etc,)? Is the length of the project sufficient to achieve Project Outcomes?	Level of coherence between project expected results and project design internal logic	Project documents, key project stakeholders	• Document review • Interviews with UNDP and project team • Interviews with key stakeholders
Were planned monitoring and evaluation arrangement adequate?	M&E Plan use, need for change/adjustment of M&E	M&E plan, reports, staff	• Document review • Interviews with UNDP and project team

			• Interviews and meetings with key stakeholders
Results Framework/Logframe			
Are the indicators and targets SMART and are amendments/revisions needed?	Logframe indicators and targets	Project reports, M&E	• Document Analyses • Interviews with UNDP and project team
Are the objectives and outcomes clear and realistic? Are revisions needed?	Logframe objectives/outcomes	Project reports, M&E	• Document Analyses • Interviews with UNDP and project team
2. Progress Towards Results: To what extent have the expected outcomes and objectives of the project been achieved thus far?			
To what extent progresses towards outputs or outcomes have been achieved?	See indicators in project document results framework and log frame.	Project Documents, M&E reports, project team and relevant stakeholders.	• Document review • Interviews with UNDP and project team • Interviews with key stakeholders • Field visits
How is the ToC applied through the project?			
What are remaining barriers to achieving the project objectives in the remainder of the project?	Description of specific challenges/barriers/constraints	Project reports, risk table/assessment, interviews	• Document Analyses • Interviews with UNDP and project team
Early signs of successful interventions?	Replication/adoption of approaches, methodologies, collaboration efforts etc.	Project reports, interviews	• Document Analyses • Interviews with UNDP and project team
Are other strategies possible to achieve expected results? BAU?	Other projects/partners/initiatives	Project documents	•
Inclusive gender approach?	UNDP Gender Marker, disaggregated beneficiaries/participants	Project reports, interviews	• Document Analyses • Interviews with UNDP and project team
3.Project Implementation and Adaptive Management: Has the project been implemented efficiently, cost-effectively, and been able to adapt to any changing conditions thus far? To what extent are project-level monitoring and evaluation systems, reporting, and project communications supporting the project's implementation?			
Management Arrangements			
Is the Project's governance effective?	Is the governance structure well designed?	Minutes, reports.	• Document review

	Do governance bodies (PB) function well?		• Interviews with UNDP and project team • Interviews with key stakeholders
Is the project well designed?	Does the project logical framework allow for good project management?	Logframe	• Document Analyses • Interviews with UNDP and project team
	Has the programme been able to adapt successfully to changing circumstances?	Interviews	• Document Analyses • Interviews with UNDP and project team
Was project support by UNDP provided in an efficient way?	Availability and quality of financial and progress reports Timeliness and adequacy of reporting provided	Project documents, UNDP project team	• Document review • Interviews with UNDP and project team • Interviews with key stakeholders
Is the quality of the outputs sufficient?	Stakeholders perception of the quality of outputs		• Document Analyses • Interviews with UNDP and project team • Interviews of stakeholders/partners
	Quality of expertise involved	CV of main experts	• Document Analyses • Interviews with UNDP and project team • Interviews of stakeholders/partners
Work Planning			
Are work plans and implementation timely and of good quality?	Stakeholders perception, AWP-Bs review, timely delivery	Reports	• Document review • Interviews with UNDP and project team • Interviews with key stakeholders
Is work planning participatory?	Participation of stakeholders Gender sensitive	Reports	• Document review • Interviews with UNDP and project team

			• Interviews with key stakeholders
Finance and co-finance			
Is the project able to spend its budget on-time?	Rate of delivery against approved budget; evolution over time (Y to Y)	M&E reports	• Document Analyses • Interviews with UNDP and project team
Are interventions cost-effective?	Procurement options for cost-effectiveness; Stakeholder perception.	Reports	• Document Analyses • Interviews with UNDP and project team • Interviews of stakeholders/partners
Co-finance use/expenditure?	Co-financing table, reporting by co-financing partners, actual versus planned.	Reports	• Document Analyses • Interviews with UNDP and project team • Interviews of stakeholders/ partners
Is financial management effective?	Fund flow issues, audit objections etc.	Audit reports, project reports	• Document Analyses • Interviews with UNDP and project team
Coherence in climate finance delivery with other multilateral entities			
Is there coherence and complementarity with other local climate change interventions?	Degree to which project is coherent and complementary to another donor programming nationally and regionally	Documents from other donor supported activities, other donor representatives, project documents	• Document review • Interviews with UNDP and project team • Interviews with relevant stakeholders
How has the project contributed to achieving stronger and more coherent integration of shift to climate resilient sustainable development?		Project Documents	• Document Analyses • Interviews with UNDP and project team • Interviews of stakeholders/ partners
Project-level M&E Systems			
Is the M&E system functioning and effective?	Are results well monitored and evaluated in terms of	M&E reports;Minutes	• Document Analyses

	activities, outputs and outcomes?		• Interviews with UNDP and project team
How is M&E information used?	Partners involvement, management decisions, M&E missions-field visits?	Reports, Minutes	• Document Analyses • Interviews with UNDP and project team
Stakeholder engagement			
Has the project developed appropriate partnerships with key stakeholders?	Stakeholder perception, stakeholder engagement plan,	Reports	• Document Analyses • Interviews with UNDP and project team • Interviews of stakeholders/ partners
Are stakeholder engaged and involved in planning and decision-making?	Stakeholder perception, reports	Reports	• Document Analyses • Interviews with UNDP and project team • Interviews of stakeholders/ partners
Social and Environmental (Safeguards)			
Are the risks identified in the project's most current SESP valid?	Completeness of risk identification and assumptions during project planning and design Quality of existing information systems in place to identify emerging risks and other issues	Project Documents, Project team and relevant stakeholders,	• Document review • Interviews with UNDP and project team • Interviews with key stakeholders
What progress has been made in the implementation of the project's social and environmental measures as outlined in the SESP submitted at Funding proposal stage.			
Reporting			
Has the Project produced timely and quality reports?	Stakeholder perception, QA of UNDP-RTAs	Quarterly, annual reports, GCF reports etc.	• Document Analyses • Interviews with UNDP and project team
Communications			

Is internal project communication with stakeholders regular and effective?	Stakeholder perception,	Reports	• Document Analyses • Interviews with UNDP and project team • Interviews of stakeholders/ partners
How does the project reach the general public?	Social media, web site, brochures, video's, newspapers, manuals etc.	Reports, websites	• Document Analyses • Interviews with UNDP and project team • Interviews of stakeholders/ partners
4. Sustainability: To what extent are there financial, institutional, socio-economic, and/or environmental risks to sustaining long-term project results?			
Are the risks identified in the Project Document still valid? Have they changed over time?	Risk Table, changes?	Reports	• Document Analyses • Interviews with UNDP and project team
How have these risks affected the Project? How have they been mitigated?	Delays, failure, strategy changes etc.	Reports	• Document Analyses • Interviews with UNDP and project team
Availability of resources Post-Phase 1?	Budgets internalized in government budget (e.g. O&M budget, training, staffing etc.)	Reports, Websites	• Document Analyses • Interviews with UNDP and project team • Interviews of stakeholders/ partners
Technical knowledge and human resource capacity enhanced? Was an appropriate balance struck between utilization of international expertise as well as local capacity?	Staffing, budget, built awareness, knowledge, curriculum developed.	Project Documenta UNDP Beneficiaries	• Document review • Interviews with UNDP and project team • Interviews with key stakeholders
4.1Replication and Scalability			
What are key factors to facilitate scalability and replication of project outcomes/outputs/results ?	Budgets earmarked, documentation of emerging best practices, capacity developed etc.	Data collected throughout evaluation	• Document review • Interviews with UNDP and project team • Interviews with key stakeholders

4.2 Country Ownership			
Alignment with national plans and priorities, involvement in project implementation/governance and consultations? Alignment with national (M&E) indicators?	Internalization in national plans, policies, guidelines, national M&E indicators, O+M budget allocation	Reports	• Document review • Interviews with UNDP and project team • Interviews with key stakeholders
5. Cross-cutting issues			
Gender Equity			
Is gender equity actively pursued?	Inclusiveness of planning, consultations, implementation and monitoring	Reports, gender action plan	• Document review • Interviews with UNDP and project team • Interviews with key stakeholders
Innovations			
Concrete examples of thought leadership, innovation or unlocked additional climate finance? What innovations or emerging best practices are scalable?	Case studies, budgets mobilized, documentation	Reports, social media reports	• Document review • Interviews with UNDP and project team • Interviews with key stakeholders
Unexpected Results			
What unexpected results (positive and negative) have emerged?	Case studies, documentation.	Reports, social media reports	• Document review • Interviews with UNDP and project team • Interviews with key stakeholders

Annex 3: Interview Guide used for data collection

Relevance:

- Is the project relevant to the Government mandates, national priorities? How so?
- Was the project design adequate to meet its objective?
- Looking back: was the formulation process participatory with involvement of key stakeholders and beneficiaries?
- What suggestion can you make to increase relevance in the future?

Effectiveness:

- Have project objectives been met/are likely to be met? How can these be enhanced?
- What were the major factors influencing the achievement or non-achievement of the objectives?

Efficiency:

- Are the projects inputs being converted economically into desired and agreed upon outputs? Were the objectives achieved in time? What, if any, alternative strategies would have been more effective in achieving the project objectives?
- Were institutions strengthened? Is there enough capacity?

Sustainability:

- What is the evidence and likelihood that the project achievements can be enhanced over the next phase?

Impact:

- To what degree are you satisfied with the contribution of the project? In your view, what is the most significant result, success or impact of the project?
- Has UNDP been effectively positioned and partnered to achieve impact?

Donor Coordination

- Is there a duplication of efforts by different donors?
- How is coordination between different donors materialized?

Lesson learned and success factors:

- What is the mains lesson to date that can be applied for the next phase of the project?
- What are the factors that positively or negatively affect the achievements/performance of the project– strengths, weakness, opportunities and risks?

- Do you have any other ideas or suggestions on how the project can be improved in the next phase?

Annex 4: Field Visits

Date and Time	Location	Staff present
Wednesday 1st September 2021 (9.30-11.00)	2MW BESS @ Henrietta	Mr Sajjid Mooniaruck-Project Manager, Component 2 Mr. Damodar Doseeah – Senior Engineer, Systems Operation, T&D. Mr. Ally Rujbally – Senior Engineer, T&D. Mr. Gujadhur – Ag. Senior Engineer Mr. Thakoorarund Bohorun, Engineer
Wednesday 1st September 2021 (11.30-12.30)	AGC system at St Louis Power station	Mr Sajjid Mooniaruck-Project Manager, Component 2 Mr. Brahmananda Rao – Senior Engineer, Condition Monitoring Unit Mr. Ally Rujbally – Senior Engineer, T&D. Mr. Juglall – Engineer , St Louis Power Station

Annex 5: List of persons interviewed

Thursday 19 August 2021			
9:30 to 10:30	UNDP	Mr Shakil Beedassy	GCF Project Coordinator
11:00 to 12 :00	UNDP	Mr Sajjid Mooniaruck	Project Manager, Component 2
14:00 to 15:00.	UNDP	Ms Vichittra Purdassee	Project Manager, Component 1
Friday 20 August 2021			
11:00 to 11:30	UNDP	Ms. Grishta Beegun	GCF Finance Assistant
11:30 to 12 :00	UNDP	Ms. Bibi Farzina Lowtun-Boolakee	Gender and Monitoring and Evaluation Officer
Tuesday 24 August 2021			
10:00-11:00	Ministry of Finance, Economic Planning & Development	Mr. Ishwarlall Bonomaully	Director Economic & Finance - Public Infrastructure/ National Project Director & Chairperson
		Ms. Sadhna Appanah	Lead Analyst
		Ms. Namrata Jory	Analyst/Senior Analyst
		Mr. Hemnish Urdhin	Analyst/Senior Analyst
13:30 – 14:30	Business Mauritius	Mr. Mickael Appaya	Head of Sustainability and Inclusive Growth
Wednesday 25 August 2021			
10:00-11:00	Agance Francaise de Development	Mr. Johan Letang	Chargé de mission énergie et biodiversité
13:00 – 14:30	Central Electricity Board	Mr. Chavan Dabeedin	Project Director, Component 2/Transmission and Distribution Manager
Thursday 26 August 2021			
11:00 -12:00	Utility Regulatory Authority	Ms. Eunice Potani	Chief Executive Officer

Friday 27 August 2021			
10:00- 11:00	National Empowerment Foundation	Mr. Ajmal Lotun	Project Manager
13:30 – 14:30	Ministry of Environment, Solid Waste Management and Climate Change	Mrs Anita Kawol	Ag. Divisional Environment Officer – Climate Change Division
	Ministry of Ennvironment, Solid Waste Management and Climate Change	Ms. Roufida Teemul	Environment Officer
15:00 -16:00	University of Mauritius	Dr. Yatin Ramgolam	Senior Lecturer
Monday 30 August 2021			
13:00 – 14:00	Ministry of Energy & Public Utilities	Ms. M. Ramkhelawon	Deputy Permanent Secretary
Tuesday 31 August 2021			
10:30 – 11:30	Mauritius Renewable Energy Agency	Ms. Mreedula Mungra	Chief Executive Officer
13:00 – 14:00	National Women's Council	Ms Mehreen Rughony	Programme Officer
		Ms Mungra	Supervisor
Wednesday 01 September 2021			
	Field Site Visit - Henrietta BESS St Louis for AGC		
Friday 03 September 2021			
2:30 – 3:30	UNDP	Ms Jana Koperniech	Global Technical Specialist – Energy (Regional Technical Advisor function)
Tuesday 14 September 2021			
10:30 – 11:30	MEPU	Dr. P.M.K. Soonarane (planned)	Project Director / Director Technical Services (Public Utilities)
Friday 17 September 2021 (proposed)			
	UNDP RR	Ms Amanda K. Serumaga (planned)	UNDP Resident Representative Mauritius and Seychelles

Annex 6: List of documents reviewed

1. Funding Proposal
2. Funded Activity Agreement (FAA)
3. UNDP Project Document
4. UNDP Environmental and Social Screening results
5. Project Inception Report
6. All Annual Performance Reports (APRs)
7. Progress reports and work plans of the various implementation task teams
8. Audit reports
9. Mission reports
10. All monitoring reports prepared by the project
11. Financial and Administration guidelines used by Project Team

The following documents will also be available:

12. Project operational guidelines, manuals and systems
13. UNDP country/countries programme document(s)
14. Minutes of the Project Board Meetings and other meetings (i.e. Project Appraisal Committee meetings)
15. Project site location maps

Annex 7: List of Technical Reports and Publications

1 Report on assessment of potential of floating solar PV on lakes and reservoirs in Mauritius
2 Preliminary report on capacity needs assessment in floating solar PV and training materials/training report
3 Report on assessment of potential of solar PV at Tamarind Falls, taking into consideration, but not limited to, technical, environmental, social, economic and financial aspects
4 Policy recommendations for streamlining floating solar PV in local legislation
5 Bathymetry report - Tamarind Falls reservoir
6 National Grid Code Report
7 Consultative workshop on national grid code
8 Institutional Mapping of Electricity Sector in Mauritius
9 Guidelines, Norms, Standards and Institutional Requirements for Implementation
10 Development Project Evaluation Tool
11 Consultative Workshop - Funding Strategies
12 Consultative Workshop - Incentive Scheme
13 Electricity Tariff Guidelines and Methodology
14 Standards for Accreditation of installers, technicians and professionals of the RETs
15 Incentive Scheme for Deployment of RE (FINAL)
16 Funding Strategies and Schemes for Accelerating RE Transition (FINAL)
17 Framework for Green Jobs in the RE Sector
18 Detailed design report (MARENA)
19 Detailed design report (URA)
20 Completion of procurement (MARENA)
21 Completion of procurement (URA)
22 Report on supervision, installation and commissioning of MIS (MARENA)
23 Report on supervision, installation and commissioning of MIS (URA)
24 Operationalisation of the MIS (MARENA)
25 Operationalisation of the MIS (URA)
26 Operation and maintenance manual (MARENA)
27 Operation and maintenance manual (URA)
28 Training plan and training completion report (MARENA)
29 Training plan and training completion report (URA)
30 Completion of assignment (MARENA)
31 Completion of assignment (URA)

Annex 8: Signed UNEG Code of Conduct form

Annex 9: Signed Interim Evaluation final report clearance form

(to be completed and signed by the Commissioning Unit, RTA and PTA included in the final

Interim Evaluation Report Reviewed and Cleared By:

Commissioning Unit (M&E Focal Point)

Name: Bibi Farzina Lowtun-Boolakee

Signature: B Boolakee Date: 19-October-2021

Regional Technical Advisor - Nature, Climate and Energy

Name: Ludmilla Diniz

Signature: _____ Date: _____

Principal Technical Advisor - Nature, Climate and Energy

Name: Oliver Waissbein

Signature: _____ Date: _____

Annex 10: Audit trail from received comments on draft Interim Evaluation report

Comments on draft IE report for 'Accelerating the transformational shift to a low-carbon economy in the Republic of Mauritius' (PIMS 5681)		
Comments from GCF		
SN	Comments	Response
1	There is a need for more substantiative evidence for key evaluation findings, and all recommendations should be supported by adequate findings and analysis. Examples would be great, as would triangulation of evidence.	More analysis and evidence for key evaluation finding added in sections 4.1 to 4.11 and the recommendations are supported by the findings and analysis. Additional references re AGC, households in RE and knowledge management added and additional links to evidences added.
2	The analysis of the results framework and ToC should be strengthened and more rigorous, particularly as it is used to argue for a revision of targets and extension of project.	Sections 3.2 and 4.1.2 strengthened. Table 3 has been strengthened to compile adjusted proposed indicators. Discussion on monitoring and replication strengthened.
3	The evaluation should include an analysis of the GHG emissions achieved (including what is noted to be indirect emissions) to provide an understanding of whether the project is on track to achieve its results.	Analysis included in section 4.3.1. Indirect emissions generated by the project up to now are expected to be of 181.500 tCO2
4	Project financing and co-financing. The evaluation of the financial execution could benefit from a more substantive assessment, e.g., by analyzing the financing and co-financing, planned vs received, budget execution (annual to cumulative), and where targets have not been achieved why not and impact on the project.	More assessment done in section 4.4.3, the financing table includes and additional explanation of the ofinance disbursed (table8)
5	Co-financing. Linked to the above point, a more detailed assessment of the impact of the delayed AFD and co-financing should be provided, including mitigation measures if these do not materialize as planned (time and/or in amounts). It is noteworthy that the 2020 APR clearly noted that the expected impact is high, whereas the evaluation presents the contrary. Similarly, CEB co-financing to date is very low and should be assessed.	Detailed assessment provided in sections 4.1.1 and 4.4.3. Clarification of CEB co finance of 3,319,581as contribution to purchase of Battery Energy Storage System, and upgrade of the national grid.

6	MARENA. A requirement under the FAA for Phase 2 disbursement is that as part of the first interim independent evaluation, an action plan evidencing continual operation of MARENA during the Funder Activity implementation period is provided. This does not appear to have been included in the report and should be provided.	Action plan is provided together with the IE report (refer to annex 12) and reference is made in the Executive summary and in Recommendation No.1
7	The report should have a section on lessons learnt thus far.	Lesson Learnt included in the last chapter with the 5 main lessons learnt

Annex 11: Notes of meeting minutes of Ministry of finance and CEB on AFD co-financing

Annex 12: Action Plan evidencing continual operation of MARENA