
**Terminal Evaluation of the Global Environment
Facility/UN Environment Project**

**Low Carbon-Energy Islands: Accelerating the Use of
Energy Efficient and Renewable Energy Technologies in
Tuvalu, Niue and Nauru**

Final Report





Evaluation Office of UN Environment

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For further information on this report, please contact:

Evaluation Office of UN Environment
P. O. Box 30552-00100 GPO
Nairobi Kenya
Tel: (254-20) 762 3389
Email: chief.eou@unep.org

Project Title: Low Carbon-Energy Islands: Accelerating the Use of Energy Efficient and Renewable Energy

GEF project ID 4000

Date 03/18

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ACKNOWLEDGEMENTS

This Terminal evaluation was prepared for the Evaluation Office of UN Environment by Mr. Alfredo Caprile and Ms. Sirikul Prasitpianchai, Lead and Support Consultants. The authors would like to express their gratitude to all of the UN Environment and IUCN personnel and project participants that have been interviewed during the evaluation. Their comments and opinions with regard to the results and impacts that have been accomplished by the project have been critical for the preparation of this report.

There are a great number of people to mention by name and everyone who contributed has been included in the list of stakeholders interviewed in Annex B but the evaluators would like to mention specially the support received from Saila Toikka from the UN Environment Evaluation Office in Nairobi, Kenya and from Andrew Irwin, project manager from IUCN, who provided us access to all project documentation and overall guidance and direction throughout the entire evaluation process. The evaluators also would like to thank by Conrado Heruela, former UN Environment Task Manager for the guidance that he has provided, in understanding the goal of the original project design and the various attempts that have been made to adjust it in view of the changes that have occurred by the time project implementation began.

We wish to emphasize that the views expressed in this report do not necessarily reflect the views of UN Environment or of IUCN or the project stakeholders including beneficiaries who have been consulted during the preparation of this report.

The report benefits from a peer review conducted within Evaluation Office of UN Environment.

Evaluation Team

Alfredo Caprile – Lead Consultant
Sirikul Prasitpianchai – Supporting Consultant

Evaluation Office of UN Environment

Saila Toikka – Evaluation Manager
Mela Shah – Evaluation Programme Assistant

ABOUT THE EVALUATION¹

Joint Evaluation: No

Report Language(s): English

Evaluation Type: Terminal Project Evaluations

Brief Description: The Low Carbon Energy Islands “Accelerating the Energy Efficient and Renewable Energy Technologies in Tuvalu, Niue and Nauru” project seeks to reduce the participating countries GHG emissions by replacing fossil fuels with renewable energy resources and energy conservation. The project is in line with the GEF-4 Strategic Program 3 on promoting market approaches for the supply of renewable electricity in utility scale grid-based power systems and with the GEF 4 Strategic Program 1 promoting energy efficiency in residential and commercial buildings. The project started in March 2013 and was scheduled for completion on December 31, 2017. GEF supported the project with an allocation of USD 1,299,636 and the governments of Tuvalu, Niue and Nauru were committed to contribute co-financing for a total of USD 7.69 million.

Key words: Small Island Developing States; SIDS; Small Islands; Project Evaluation; Climate Change; TE; Terminal Evaluation; GEF; GEF Project; energy efficiency, renewable energy

¹ This data is used to aid the internet search of this report on the Evaluation Office of UN Environment Website

Abbreviations and Acronyms

ACSE	Adapting to Climate Change and Sustainable Energy project
ADB	Asian Development Bank
CIE	Nauru Ministry for Commerce, Industry & Environment
DBT	Development Bank of Tuvalu
DOE	Department of Energy
DSM	Demand-side management
EE	Energy Efficiency
EELF	Energy Efficiency Loan Fund
EESLI	Energy, Ecosystems, and Sustainable Livelihood
EERF	Energy Efficiency Revolving Fund
EIA	Environmental Impact Assessment
EU	European Union
EU PacTVET	European Union's Pacific Technical and Vocational Education and Training Project
FMO	Financial Management Officer
GCF	Green Climate Fund
GEB	Global Environmental Benefits
GHG	Greenhouse gases
GIZ	Deutsche Gesellschaft für Internationale Zusammenarbeit
GPAS	GEF Pacific Alliance for Sustainability
GSES	Global Sustainable Energy Solutions
HF	Highly Favourable
HL	Highly Likely
HS	Highly Satisfactory
HU	Highly Unsatisfactory or Highly Unlikely
ICT	Information and Communication Technology
IPP	Independent Power Producer
IUCN	International Union for Conservation of Nature
IUCN-ELP	IUCN Environmental Law Programme
IUCN ORO	IUCN Oceania Regional Office
LCF	Low Carbon Fund
LCI	"Low Carbon-Energy Islands: Accelerating the Energy Efficient and Renewable Energy Technologies in Tuvalu, Niue and Nauru" project
LULUCF	Land use, land use change and forestry
M&E	Monitoring and Evaluation
MEPS	Minimum Energy Performance Standards
MS	Moderately Satisfactory
MTR	Mid-Term Review
MTS	Medium Term Strategy
MU	Moderately Unsatisfactory
NDA	National Designated Authority
NDB	Niue Development Bank
NEPF	National Energy Policy Framework
NISERM	Niue Strategic Energy Roadmap
NPC	Niue Power Corporation
NSDS	National Sustainable Development Strategy
NUC	Nauru Utility Corporation
OVI	Objectively Verifiable Indicators
O-I [pathway]	Output to Income pathway
PALS	Pacific Appliance Labelling Scheme

PDP	Power Development Plan
PEC	Pacific Environment Community
PICs	Pacific Island Country/Countries
PIEPSAP	Pacific Islands Energy Policy and Strategic Action Planning
PIGGAREP	Pacific Islands Greenhouse Gas Abatement through Renewable Energy Projects
PIRs	Project Implementation Reviews
PM	Project Manager
PMCU	Project Management & Coordination Unit
PMU	Project Management Unit
POW	Programme of Work
PPA	Power Purchase Agreement
PPA	Pacific Power Association
PR	Public Relations
PRDR	Pacific Regional Data Repository
PRODOC	Project Document
PSC	Project Steering Committee
PV	Photo Voltaic
RE	Renewable energy
RETS	Renewable Energy Technologies
ROtI	Review of Outcome to Impact
S	Satisfactory
SEIAPI	Sustainable Energy Industry Association of the Pacific Islands
SEDREA	Sustainable Economic Development through Renewable Energy Applications project for Palau
SIDS	Small Island Development States
SMART	Specific, measurable, attainable, relevant and trackable
SPC	Secretariat of the Pacific Community
SPREP	Secretariat of the Pacific Regional Environment Programme
SREM	Strategic Renewable Energy map
TE	Terminal Evaluation
TEC	Tuvalu Electricity Corporation
TM	Task Manager
TOR	Terms of Reference
TOC	Theory of Change
U	Unsatisfactory
UAE	United Arab Emirates
UNDP	United Nations Development Programme
UN Environment	United Nations Environmental Programme
USD	United States dollar
AUD	Australian dollar
NZD	New Zealand dollar

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Table 1 Project summary²

UNEP PIMS ID:	GFL-2070-2721-4C85		
Sub-programme:	Climate Change	Expected Accomplishment(s):	Reduction of the participating countries GHG emissions by replacing fossil fuels by renewable energy resources an energy conservation
UNEP approval date:	6 June 2011	PoW Output(s):	1. Strategic Planning activities to improve enabling conditions such as legal and regulatory frameworks for embedded renewable energy generation and energy conservation, 2. Demonstration of feasible financing and 3. Awareness and capacity building activities
GEF project ID:	4000	Project Type:	Mid-size project
GEF OP #:	5	Focal Area(s):	Climate Change
GEF approval date:	13 September 2012 ³	GEF Strategic Priority/Objective:	GEF4: CC-SP1; CC-SP3
Coverage - Countries:	Nauru, Niue, Tuvalu	Coverage - Region(s):	Regional Pacific / Oceania
Expected Start Date:	March 2013 ⁴	Actual start date:	May 2013 ⁵
Planned completion date:	February 2016	Actual completion date:	December 2017
Planned project budget at approval:	USD 8,989,636	Total expenditures reported as of June 2017:	USD 1,117,136.88 ⁶ (GEF only)
GEF Allocation:	USD 1,299,636	GEF grant expenditures reported as of September 2017:	USD 1,117,136.88
PDF GEF cost:	USD 65,000	PDF co-financing:	USD 27,000
Expected MSP/FSP co-financing:	USD 7,690,000	Secured MSP/FSP co-financing:	4,210,000 ⁷

² Source: Prodoc and PIRs

³ GEF website <https://www.thegef.org/project/pas-low-carbon-energy-islands-accelerating-use-energy-efficient-and-renewable-energy>

⁴ Source: Prodoc

⁵ Date of first cash disbursement

⁶ Expenditures report January September 2017

⁷ From PIR June 30, 2017 (no co-finance reports available to the evaluation team)

First Disbursement:	21 May 2013		
No. of revisions:	2	Date of last revision:	30 June 2016
Mid-term review/ evaluation (planned date):	n/a	Mid-term review (actual date):	n/a
Date of last Steering Committee meeting:	October 30, 2015 ⁸	Terminal Evaluation (actual date):	February 2018

⁸ As per PIR June 2016, the IPP/PPA workshop served functionally as a steering committee meeting, as the major project proponents were in attendance (all countries were represented, as well as SPC, UNDP, and other local partners.)

Executive Summary

Introduction

This report is the Terminal Evaluation of UN Environment/Global Environment Facility project “Low Carbon Islands: Accelerating the Energy Efficient and Renewable Energy Technologies in Tuvalu, Niue and Nauru”⁹, hereinafter, ‘the project’. The Global Environment Facility approved the project in September 2012 and its intended completion date was December 31, 2015. The project official completion date is now set for December 31, 2017, after two extensions. The project had a total budget of USD 8,989,636 of which 14.5% was Global Environment Facility allocation (USD 1,299,636) and 85.6% (USD 7,690,000) was co-financing from the Governments of Nauru Niue and Tuvalu. The implementing agency is UN Environment and the project has been executed by International Union for Conservation of Nature that hosts the Project Management Unit at its Regional Oceania office located in Suva, Fiji.

The project goal is the *“Reduction of the participating countries’ greenhouse gas (GHG) emissions by replacing fossil fuels by renewable energy (RE) resources and energy”*. The objective of the project is the *‘Removal of major barriers to the widespread and cost-effective use of grid-based renewable energy supply and to the introduction of energy conservation measures’*. Other secondary objective includes an enhancement of the countries’ energy security and the creation of local employment in a new energy service industry through the provision of start-up and growth support to local energy businesses. The project expected results are described in detail in section 4 of the main report (Theory of Change).

The Terminal Evaluation has two primary purposes: (i) to provide evidence of results to meet accountability requirements, and (ii) to promote operational improvement, learning and knowledge sharing through results and lessons learned between UN Environment and International Union for Conservation of Nature. The evaluation took a forward-looking approach and identified lessons learned of operational relevance for future project formulation and implementation

Evaluation Methodology

The findings of the evaluation are based on a desk review of project documents and the results of a participatory approach whereby key stakeholders were kept informed and consulted throughout the evaluation process. Both quantitative and qualitative data have been used to determine project achievements against the expected outputs, outcomes and impacts. The evaluation also used a Theory of Change approach. Progress made towards the achievement of project objectives and impacts was examined using a reconstructed Theory of Change and Review of Outcomes to Impacts analysis.

⁹ GEF Project ID: 4000, UN Environment PIMS ID: GFL-2070-2721-4C85

As part of the Terminal Evaluation, missions have been undertaken to meet with members of the Project Management Unit located in Suva, Fiji and to conduct interviews with key project stakeholders in each of the three island countries.¹⁰ Due to lack of time, the majority of the interviews were limited to obtaining a general understanding of the activities that have been undertaken to date, identifying remaining gaps and capturing lessons learned and recommendations. Other limitations included (i) the Mid-Term Review scheduled for early 2013 did not take place; (ii) lack of supporting evidence for a number of activities that have not taken place but were programmed to have been undertaken and (iii) the lack of Steering Committee minutes of meeting that typically serve as an objective source of project progress information.

Summary of Evaluation Findings

Strategic Relevance

The evaluation rated strategic relevance satisfactory considering that the project is highly aligned with the Medium-Term Strategy and Programme of Work of UN Environment, as well as, with the strategic priorities of UN Environment, Global Environment Facility. The project also responds to the environmental concerns and needs of the Pacific Island Countries and there is a high complementarity of the project with other donor funded climate change projects in the region.

Quality of the Project Design

Overall, the original project design is based on a clear logic from activities to outputs and outcomes to objectives and goals with indicators that are considered appropriate¹¹. The intervention logic is well described in the project document, both in the text and in the Results Framework however no explicit Theory of Change analysis has been done during the design stage as it was not a requirement at the time of the project design. The two most critical weaknesses of the project design have to do with: (i) an inaccurate stakeholder and mapping analysis that did not take into account that due to the small size of the private and banking sectors in the three countries it would be extremely difficult to demonstrate the feasibility of financing low-carbon energy technologies by private sector and/or public-private partnership stakeholders, and (ii) an unrealistic design of activities in comparison to the amount of Global Environment Facility funds that were made available.

The original project design was intended to be revised twice due to the changes that had occurred between the time that elapsed between project design and implementation. However, these changes were never officially approved, reverting the majority of the changes back to the original project design. No compelling reason has been provided to justify this decision.

Effectiveness

The overall effectiveness of the project has been rated as moderately unsatisfactory. A large number of the outputs have not been implemented as planned and the project has focussed on energy efficiency neglecting the evaluation of grid-connected electricity generation from

¹⁰ The Lead consultant and the supporting consultant spent five days together in Suva, Fiji in meetings with the Project Management Unit and other project participants based in Suva. Afterwards, the Lead consultant travelled to Nauru (7 days) and Niue (7 days) while the Supporting consultant visited Tuvalu (6 days) to interview local stakeholders.

¹¹ Project indicators are considered SMART (i.e., Specific, Measurable, Achievable, Relevant and Time-bound)

renewable energy resources and the participation of private sector partners in the financing of the pilot projects. The project has faced two major challenges: (i) overlapping activities with other projects that are being implemented in the region and that were not anticipated at the time of project design and (ii) a project design that is based on an unrealistic definition of activities in comparison to the amount of GEF funds that has been made available.

In addition, the effectiveness of project implementation has been affected due to the low capacity and capability of the Project Management Unit in using results-based management approaches and an inadequate supervision and guidance of UN Environment to ensure that activities were executed according to the project's logical framework or that required adaptive actions were taken.

The main deliverables of **Component 1 on strategic planning** include the Household Energy Survey for Nauru, Solar Resource Assessments in all three countries, and the Renewable Resource Impact Study for Tuvalu. In addition, the project has been moderately successful in getting the governments in the three countries to develop and endorse a national energy policy and targets involving energy efficient end-use technologies and renewable energy-based electricity generation strategies. The participation of the project in encouraging the governments of Nauru and Niue to endorse regulatory and legal frameworks for grid-connected renewable energy generation has produced only partial results so far¹². However, as a result of recent agreements the project has made with other donors, work is still ongoing and there is a high probability that the endorsement of regulatory and legal frameworks for grid connected renewable energy for Nauru and Niue will be achieved albeit after the project end date.

The deliveries of **Component 2 on demonstration of feasible financing** include: (i) Output 2.1 - Website (www.lowcarbonfund.org), (ii) Output 2.2. Low Carbon Funds¹³ and (iii) Output 2.3 - Solar systems. The Website has been delivered with low quality and has not demonstrated wide use (see main report paragraph 164-170). The Low Carbon Funds has been delivered late for its intended use and Output 2.3 has only achieved the intended target partially by installing pilot solar systems that have been operating successfully but were not co-financed by private sector, as it was planned. Output delivery under this component is rated as Moderately Unsatisfactory thus unlikely to deliver longer term result.

Concerning **Component 3 Awareness and capacity building** the evaluation found that awareness raising campaigns have been inefficient in conveying the message of the energy efficiency rebate programmes to "white good"¹⁴ buyers. The project conducted awareness raising activities in each islands but the evaluation found that with regard to renewable energy generation, not enough effort was put in raising awareness of the benefits of installing grid-connected renewable energy generation to the general public. Evaluation didn't find evidence that enhanced information sharing activities and / or cooperation among other Small Island Development States have taken place aside from the information that has been included in the project website and on the Pacific

¹² The government of Tuvalu decided against having this output implemented due to the large amount of grid-connected renewable energy generation that has been installed by other donors

¹³ The Low Carbon Funds were fully established and capitalized in early 2017 with approximately USD 90,000 per country. However, as of June 30, 2017 disbursements have been minimal since the number of applicants per country has varied from 2 to 5 at the most, due to a low level of awareness among the beneficiaries and unavailability of eligible equipment in country.

¹⁴ White Goods imply to heavy consumer appliances such as air conditioners, refrigerators etc

Regional Data Depository. Output delivery under this Component is rated as Moderately Satisfactory but its likelihood for longer-term effects are considered low.

When evaluated from the perspective of eventually *reducing the participating countries GHG emissions by replacing fossil fuels by renewable energy sources and energy conservation*, the project is evaluated to be far from having achieved or significantly contributed towards achieving the desired impacts. The absence of private sector engagement throughout the project implementation in relation to grid-connected renewable energy generation options makes the achievement of reducing GHG emissions in the three countries unlikely in the short to medium term. Likelihood of impact of the project is rated as Highly Unlikely by the evaluation team.

Financial Management

There were no major financial issues during the project implementation aside from the fact that in June 2016 the Project revised the original budget to reflect actual expenditures and rephrase the total unspent balance and requested an extension of the project duration. The Project has conducted only one financial audit in 2014 and plans to include the audit of 2015 and 2016 into the audit of 2017 for budgeting reason. Overall, in terms of financial management the Project has complied with the rules and regulations of both the Executing Agency and UN Environment. Overall financial management is rated as Satisfactory.

Efficiency

The Evaluation notes that project cost effectiveness is questionable. Fund disbursements have been very low in the early years due to a slow implementation start and as of September 30, 2017, 13.3% of the Global Environment Fund funds remained undisbursed. In terms of timeliness, the project experienced substantial delays. UN Environment approval was granted in June 2011 and the Global Environment Facility approved the project over a year later in September 2012. Planned duration was 36 months and project implementation began in March 2013, 6 months after receiving approval from the Global Environment Facility. The mid-term review has not been undertaken. The Steering Committee was never formalized and the technical backstopping and supervision provided by UN Environment has not been effective enough in ensuring that adaptive measures were taken when needed to increase the efficiency. The efficiency is rated as Moderately Unsatisfactory.

Monitoring and Reporting

The Project Monitoring and Evaluation plan appears to be properly designed. However, the budget allocated for external evaluation was perceived as too low by the stakeholders to allow for the conduct of both the Mid-Term Review and a Terminal Evaluation. In view of the limited budget that had been allocated to external reviews, the Implementing Agency decided not to conduct the Mid-Term Review. This would have provided an independent assessment of the shortcomings of project implementation at mid-point, particularly with regard to the several challenges that the Project had faced and the appropriateness of the revisions of Outputs that have been proposed during the early stage of the project implementation but which had not been implemented. A Mid-

Term Review would have helped in steering the project back into the right direction towards achieving the outputs and direct outcomes.

The project reporting of progress and tracking of risks have been insufficiently monitored. Several Project Implementation Reviews reported some activities as to have been 100% completed for which the evaluators have not been able to find supporting evidence. In addition, some of the Project risks have been underestimated and were not appropriately mitigated. Consequently, Monitoring and Reporting is rated as Moderately Unsatisfactory.

Sustainability

The Evaluation has not found strong evidence the project has succeeded in generating enough political support and buy-in of the different stakeholders to scale up the project achievements in the medium to long-term. The project has not succeeded in setting up a strategy to engage the private sector and proving the financial feasibility of installing grid-connected solar photovoltaics systems as planned. Efforts to promote the use of energy efficient appliances have been limited. However, to a certain degree the project has been successful in influencing national policy and planning since energy road maps have been prepared for the three countries. Sustainability is rated as Moderately Unsatisfactory.

Lessons Learned

Lesson 1: Having an effective project governance structure in place is key

Project implementation has been negatively affected by not having an effective project governance structure in place. The Steering Committee has not been established, as planned. In its absence, the supervision and backstopping of UN Environment has not been as effective as it should have been. In addition, the Mid-Term Review which is an essential progress assessment tool to identify challenges and outline corrective actions before is too late was cancelled due to budget reasons.

As changes in the project environment occur, there is always a need to adjust or even to reformulate the original project design to ensure that the project remains on track and relevant to the context and continues to be able to deliver maximum results by its completion. For this to happen, it is fundamental that adjustments and changes in project design are approved and documented by a Steering Committee that ought to include all key project parties (implementation agency, executing agency and key beneficiaries).

In the case of the Project, many of the shortcomings that occurred during project implementation are directly attributed to the lack of having an effective project governance structure, something that was difficult to achieve in part due to the limited budget that has been assigned to project management activities.

Lesson 2: Implementing regional projects in the Pacific region is a big challenge

Pacific Islands Countries, particularly the smaller ones, have low capacities and weak government organizations. Government employees tend to be overwhelmed by the number of projects from

different donors that they have to attend to and are likely confused about the particulars of each of the projects. Key for members of the project management team need to be familiar with the nature, behaviours, culture and customs of the local stakeholders in each of the countries.

Designing and implementing regional projects that will be able to take into consideration the differences among the countries involved and meet each one of their needs simultaneously tends to be a big challenge.

In the case of the this Project, due to the remoteness of each country and the location of the project management unit, it would have been essential to have had a part time project coordinator in each country reporting directly to the Project Manager. This local project coordinator should have acted as an in-country focal point between the Project Management Unit and the National Project Coordinators, which as mentioned earlier, are typically overwhelmed with other donor projects and unlikely to provide the necessary attention on a timely basis.

In this regard, Niue has been an exception since the government has implemented a Project Management Coordination Unit that has been responsive and effective in coordinating the in-country project activities.

Lesson 3: Having a marketing strategy in place is a crucial part of the fund performance, something that oftentimes is neglected in technical projects.

Prior to setting a rebate program like the one that has been established under the Low Carbon Funds, a detailed study of the prices of appliances should be conducted with the objective of setting a limit/ceiling to the prices of the eligible appliances. This is essential to avoid having retailers taking advantage of the rebate scheme by increasing the prices of appliances.

In addition, the launching of the low carbon funds should have been accompanied by a more thorough awareness raising campaign. Content of the project Website should also be available in local languages, expanded to include additional information on how to access the rebate programmes offered under the funds and providing a direct access to equipment suppliers in each of the countries.

Recommendations

The following recommendations are addressed to UN Environment to assist with the design of future project related to energy and climate change in the Pacific region.

Recommendation 1: The Division Director, Head of Branch and GEF Liaison Officer should document the organisation's procedures in relation to the verification of GEF Project Implementation Reports and responses to any performance or risk issues raised therein. The lines of responsibility and accountability beyond that of the Task Manager and Portfolio Manager should be fully articulated. This document should be provided to the Evaluation Office in the first instance and incorporated in the Programme Manual thereafter.

Recommendation 2: Strategic plan for waste management from renewable energy systems and energy efficiency appliances. This is an important task that needs to be undertaken to ensure

that the electrical and electronics waste created from the project, as well as, from other projects in the region will be handled properly since island countries have limited recycling capacity to manage appliance waste.

Recommendation 3: Strategic Plan for capacity building on management, maintenance and monitoring of renewable energy systems. To ensure that the solar PV systems that have been installed in the Pacific countries operate at optimum efficiency, technical personnel in power utilities who are generally the ones responsible for operation and maintenance of the solar systems need to be trained on how to perform regular check-ups, monitor system performance, and troubleshooting minor operational problems.

The following recommendations are addresses to the partners in Nauru and Niue:

Recommendation 4: Focus on establishing and sustaining an enabling environment for encouraging the private sector to set-up grid-connected renewable energy generation installations. Work on creating fiscal and financial incentives to encourage private sector participation in low carbon energy developments. Explore alternatives for the creation of a Public Private Partnership (PPP) that will offer services to evaluate the financial feasibility of investing in low carbon energy installations to private sector participants and assist with the purchasing, installation and operation and maintenance of the necessary equipment as well as with the negotiation of the PPA, roof top agreements (if needed). Providing assistance to local banks on how to secure affordable financing related to the procurement of renewable energy generation and energy efficiency equipment will also be a key aspect to explore, as part of a follow-up project interventions.

The following recommendations are addressed to the Project Management Unit in order to maximize the impact of the project before its completion:

Recommendation 5: Continue to supervise closely the drafting of the energy legislation efforts in Nauru and Niue. Closely supervise the drafting of the energy legislation efforts that are currently being undertaken in Nauru and Niue with the support of UNDP and SPC, respectively. It is important that work on the drafting of new legislation progresses as planned.

Recommendation 6: Continue promoting the benefits of purchasing high efficiency appliances through the LCFs. Low awareness has been identified as one of the main reasons why the Low Carbon Funds in the three countries have received so few applications. Additional awareness raising campaigns should be undertaken placing emphasis on the importance of conveying messages in local languages.

Recommendation 7: Organise workshops in Niue and Nauru to promote the installation of grid-connected renewable energy installations in private businesses and homes Prepare a case study for each of the pilot projects to present the results to the government in order to ensure that the buy-back electricity tariffs and other costs that would be part of the proposed energy legislation are attractive enough for the private sector to consider investing in grid-connected renewable energy installations, and use these case studies organise workshops in Nauru and Niue to

promote the installation of grid-connected renewable energy to the private sector based on actual data collected from the operation of the pilot projects.

Government of Tuvalu / PEC Fund	2,000,000
Government of Niue / SPC	405,000
Government of Niue / PEC Fund	2,000,000
Total	7,690,000

3. The implementing agency is UN Environment and the project has been executed by International Union for Conservation of Nature (IUCN). The Project Management Unit (PMU) was hosted at the IUCN Oceania Regional Office (IUCN ORO) located in Suva, Fiji.
4. The project goal is *the “Reduction of the participating countries’ greenhouse gas (GHG) emissions by replacing fossil fuels by renewable energy (RE) resources and energy”*.
5. The objective of the project is the **“Removal of major barriers to the widespread and cost effective use of grid-based RE supply and to the introduction of energy conservation measures”**.
6. Other secondary objectives include an enhancement of the countries’ energy security and the creation of local employment in a new energy service industry through the provision of start-up and growth support to local energy businesses. The project expected results are described in detail in section 4 of this document (Theory of Change).
7. The Mid-Term Review (MTR), initially scheduled for early 2013 in the project document, had not taken place at any stage of the project implementation
8. The Terminal Evaluation has been undertaken in line with the UN Environment Evaluation Policy¹⁷, UN Environment Programme Manual and Evaluation guidance material¹⁸ to assess project performance (in terms of relevance, effectiveness and efficiency), and determine outcomes and impacts (actual and potential) stemming from the project, including their sustainability.
9. This evaluation has two primary purposes: (i) to provide evidence of results in order to meet accountability requirements, and (ii) to promote operational improvement, learning and knowledge sharing through results and lessons learned between UN Environment and IUCN.
10. The Terminal Evaluation took a forward looking approach and identified lessons learned of operational relevance for future project formulation and implementation.
11. In accordance with the Terms of Reference (TOR), the evaluation has been structured around a set of strategic questions related to the achievement of the project objectives as stated in the project document which are:
 - What are the expected long-term outcomes and impact of the technical and financial mechanisms implemented by the project at the country level (in Nauru, Tuvalu and Niue) and to what extent these mechanisms can be replicated in other Small Island Development States (SIDS)?;

¹⁷ <https://wedocs.unep.org/rest/bitstreams/9801/retrieve>

¹⁸UN Environment Evaluation Office webpage

- Based on the experiences from this project, what are the key lessons concerning implementation of UN Environment projects in the Pacific region and more precisely in Oceania?; and,
 - To what extent the partner selection and capacity development among the partner organizations contributed to the sustainability of the project results?
12. The strategic questions allowed for an open-ended sharing of the most important aspects of the project, as well as areas on which the project could have been improved.
 13. The target audiences for the evaluation findings included UN Environment, IUCN, governments of the three countries and all of the key stakeholders involved. The aim was to promote operational improvement, learning and knowledge sharing through the results and lessons learned for the formulation and implementation of future interventions in each of the involved countries and in other Pacific Island Countries (PICs), as well as in Small Island Development States (SIDS) of other regions of the world

2. Evaluation methods

14. In line with the TOR (see Annex A) the evaluation methods adopted for the Terminal Evaluation included:
- An initial desk review of available project documentation, including studies and other project outputs, minutes of meetings, and project implementation reviews (PIRs) and financial reports, as well as, context related and other pertinent background information such as the Terminal Evaluation of the UNDP/GEF project: Pacific Islands Greenhouse Gas Abatement through Renewable Energy Projects (PIGGAREP), and the country evaluations prepared by the International Renewable Energy Agency (IRENA)¹⁹,
 - A review of documentation related to UN Environment policies and programmes,
 - A desk based reconstructed TOC of the project indicating causal linkages among outputs, direct outcomes, 'intermediate states' and impacts plus assumptions and drivers which has been updated based on the results of interviews and discussions held during the mission to Fiji, Tuvalu, Nauru, and Niue and in-person and Skype interviews with key project stakeholders. The interviewees were selected based on the results of the stakeholder analysis undertaken during the Inception phase and suggestions received from the Project Management Unit (PMU),
 - The list of stakeholders consulted and interviewed is presented in Annex B and a list of consulted documents reviewed is provided in Annex C.
 - Detailed analysis of project indicators, using available quantitative and qualitative data, validated through review of documents and project products as well as interviews with the PMU team, UN Environment personnel and key stakeholders.
 - The assessments of outputs, outcomes, intermediate states, impact, drivers and assumptions based on the final version of the reconstructed TOC which includes the observations and feedback obtained from interviews with key stakeholders and field visits to Fiji and the three countries involved.
 - Evaluation missions to Nauru, Niue and Tuvalu, including on-site observations.
15. All interviews were conducted on semi-structured basis and have been designed to prompt the interviewees' views and opinions on how the project has been implemented and its long-term sustainability and benefits, and to allow for focused, conversational, two-way communications. Among other objectives, the interviews served to ascertain the causal pathways identified and the validity of impact drivers as per Theory of Change (TOC) approach and assumptions included in the desk based

¹⁹ IRENA Pacific Lighthouses country reports: Renewable Energy Opportunities and Challenges in the Pacific Islands region -

- reconstructed TOC, as well as, the achievement of the project objective, goals and component outcomes.
16. The evaluation was conducted by two Consultants (Alfredo Caprile - Lead Consultant and Sirikul Prasitpianchai - Support Consultant), under the supervision and with the full support of the UN Environment Evaluation Office.
 17. The Evaluation Team remained in constant communication with the Project Management Unit to ensure constant feedback and triangulation of the data.
 18. The principal limitation of the evaluation has to do with the remoteness of Nauru, Niue, and Tuvalu and difficulties to arrange meetings prior to visiting the countries partially due to poor Internet service in the islands and significant delays in obtaining responses from stakeholders.
 19. Another key limitation had to do with the fact that the TOC methodology was neither used in the design and nor during project implementation²⁰. The Evaluation Team reconstructed a TOC (post design) by relying on the project document information, in particular the Log frame matrix, and proceeded to redefine the project's causality in order to address the higher-level outcomes in the results chain and identify the preconditions necessary for impact achievement. Based on the results of the missions to Fiji and the three island countries, the reconstructed TOC was updated, accordingly.
 20. The in-country missions and Skype / email consultations have been a valuable component of the Terminal Evaluation. However, not all stakeholders were available during the in country missions and / or did not responded to email consultation requests.
 21. Due to lack of time, the majority of the interviews were limited to focussing on likelihood of impact and long term results. In some cases, due to the long time that has elapsed between project design and implementation it was not possible to obtain sufficient feedback concerning the early days of implementation since the interviewees had not been involved with the project throughout.
 22. Despite the full support from the project team in providing all available documentation, another limitation was still the lack of supporting documentation for a number of activities that were supposed to have been undertaken by the project and/or by activities undertaken by other donors.
 23. The lack of Project Steering Committee (PSC) minutes of meeting that typically serve as an objective source of project progress information also acted as a limitation. No formal PSC meetings have taken place except for an initial attempt to set up a PSC during the Inception Workshop in 2013 and another meeting during the Independent Power Producer (IPP)/Power Purchase Agreement (PPA) Workshop of May 2015 that served functionally as a PSC meeting, since the major project proponents were in attendance (i.e., all countries were represented, as well as Secretariat of the Pacific Community (SPC), United Nations Development Programme (UNDP), and other local partners)

²⁰ At the time of project design TOC was not required, however under the TOR for the Evaluation it is required that the Evaluators use a Theory of Change approach and hence a TOC was reconstructed

3. The Project

3.1 Context²¹

24. The three countries –Nauru, Niue and Tuvalu– targeted by the project are among the smallest states in the Pacific and their governments face a constant struggle to decide on how best to allocate resources both human and economic in order to administer their small and vulnerable economies.
25. At the time of the project design and preparation these island countries were practically 100% dependant on imported fossil fuels for their energy needs, in particular for transportation and electricity generation²². These countries have one of the highest electricity supply costs in the world and at the same time, their economies are faced with low energy security and in the case of a global energy crisis, or regional fuel supply disruptions these countries would be among the first to be affected and likely to suffer severe economic damage.
26. In addition, the three countries have extremely narrow job markets, dominated by government employment and with virtually no manufacturing activities, little agriculture and limited service sectors. As a result, the need to create alternative employment is perhaps as important as the need to diversify their energy economies and create more resilience towards external shocks through the development of local resources.
27. While the countries share several common characteristics, the economic structure of the Nauru power sector is very different with the highest per capita electricity consumption in the Pacific and low tariffs that are insufficient to cover electricity generation costs.
28. The project seeks to achieve its goal of “reducing the amount of GHG emissions in the three countries by replacing fossil fuels with renewable energy resources and energy conservation”. This goal was to be accomplished by outcomes, and associated activities that were specifically designed to help remove the key barriers that exist to the widespread and cost effective use of grid-connected renewable energy supply and the introduction of energy saving measures.
29. As per the project document the main barriers can be classified in three categories, i.e. technical, financing and informational. Technical barriers relate to the difficulties to integrate intermittent forms of renewable energies into small diesel power systems. Financing of private investment seen to be hindered by the lack of appropriate legal frameworks, lack of regulatory systems and weakness in the banking sectors of the three countries and lack of available funding. Informational barriers related to lack of supply and demand data, inadequate knowledge management and lack of awareness of potential investors and users. An overarching problem common to all three countries was identified as a lack of technical and financial capacities both in the

²¹ Source: Prodoc

²² Project team comment: This was true at the outset of the project, but in the period since design, Tuvalu has approached 30% solar generation, and Niue has installed capacity for at least 30% of grid demand (if not operational). Nauru should be at over 3% solar generation at this point.

public and private sectors of the three countries to implement grid-connected RE generation projects.

30. Even though the goal of the project is to reduce GHG emissions in each of the three countries, the evaluation identifies that the LCI project has the expected impact (as also included in the reconstructed TOC) of strengthening energy security and creating local employment by the private sector in a new energy service industry.
31. The design of the project interventions has been based on an in-depth problem analysis and consultation process which involved interviews with all major stakeholders in order to have a thorough understanding of the particular situation of each of the countries²³.
32. Key assumptions underlying the project design include country ownership, willingness of key stakeholders to cooperate, and committed engagement of development partners. Due to the limited availability of funding, it was important to mobilize additional funding to guarantee sustainability of the principal project outcomes over the long term. The willingness to share data and information, good governance and development partner cooperation and stable political environments were seen also to be key to the success of the project.

3.2 Milestones /key dates in project design and implementation

Milestone	Date
UN Environment Approval date	6 June 2011
GEF Approval date	13 September 2012
Expected Start date	March 2013
Actual start date	May 2013
Intended completion date	February 2016
Planned duration	36 months
Project Inception Meeting	19 May 2013
Project Steering Committee Meeting (ad hoc)	23 May 2013
Project Steering Committee Meeting	30 October 2015
Expected date of completion	31 December 2017
Date of financial closure	31 March 2018 ²⁴
Terminal Evaluation (Completion)	December 2017

Table 2 Project Milestones /key dates in project design and implementation

33. The project was designed as part of the GEF Pacific Alliance for Sustainability (GPAS) project, of which the long term goal was to increase the efficiency and effectiveness of GEF support to Pacific Island Countries, thereby enhancing achievement of both global environmental and national sustainable development goals.
34. The project concept was drafted in 2009, CEO approval occurred in September 2011, and the project actually started in March 2013. During the long gap between project design and actual project start date, other donors began implementing projects in the three countries with some overlapping activities.

²³ According to the PRODOC, during the PPG phase, IUCN organized two regional stakeholder's consultations followed by national stakeholder's consultations plus dialogues with energy agencies of the three participating countries.

²⁴ According to the PMU, all financial auditing and reporting should be completed by 31 March, 2018

3.3 Objectives and components

35. The goal of the project is the *“Reduction of the participating countries’ GHG emissions by replacing fossil fuels with renewable energy resources and energy conservation”*. To achieve this goal a number of outcomes, outputs and associated activities have been designed and planned with the objective of *removing the major barriers that are impeding the widespread and cost-effective use of grid-based renewable energy supply and preventing the introduction of energy conservation measures*. In addition to the goal of reducing GHG emissions, the project has objectives that include: *“enhancing the energy security of the three countries and creating local employment opportunities in a new energy service industry”*.
36. The underlying logic of the project proposes to achieve the project goals through three components:
- (i) Strategic planning,
 - (ii) Demonstration of feasible financing and
 - (iii) Awareness and capacity building
37. The corresponding outcomes and outputs as presented in Table 3.

Expected Outcome 1	Low-carbon energy strategies involving energy efficient end use technologies and renewable energy-based electricity generation strategies defined and endorsed by governments
Output 1.1	Medium- & long-term electricity demand scenarios per country (business-as-usual & scenario options for low carbon paths) developed.
Output 1.2	Comprehensive assessment of renewable energy resources & potential for energy conservation
Output 1.3	Feasibility for maximizing low carbon power systems and capable of attracting investments (established).
Output 1.4	Regulatory/ legal framework for grid access & certification modalities for eligible embedded RETs.
Output 1.5	Electricity sector plans including supply strategies involving embedded RE, energy efficiency/conservation programmes, & smart grids adopted
Output 1.6	Capable, locally-based private businesses and/or private-public partnerships to act as providers of low-carbon energy goods and services, including RE supply established.
Expected Outcome 2	Feasibility of financing low-carbon energy technologies in small island setting demonstrated through investment from the private sector and/or public-private partnerships
Output 2.1	Existing data and information available through centralized clearing-house mechanism.
Output 2.2	Feasibility of a low-carbon power subsidy fund assessed.
Output 2.3	Operational, decentralized, embedded RET tested for technical & operational viability and assessed for techno-economic competitiveness and co-financed by investors
Expected Outcome 3	Awareness of low-carbon energy utilization and supply technologies of policy makers, potential markets and investors deepened and capacity to promote low carbon energy supply established
Output 3.1	Training programme on management and administration of low carbon investments for government personnel and private sector participants established.

Output 3.2	Investment Promotion Package assessed and developed.
Output 3.3	Regulatory capacities of government personnel enhanced
Output 3.4	Public awareness and education campaigns launched and periodically undertaken.
Output 3.5	Sub-regional cooperation and exchange of data, information and skills firmly established.

Table 3 Project Outcomes and Outputs

38. Due to the changes in the context of the project, several modifications were proposed to the formulation of the project outputs from the time of the CEO endorsement to actual implementation as shown in detail in Annex D. This shows that there was a perceived need for adaptive management. However, in the end none of these modifications were implemented.

3.4 Implementation arrangements

39. UN Environment acted as the implementation agency on behalf of GEF and IUCN was the Executing Agency that managed the project from Suva, Fiji.
40. The UN Environment officer in charge of overseeing the project, initially based in Nairobi (GEF officer/ Task Manager), relocated to the Bangkok Regional Office in 2012 and retired in early 2017. Another UN Environment officer based in Nairobi took over after his retirement.
41. There has been only one visit from the UN Environment Officers to the project, most likely due to the limited budget and difficulty of traveling to the South Pacific.
42. The Project Management Unit is comprised of five part time staff²⁵ (i.e. two technical, two finance persons and one accountant) and had no local country teams in the three islands.
43. The first Project Manager (PM) resigned in 2013 and for six months until a successor was named, IUCN ORO Energy Programme Coordinator provided oversight.
44. At the end of the Project Inception Workshop on May 23, 2013, the country participants supported establishing a Steering Committee that would be responsible for leading the project, with technical advice from IUCN and UN Environment. As a result, the workshop participants decided to constitute themselves as an *“Ad-hoc Project Steering Committee”* to approve the revised project expected outputs, the regional work plan and the budget plan.
45. A formal Steering Committee was to be constituted after the country participants had consulted with their respective lead national agencies. They also agreed that the Steering Committee would have regular communications and consultations by Skype and/or emails, led by IUCN-Oceania. However, the Steering Committee was never established and as a result project implementation did not benefit from the supervision and guidance of a PSC as should have been the case.
46. During the Inception Workshop key partners raised concerns that the project budget was insufficient for the implementation of all of the activities included in the project document.

²⁵ Staff log in the half-yearly progress reports mention 4 staffs (1 Energy Program Coordinator, 2 Energy Programme officers, and 1 Accountant)

47. As mentioned earlier, the PMU is based in Suva, Fiji with no local representatives in the other implementing countries that could assist with project implementation. In lieu, the project team from Suva took annual trips to visit the three countries as follows:
- Nauru (January 2014, December 2014, April 2015, May 2016) 4 trips
 - Niue (June 2014, March 2015, March 2016) – 3 trips
 - Tuvalu (September 2015, June 2016) 2 trips²⁶
48. The Evaluation Team considers that not having an in-country member of the PMU albeit on a part time basis in each of the three island countries has had a negative effect on project implementation.
49. Main project consultants include:
- IUCN Environmental Law Programme (IUCN-ELP) –legal review
 - KEMA – Tuvalu Renewable Energy Grid Stability Study
 - Global Sustainable Energy Solutions (GSES) – Niue Electricity Plan and Solar training in the 3 countries
 - Oceanic Communications – Website developer
 - Clay Energy – Supplier of solar equipment for the 3 countries
 - Marco Arena – economist responsible for the design of the Low Carbon Fund mechanism for each country
 - AWS TruePower – provided solar resource modelling for the 3 countries

3.5 Target groups

50. Key target groups of the project are mapped into seven stakeholder groups as follows:
- Government,
 - Energy Consumers,
 - Industrial and Commercial entities,
 - Power Utilities,
 - Civil Society Organizations,
 - Financing Institutions, and
 - Development Partners.
51. In Nauru and Niue, government stakeholders have been directly involved in accomplishing those activities related to passing new energy legislation. As it will be discussed in paragraph 130, the government of Tuvalu decided against having an energy legislation that would allow for grid-connected renewable energy generation with private sector involvement at this time.
52. Government owned public utilities have participated in the installation and maintenance of the grid-connected solar PV pilot projects with varying levels of interest. By the time these pilot projects were implemented, Niue Power Corporation (NPC) had been experiencing grid stability problems from other solar PV projects that

²⁶ Based on the PMU feedback, the Environmental Law Coordinator made a subsequent trip in April 2017 to conduct a legal workshop for capacity building purposes.

had been provided by other donors²⁷. In all cases, the utilities had a keen interest in getting training on solar PV technologies and solving grid stability problems.

53. At the time of project design preparation each country had only one financial institution that, in the case of Niue and Tuvalu, agreed to act as partners for the implementation of the Low Carbon Fund (LCF)²⁸. In Nauru, Nauru Utility Corporation (NUC) is in charge of managing the LCF since the local bank (i.e., Bendigo bank) showed no interest.
54. The Information and Communication Technology (ICT) offices, media offices and schools have been involved with the implementation of public awareness raising activities with different levels of interest²⁹.
55. International and regional development partners were engaged in some project activities, such as standards, and certifications, and were kept informed of the project activities to avoid overlapping.
56. A detailed stakeholder matrix map showing stakeholder's responsibilities/roles in the project, engagement level, is presented in Annex E.

3.6 Project partners

57. The key project partners in the three countries were as follows:
 - **Nauru.** In Nauru, Ministry for Commerce, Industry & Environment (CIE) is the official project partner and GEF focal point. NUC has been involved in the installation and maintenance of the solar PV pilot project and management of the LCF. The awareness raising campaigns have implemented with the assistance of the Media Office and the Ministry of Home Affairs, Education and Land Management. Nauru has a UN Coordinator Office that is aware of LCI project but has not been directly involved in its implementation except for the assistance provided to complete the household Electrical Appliances Lights and End-Use Energy survey³⁰.
 - **Niue.** A Project Management Coordination Unit (PMCU), created by Cabinet in 2014 to take care of donor projects, has been directly involved in the LCI project implementation since its creation. The other key project partners in Niue are: NPC which has been directly involved with the installation and maintenance of the solar PV project, and the Niue Development Bank (NDB), responsible for the management of the LCF.
 - **Tuvalu.** The Ministry of Public Utilities and Environment (Department of Energy) is the key project partner in Tuvalu but the main activities have been undertaken

²⁷ If all RE grid-connected projects were functional in Niue, the grid would be over 35% solar derived, but not all systems are online (particularly the Japanese and EU-funded systems at the Power Station and the Hanan airport. In Tuvalu, over 27% solar generation was noted to be in place by Mr. Mafalu Lotulua, CEO at TEC. Hence, no increases in RE are advised without grid stability planning. Nauru broke through the 3% threshold with the Masdar UAE-funded installation of 400kW. Consequently, Nauru has not yet reached thresholds where grid stability has become an issue.

²⁸ Currently, both Niue and Tuvalu have development banks and commercial banks. Nauru only has a commercial (Bendigo) bank agency office.

²⁹ Posters were generated by the participants of the primary school students, and essays by the secondary students in Niue and Nauru. Tuvalu is intending to take one last attempt at running the contest in late Q3/early Q4 2017. In addition, National Renewable Energy Laboratory curriculum material was delivered alongside Bioclimatic Housing Guide print proof files and eight cartoon modules, comprising over 36 minutes of runtime. Translation of these items by cartoonist Bernard Berger (for the government of New Caledonia), was co-financed by SPREP.

³⁰ <http://prdrse4all.spc.int/node/4/content/nauru-2015-household-electrical-appliances-lights-and-end-use-survey-0>

by Tuvalu Electricity Corporation (TEC). The Development Bank of Tuvalu (DBT) has been responsible for management of the LCF.

3.7 Project financing

58. The project had a total budget of USD 8,989,636. GEF financing for the project was budgeted at USD 1,299,636. Total Project co-financing was budgeted at USD 7,690,000 according to the following detail:

• Government of Nauru (SPC)	USD 405,000
• Government of Nauru (PEC Fund [PIF])	USD 2,000,000
• Government of Tuvalu (SPC)	USD 405,000
• Government of Tuvalu (IUCN)	USD 475,000
• Government of Tuvalu (PEC Fund [PIF])	USD 2,000,000
• Government of Niue (SPC)	USD 405,000
• Government of Niue (PEC Fund [PIF])	USD 2,000,000
Subtotal	USD 7,690,000

59. The overall project budget per component as presented in the project document is as follows:

Project component	GEF		Co-financing		Total
	USD	%	USD	%	USD
1. Low carbon Energy strategies a& enabling framework	366,250	20	1,430,680	80	1,796,930
2. Demonstration of feasible financing of low carbon investments	580,8000	10	5,296,000	90	5,876,800
3. Awareness and capacity building	222,950	19	930,420	81	1,153,370
Project management	129,636.00	39	32,900	61	162,536
Total cost at design	1,299,636.00	14	7,690,000.00	86	8,989,636.00

Table 4 Overall Project Budget at design

60. Based on the PIR reporting total co-financing as of 30 June 2017 amounted to USD 4,210,000 in kind³¹.
61. Actual expenditures reported as of September 30, 2017 amounted to USD 1,117,136.88.³²

³¹PIR June 30, 2017 (Quarterly expenditures report April June 2017). The project has been on-going until December 2017

³² Project was extended until December 2017. No component level expenditure was available to the evaluation team.

3.8 Theory of Change

62. The project's logical framework in the project document has been used in the reconstruction the **Original Theory of Change (TOC)** as presented in Figure 1. According to UN Environment's terminology, the TOC is a logical model derived directly from the project strategy/design documents and programmes of work in order to identify and explain the causal relationships between intended actions, outputs, outcomes, intermediate states and impacts of programmes and projects. The TOC also helps highlight drivers and assumptions, which are external factors that affect change at different levels of the causal pathways.
63. The TOC methodology was not yet in use in UN Environment at the time that the LCI project was designed and the project only use the logical framework to represent the causality of the project which is used and mandatory for GEF projects. TOC in addition to a logical framework has an additional advantage over the logical framework since it identifies drivers, additional assumptions and intermediate states that are not always included in the logical framework.
64. As mentioned in the previous section, the project outputs were revised during the first year of the project implementation. However, afterwards they were revised back and were left nearly identical to the ones in the original design with slight changes by rephrasing some of the outputs. The TOC as per logical framework (Figure 2) was drafted by the evaluation team based on the last revision of the outputs made in the PIR 2014. The GEF Evaluation Office's approach to assess the likelihood of impacts that builds on the concept of the **Review of Outcomes to Impacts Pathway (ROtl) methodology**, which was utilized to reconstruct TOC at the evaluation (Figure 3)
65. The first step of the ROtl is to identify the project intended impacts. The project goal was reviewed for its **Global Environmental Benefits (GEB)**. The project goal of *"Reduction of the participating countries' greenhouse gas emissions by replacing fossil fuels by renewable energy resources and energy conservation"* has explicitly provided project's Global Environmental Benefits in terms of GHG emission reductions.
66. After identification of the project's Global Environmental Benefits, the project logic was verified through analysing the logical sequence backward. The project impact is the intended results from achieving the project objective in *"Removal of major barriers to the wide spread and cost-effective use of grid-based renewable energy supply and to the introduction of the energy conservation measures"*. The project objective (or intermediate state) stems from the outcomes that were designed to address the barriers in technology, financing and information.
67. In the reconstructed Theory of Change effort was placed on identifying **outcome-impact pathways** (O-I pathways) which corresponds to the transformation of the activities that generate outputs to outcomes and impacts. Intermediate states are the transitional stages between direct project outcomes and the impact. However, during this exercise, some of the outcomes had to be redefined and intermediates were added based on the objective statements as logical results stemming from identified outcomes.
68. *Figure 3* outlines the transformation of outputs to outcomes in the reconstructed TOC. Some direct outcomes were not explicitly presented in the results framework and have been added based on the project logic described in the project documents (i.e., prodoc and PIRs), see table 5.

69. The original result statements have been broken down into more assessable units as presented in tables 5 and 6 following the logic presented in project documentation. The most significant change in Outcome 1 is that all of the components of Outcome 1 now include the power utilities in the target group as they've had a significant role to play in the power sector and in accomplishing Renewable Energy grid interconnection. Output 1.6 *"Capable, locally-based private business and/or private-public partnerships to act as providers of low-carbon energy goods and services, including RE supply established"* has been reorganized to contribute to Outcome 3.

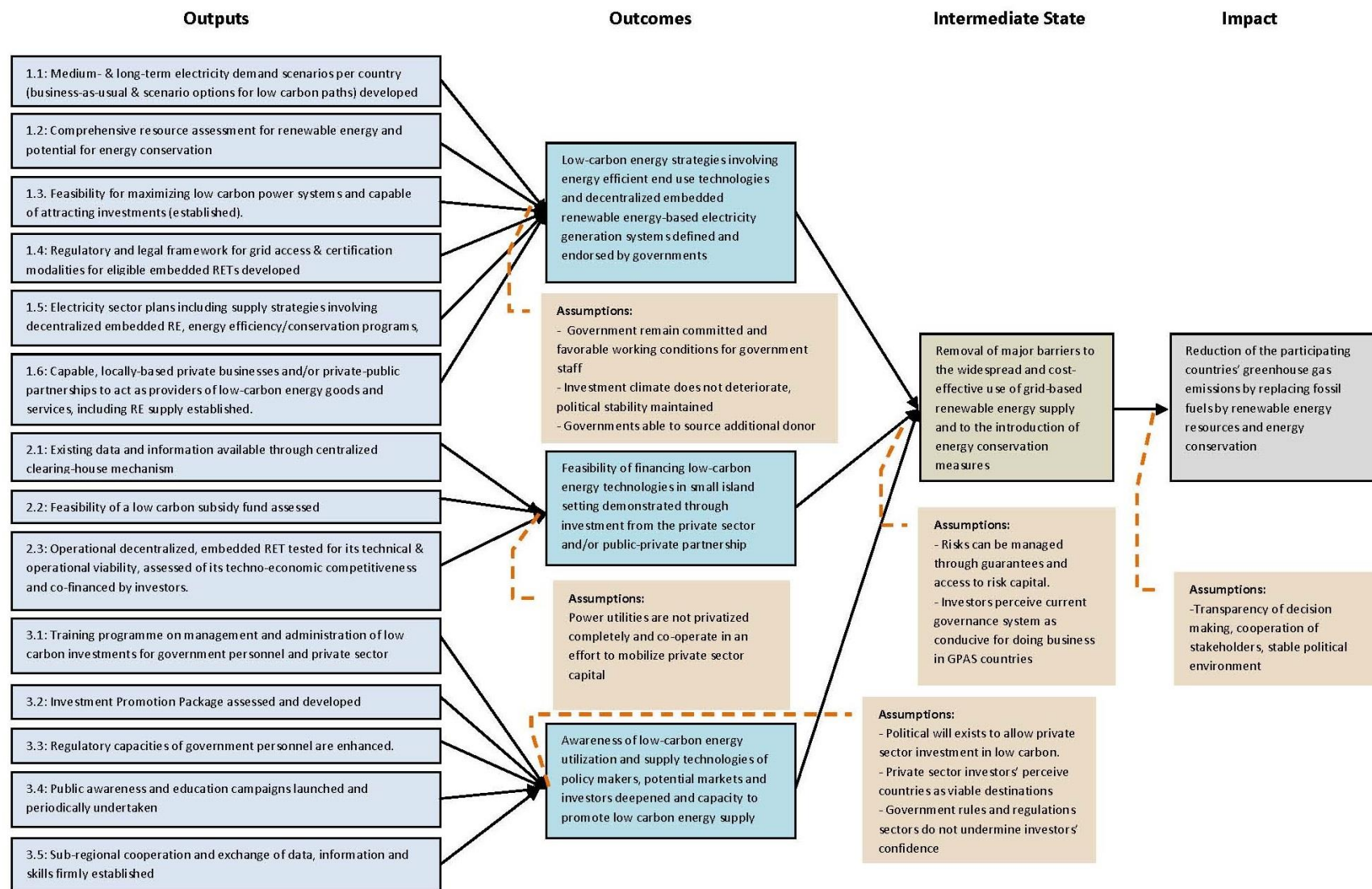


Figure 2 Diagram of the GPAS-LCEI logical framework

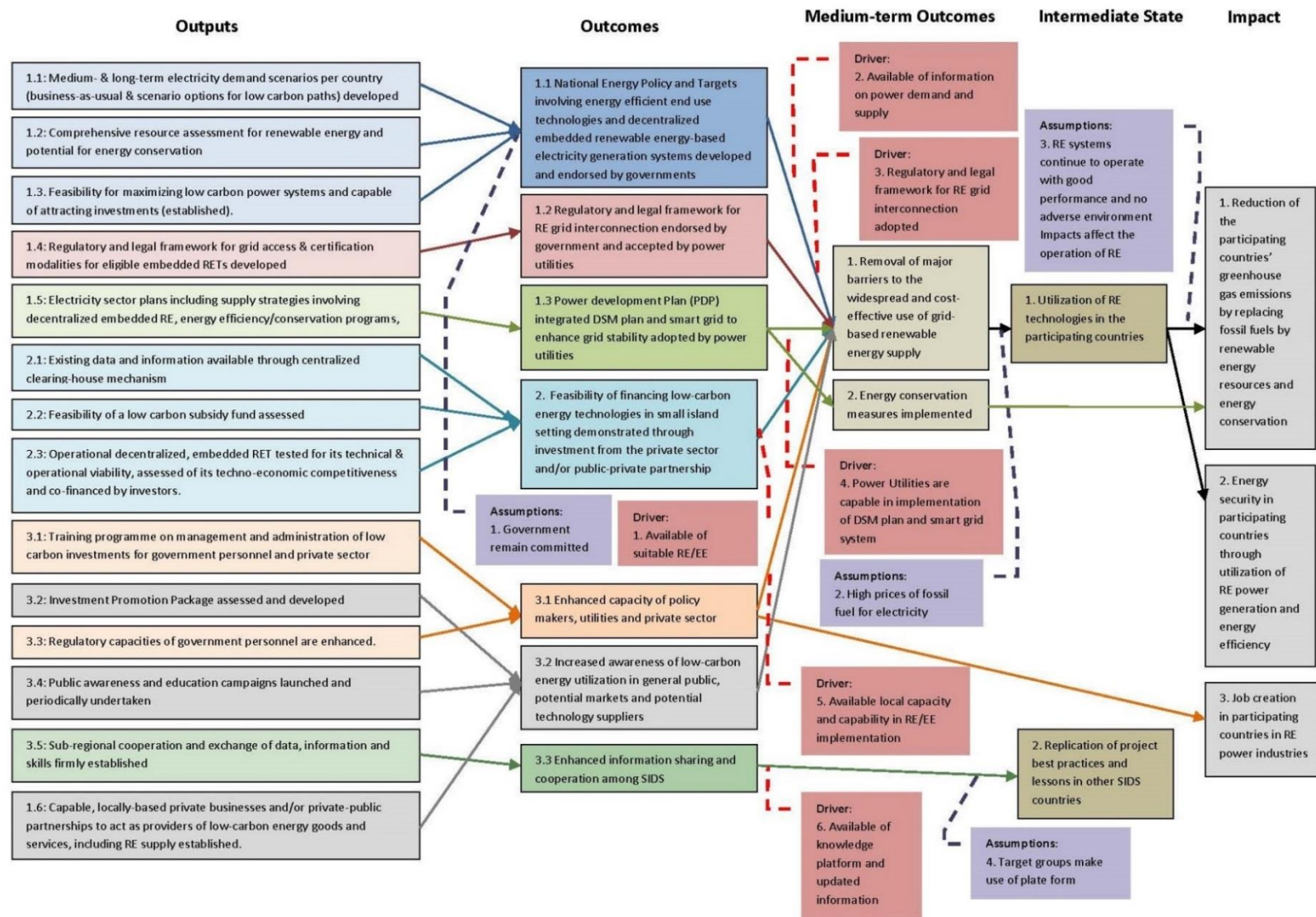


Figure 3 Reconstructed Theory of Change

70. Although the main intention of the original design was the “removal of technical barriers”, the “lack of RE/EE supply” was identified as one of the barriers that had to be removed. The activities in this output do not directly lead to the results of Outcome 1 and Outcome 3 was split into “Awareness” and “Capacity building” outcomes, as the logic pathway of these newly created outcomes lead to different intermediate states.
71. Additionally, the output on “Sub-regional cooperation and exchange of data” does not lead directly to the project impact but rather to project replication. As a result, it has been added as an additional intermediate state (see Table 5 below).

Direct Outcomes		
Original	Reconstructed	Explanation
O1: Low-carbon energy strategies involving energy efficient end-use technologies and renewable energy –based electricity generation strategies defined and endorsed by government.	Direct Outcome 1.1 National Energy Policy and Targets involving energy efficient end use technologies and renewable energy-based electricity generation strategies developed and endorsed by government.	The outcome has been broken down to three key areas based on the project logic (see also below rows). Change wording from “Low-carbon strategies” to “National Energy Policy and Targets” to be more specific and linking the outcome statements with the planned project activities and outputs (assessment of RE/EE resources and energy demand scenarios).
	Direct outcome 1.2: Power development Plan (PDP) integrating Demand-Side Management (DSM) plan and utilization of smart grid to enhance grid stability adopted by power utilities.	This has been added as it is a direct outcome of the intended output concerning the electricity plan and significantly supports the achievement of the project intermediate states.
	Direct outcome 1.3: Regulatory and legal framework for RE grid interconnection endorsed by governments and accepted by power utilities.	This one has been added as it is a direct outcome of regulatory activity that aims to remove barrier in legal framework.
O2: Feasibility of financing low-carbon energy technologies in small islands setting demonstrated through investment from the private sector and/or public/private partnerships.	Direct Outcome 2: Feasibility of financing low-carbon energy technologies in small islands setting demonstrated through investment from the private sector and/or public/private partnerships.	This outcome is appropriate and has been left unchanged.
O3: Awareness of low-carbon energy utilized and supply technologies of policy makers, potential markets and investors deepen and capacity to promote low carbon energy supply established.	Direct Outcome 3.1: Increased awareness of low-carbon energy utilization in general public and potential markets.	The original result statement has been broken down to three different direct outcomes as targeting policy makers; private sector and public are different process (see also below rows)
	Direct Outcome 3.2: Enhanced capacity of policy makers, power utilities and private sector including investors.	This outcome has been added as it is a direct outcome of training activities.

	Direct Outcome 3.3: Enhanced information sharing and cooperation among SIDS.	This outcome has been added as it is a direct outcome of the activity in Sub-regional cooperation that can potentially lead to replication.
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Table 5 Project Outcomes

72. The impact that the LCI project intended to achieve was to reduce the participating countries GHG emissions by replacing fossil fuels by RE resources and by energy conservation. The original project document has identified two additional objectives/intermediate states in job creation and energy security in the participating countries.
73. Based on the logical framework and the ROTI exercise, the evaluator team identified two additional high-level intermediate states that stem from the identified intermediate state of “Removal of major barriers” and that represent our understanding of the causal logic and of the pathways from outputs to outcomes and again towards impact. An additional intermediate state, “Replication” has been added as it stems from the outcome that derives from “Information sharing and cooperation among SIDS” as shown in Table 6 below.

Medium-Term Outcomes and Intermediate States		
Original	Reconstructed	Explanation
Objective: Removal of major barriers to the widespread and cost-effective use of grid-based renewable energy supply and to the introduction of energy conservation measures	Medium-term outcome 1: Removal of major barriers to the widespread and cost-effective use of grid-based renewable energy supply and to the introduction of energy conservation measures removed	This ‘major barriers’ is not precisely defined in the project document. The evaluation analysis of ‘to what extent the direct outcomes contributed to this Medium-term outcome’ (objective in the original project document) shall be assessed considering below groups <ul style="list-style-type: none"> • Policy barriers • Legal barriers • Financial barriers • Institutional barriers • Information barriers • Capacity related barriers
	Intermediate state 1: Utilization of Renewable Energy technologies in the participating countries	Added intermediate state required to happen before barrier removal will have effect on reduction of GHG. This is formulated as per the project’s objective statement “Removal of major barriers to the widespread and cost-effective use of grid-based renewable energy supply and to the introduction of energy conservation measures”
	Intermediate state 2: Energy conservation measure implemented in the participating countries	Added intermediate state required to happen before barrier removal will have effect on reduction of GHG, formulated based on the project’s objective statement “Removal of major barriers to the widespread and cost-effective use of grid-based

		renewable energy supply and to the introduction of energy conservation measures "
	Additional intermediate state: Replication of project best practices and lessons in other SIDS countries	An additional intermediate state, "Replication" has been added as it stems from the outcome that derives from "Information sharing and cooperation among SIDS". Not directly supporting the achievement of the project intended long-term impact but based on the project document and document analysis it is one important aspect of the project design and intended results.
Impacts		
Reduction of the Participating countries greenhouse gas emissions by replacing fossil fuels by renewable energy sources and energy conservation.	Intended Primary impact: Reduction of the Participating countries greenhouse gas emissions by replacing fossil fuels by renewable energy sources and energy conservation.	Kept as the same
	Intended secondary impacts: <ul style="list-style-type: none"> • Energy security in participating countries through utilisation of Renewable energy power generation and energy efficiency measures. • Job creation in participating countries in Renewable Energy power industries 	Addition potential positive impact added in the TOC based on project document text.

Table 6 Medium –Term Outcomes and Intermediate States

4. Evaluation Findings

4.1 Strategic Relevance

4.1.1 Alignment with UN Environment Medium Term Strategy (MTS) and Programme of Work (POW)

74. The project is directly aligned with UN Environment Mid Term Strategy (MTS) and Programme of Work (POW). The UN Environment MTS 2010-2013 that was in place at project approval identified six cross-cutting thematic priorities, organized as Sub-programmes. The project intended results are consistent with UN Environment programmatic objectives and expected accomplishments under three cross-cutting priorities of the MTS 2010-2013, namely: (1) climate change, (2) environmental governance and (3) resource efficiency – sustainable consumption and production.
75. Under climate change, the project specifically complies with the expected accomplishment that: *“countries make sound policy, technology, and investment choices that lead to a reduction in greenhouse gas emissions and potential co-benefits, with a focus on clean and renewable energy sources, energy efficiency and energy conservation”*. The project does this particularly through Outputs under Components 1 and 2.
76. Under environmental governance, the project intended results of Output 1.D directly comply with expected accomplishment that *“States increasingly implement their environmental obligations and achieve their environmental priority goals, targets and objectives through strengthened laws and institutions”*.
77. The project also complies with all of the expected accomplishments under resource efficiency – sustainable consumption and production³³.
78. The vision of UN Environment for 2014–2017 continues the vision of the MTS, for 2010-2013, and therefore the project remains linked in its achievements to the expected accomplishments of the 2014-2017 MTS and its corresponding POW, with particular emphasis on expected accomplishments under climate change, environmental governance, and resource efficiency.

The project alignment with UN Environment MTS and POW is rated Highly Satisfactory (HS).

4.1.2 Alignment to GEF focal areas and strategic priorities

79. The overall goal of the project is *“to reduce the participating countries GHG emissions by replacing fossil fuels with renewable energy and energy conservation”*. Consequently, the project is of high relevance to the climate change mitigation aims of the GEF: *“Reducing or avoiding GHG in the areas of renewable energy, energy efficiency, sustainable transport and management of land use, land use change and forestry (LULUCF)”*.

³³ (a) That resource efficiency is increased and pollution is reduced over product life cycles and along supply chains, (b) That investment in efficient, clean and safe industrial production methods is increased through public policies and private sector action and (c) That consumer choice favours more resource efficient and environmentally friendly products

Project alignment to GEF local areas and strategic priorities is rated Satisfactory (S)

4.1.3 Relevance to Regional, Sub-regional and National Environmental priorities

80. On the regional level, the impacts of climate change, including extreme weather events and rising sea levels, have been a major concern of the Pacific region. In 2007, the Pacific island governments adopted an action plan to carry out the Pacific Islands Framework for Action on Climate Change, in which regional programming complements national activities.
81. At the country level, Nauru has had a National Energy Road Map in place since 2014 which is now being reviewed and updated³⁴ and is presently considering developing a national energy policy at some point in the near future in which it hopes to increase the share of renewable energy in its energy mix by 10% by year 2020.
82. The Niue Strategic Energy Road Map (NiSERM) 2015-2025 outlines Niue's aspiration to meet 80% of its electricity needs from renewable energy sources by 2025.
83. The state of Tuvalu has made a strong statement by committing to a carbon neutral economy, with 100% of its energy to come from renewable sources by 2020, that has now been postponed until 2025³⁵.

Relevance to Regional, Sub-regional and National Environmental priorities is rated Highly Satisfactory (HS).

4.1.4 Complementary with existing interventions

84. There is high complementary of the LCI project with other donor funded projects related to climate change impacts in the region, as shown in Annex F.
85. During the design phase, efforts were made not to duplicate the activities that were being proposed by the UNDP/GEF funded PIGGAREP project, executed by Secretariat of the Pacific Regional Environment Programme (SPREP), designed to promote the installation of off-grid RE projects in 11 Pacific Island Countries (PICs) including Nauru, Niue and Tuvalu. However, later on the PIGGAREP project was redesigned to include grid-connected renewable energy projects, as well, which generated some duplication of work (see also paragraph 100).
86. During its implementation, the LCI project benefited from various activities that had been undertaken by other donor-funded projects and that had a high complementarity with the activities that were to be implemented in accordance with the project Log Frame.
87. In a number of cases, the LCI project managed to implement joint activities and pooling of resources with other donors in order to avoid duplication as it has been the case of:

³⁴ The current NERM 2014 – 2020 specify the following targets by 2020:

- 24/7 grid electricity supply with minimal interruptions
- 50% of grid electricity supplied from renewable energy sources
- 30% improvement in energy efficiency in the residential, commercial and government sectors

The PMU has been asked to review the updated Nauru Energy Road Map and provide comments but the project has not participated directly in its preparation

³⁵According to interviews with Tuvalu Energy Corporation (TEC), Ministry of Works, Energy and Natural Resources, and Department of Energy

- The Nauru Household Electrical Appliances, Lights and End-Use Energy survey that was implemented with the collaboration of UNDP,
- The review and drafting of Niue energy legislation to be undertaken jointly with SPC,
- The incorporation of Tuvalu and Niue into the Pacific Appliance Labelling Scheme (PALS). Despite efforts of the LCI project to coordinate with SPC to include the participation of the Nauru government, Nauru has not been integrated into the PALS.
- The review and drafting of Nauru energy legislation will be accomplished in partnership with the Adapting to Climate Change and Sustainable Energy (ACSE) project³⁶ being implemented by UNDP and funded by Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ), the European Union (EU), the Asian Development Bank (ADB), and the government of New Zealand.

Project complementary with existing interventions is rated Satisfactory (S).

4.2 Quality of Project Design

88. As is the case with most regional projects, the LCI has been a complex and challenging project to design and implement since the specific needs and circumstances of the three countries are not exactly the same. However, the project document provided an objective analysis of the common problems that each of the three countries was facing, mainly due to their small size, remoteness and almost 100% dependency on imported fossil fuels for meeting their energy needs.
89. The project design is based on a clear logic from activities to outputs and outcomes to objectives and goals with indicators that are considered SMART³⁷. The intervention logic is well described in the project document, both in the text and in the Results Framework but no TOC analysis has been included³⁸.
90. Overall, the design quality is considered moderately satisfactory with several strengths and some critical weak aspects.
91. The key strengths of the project design are the background and context analysis, and the threats, root causes and barrier analysis. The project intervention has been based on an in-depth problem analysis and consultation process which involved interviews with all major stakeholders in order to have a thorough understanding of the particular situation of each of the countries³⁹.
92. Due to the limited availability of funding, it was important to mobilize additional funding to facilitate sustainability of the principal project outcomes over the long term. The willingness to share data and information, good governance and development partner cooperation and stable political environments were also seen to be key to the success of the project.

³⁶ The ProDoc is available at: https://drive.google.com/open?id=1X_sjFVRWeLC8NHcsngwjHg8H9iaF1bP

³⁷ SMART S= Specific, M= Measurable, A= Achievable, R= Relevant, T= Time-bound

³⁸ At the time of project design the inclusion of a TOC was not mandatory

³⁹ During the PPG phase, IUCN organized two regional stakeholder's consultations followed by national stakeholder's consultations plus dialogues with energy agencies of the three participating countries.

93. The relevance of the project in terms of its relative significance in reducing GHG emission⁴⁰ and its linkages with other GEF and non-GEF interventions has been taken into account. The design of the LCI project was initially done in coordination with UNDP. At the time, UNDP was formulating the PIGGAREP that initially focused on off-grid renewable energy. As result, the LCI project decided to concentrate into grid-connected renewable energy, energy efficiency and even looking at smart grid applications. However, over time the PIGGAREP project was reformulated to include grid-connected RE applications.
94. The two most critical weaknesses of the project design have to do with:
- an inaccurate stakeholder and mapping analysis⁴¹, that did not take into account that due to the small size of the private and banking sectors in the three countries it would be extremely difficult to achieve the secondary objective of creating local employment in a new energy service industry and to demonstrate the feasibility of financing low-carbon energy technologies through tangible investment from by private sector and/or public-private partnership stakeholders; and,
 - an unrealistic design of activities in comparison to the amount of GEF funds that has been made available to perform all of the planned activities with the level of detail that has been intended.
95. In addition, the amount of GEF funds allocated to the project management component (i.e., USD 329,636) proved to be insufficient to ensure the implementation of an adequate project governance structure.
96. With regard to the budget allocation, the evaluation notes that when including all of the co-financing funds the total budget that has been allocated to this project is consistent with the number of activities that have been proposed. However, as is usually the case in most projects of this kind, oftentimes the Project Management Unit (PMU) has limited or no control over the co-financing funds and hence the undertaking of the proposed activities are in the end very much dependant on the availability of GEF funds. As a result, several of the activities that have been included in the logical framework have not been undertaken, as planned.
97. Several attempts towards revising project activities in the project logical framework were made to modify the formulation of the project outputs to take into consideration the changes in project context that occurred from the time of CEO endorsement to actual implementation. To a large extent, these attempts were mainly directed to avoid overlapping of activities with other on-going projects in the three islands such as PIGGAREP⁴². In all, four different versions were proposed before deciding to go back to the original version in 2013. Based on information from the PMU this decision was made because implementation was already underway and realigning the budget lines was not a flexible process.
98. Another weak area of the project design is the lack of a clear exit strategy for the sustainability of the project. Exploring the possibility of linking the Low Carbon Fund's

⁴⁰ Due to the small size of these island countries the GHG emission reductions are very small in comparison to other GEF funded projects

⁴¹ Stakeholder analysis is one of the weakness in the project design. During the design, it should have become evident that the three countries have a very small private and banking sectors. At the time of design, Nauru did not even have a bank. Thus, activities related to promoting private sector investment and financing were not likely to become achievable in either of these island countries.

⁴² PIGGAREP – Pacific Islands Greenhouse Abatement through Renewable Energy Projects, UNDP / GEF funded project.

into an international mechanism of voluntary or regular carbon finance until a viable clean energy potential for private sector investment is developed was proposed in the project document⁴³. However, it is unlikely that sufficient funds will be generated to facilitate sustainability of the Low Carbon Funds in the three countries through voluntary or regular carbon finance given the low level of the GHG avoided and the current state of the carbon markets. No attempt has been made to explore other potential exit strategies for the sustainability of the project.

Quality of project design is rated Moderately Satisfactory (S).

4.3 Nature of the External Context

99. As per the evaluation TOR a rating is established for the project's external operating context (considering the prevalence of unexpected conflict, natural disasters and political upheaval)⁴⁴. Politically, both Niue and Tuvalu have been stable, while the political and economic situation in Nauru has stabilized since 2015⁴⁵.
100. A category 5 Cyclone Pam hit Tuvalu in March of 2015, causing an estimated US\$10 million in damages across the country and affected almost half of Tuvalu's 10,000 population. Wind gusts reached 350 Km per hour and 3.4-meter 'king tides' flooded parts of the low-lying portions of the Tuvalu islands. Due to the great impacts caused by cyclone Pam, the World Bank Board approved a US\$3 million grant for long-term recovery efforts. However, based on the interviews that have been undertaken in Tuvalu, none of the project stakeholders mentioned that there have been implementation delays associated with Cyclone Pam.⁴⁶

Nature of External Context is rated Favourable (F).

4.4 Effectiveness

101. The LCI project was designed to reduce the participating countries' GHG emissions by replacing fossil fuels by renewable energy resources and energy conservation. This was to be achieved by outcomes and activities geared to the objective which is the "Removal of major barriers to the widespread and cost effective use of grid-based renewable energy supply and the introduction of energy conservation measures". The project included three components and 14 outputs:
 - **Component 1:** Strategic planning,
 - **Component 2:** Demonstration of feasible financing,
 - **Component 3:** Awareness and capacity building.
102. The evaluation team assessed the level of delivery of each Output and its effectiveness thoroughly by interviews with key stakeholders and evidences of delivery of the outputs such as reports, training materials, meeting agenda, and site visits to the solar photovoltaic installations.

⁴³ However, as per the project team the scale of the project's carbon mitigation potential relative to the administrative burden of participating in a multilateral arrangement did not merit significant consideration. Participating in the ICAO GMBM is an area of interest for future projects looking at financing mechanisms through carbon offsetting but again the high burden of administrative and transaction cost relative to the amount of carbon mitigation potential will not make this option financially feasible.

⁴⁴ Where a project has been rated as facing either an Unfavourable or Highly Unfavourable external operating context, the overall rating for Effectiveness may be increased at the discretion of the Evaluation Consultant and Evaluation Manager together.

⁴⁵ PIR 2016

⁴⁶ <http://www.worldbank.org/en/news/press-release/2015/09/15/tuvalu-gets-continued-support-for-cyclone-pam-recovery>

103. The evaluation found that the key factors affecting project implementation performance include insufficient capacity of the Project Management Unit in using results-based management tools such as Logical Framework in the project management. At the same time UN Environment's support to ensure that activities were executed according to the project's logical framework or that required revisions were done, was not sufficient. The project manager selection was made without emphasis on experience in the management of GEF and UN funded projects or similar regional/multi-country projects in small island developing countries, as required under the project management Terms of Reference included in the project document. It appears that no specific training related to managing UN Environment/GEF funded projects has been provided to address this deficiency.⁴⁷
104. The evaluation team recognizes the difficulties that the Project has faced, as there was a long gap between the project design and actual implementation. The LCI Project had two major challenges:
- Overlapping activities with other projects that are being implemented in the region and that were not anticipated at the time of project design; and,
 - A project design that is based on an unrealistic definition of activities in comparison to the amount of GEF funds that has been made available to perform all of the planned activities with the level of detail that has been intended.
105. The LCI Project made four attempts to revise the project's Outputs. During the inception workshop on 20-21 May 2013, key stakeholders and the Project Management Unit raised the issues of the mentioned challenges described in the previous paragraph and made a revision to the Project Outputs. The PMU then made two more revisions in 2014 and finally reverted to using the original version as per the Project Document. It should be noted that over the course of the revision of outputs, there was no revision to the project indicators in the logical framework.
106. Therefore, the achievement of the project in terms of outputs, direct outcomes and impacts in this Terminal Evaluation report has been evaluated based on the Logical framework and Monitoring & Evaluation Plan in the CEO Endorsement, Project Document and the reconstructed TOC.

4.4.1 Achievement of Outputs

107. The Outputs are assessed based on: (i) the levels of achievements towards Output, (ii) whether the Outputs were delivered in time to fulfil their use, (iii) quality of outputs as viewed by their users, and (iv) ownership of the intended users.
108. The assessment of the achievements of the different outputs and activities of the Project in comparison with the Objectively Verifiable Indicators (OVIs) shown in the Project Logical Framework has been done using the documentation produced by the PMU and findings of the interviews with the different project stakeholders.
109. Even though no references to gender issues have included in the Project Document the Evaluation found that civil society organisations were consulted during the design and involved in the implementation of project components. Both women and men have been treated as equals during project design and implementation and a large

⁴⁷ Based on stakeholder comments: logframes were utilized in IUCN for project management. Nevertheless no particular training was provided to follow UN Environment approaches.

portion of the stakeholders that have been involved in the implementation are women.

Component 1

110. Component 1 refers to “Low carbon energy strategy”. This component has six planned Outputs and Objectively Verifiable Indicators (OVI) of these outputs targeted by the end of project as shown in *Table 7* below.

Outputs	Indicators
• Output 1.1 : Medium & long term electricity demand scenario developed	• Medium & long term electricity demand scenarios developed in the three countries
• Output 1.2 : Resource assessment for renewable energy and potential for energy conservation	• Comprehensive assessment of renewable energy resources & potential for energy conservation for the three countries
• Output 1.3: Feasibility for maximizing low carbon power systems and capable of attracting investment	• Techno-economic feasibility studies and risk analysis of investment in at least one embedded PV or small wind power systems in each country
• Output 1.4 : Regulatory and legal framework for grid access & certification modalities for eligible embedded RET	• Regulatory/legal framework for grid access & certification modalities for eligible embedded Renewable Energy Technology in all three countries established
• Output 1.5: Electricity sector plans including grid access and certification modalities	• Electricity sector plans including energy efficiency and conservation programs & energy supply strategies involving embedded RETs.
• Output 1.6: Capable, locally-based private businesses and/or private-public partnerships to act as providers of low-carbon goods and services, including RE supply established.	• At least one private or semi-private company has proposed a low carbon energy investment project

Table 7 Outputs and Indicators of Component 1

111. Generally, the activities that are required to deliver a country level Energy Strategy involve research and study on energy demand and supply and resource availability. The results from Output 1.1, 1.2, 1.3, 1.4, and 1.5 were designed to be used in the analysis for developing an Energy Strategy and Power Development Plan that are considered as Outcome level indicators.
112. The target beneficiaries in this component are the energy end-users, power utilities, private power sector investors and the governments of Nauru, Niue and Tuvalu.

113. The aim of Component 1 is to facilitate integration of renewable energy into the power grid by strengthening the energy sector in terms of enhanced policy makers and power utilities.
114. The results of each Output is based on an assessment of the findings as described below.

Output 1.1: Medium & long term electricity demand scenario developed

115. Activities under this Output include:
- 1.1.1 - Household Analysis of Load and Energy Demand,
 - 1.1.2 - Annual Load Curves for each utility, and
 - 1.1.3 - Load and demand forecasts for each utility.
116. The Project has collaborated with UNDP on conducting a Household Electrical Appliances, Lights and End-Use Energy survey in Nauru. However, there has been no similar activity on surveying household energy demand in Niue and Tuvalu by the LCI project. However, a similar household electrical appliance and lights survey was undertaken in Tuvalu in 2014 supported by SPC and UNDP⁴⁸. Also, a household electrical appliance and lights survey will be undertaken in Niue beginning of Feb 2018 supported by UNDP.
117. In Nauru there is no activity performed on annual load curves and load demand forecast analysis that would contribute to the delivery of Output 1.1 Medium and long-term electricity demand scenario. According to the project team NZ\$ 250,000 co-financing was partially utilized to prepare a report containing information on annual load curves in Niue⁴⁹. In Tuvalu, a study on Renewable Resource Impact Assessment has a small section that provides an annual load from data of the Tuvalu Electricity Corporation. There is a statement that the study assumes 3% load growth. However, there is no explanation how the report derived this assumption. There is no analysis of energy demand or load forecast that could be increased or decreased due to factors such as trend of higher number of appliances (higher consumption), trend in using higher efficient appliances (lower consumption), more housing, increase or decrease of population. Therefore, there is no analysis to satisfy the medium and long-term electricity demand scenario.
118. This Output is assessed to have achieved 30% of the intended Output.

Output 1.2: Resource assessment for renewable energy and potential for energy conservation

119. Activities under this Output include:
- 1.2.1 - Analysis of existing resource data,
 - 1.2.2 - Perform waste-to-energy resource assessment,
 - 1.2.3 - Perform additional wind solar measurement,
 - 1.2.4 - Biomass to energy assessment,
 - 1.2.5 - Loss reduction study for each power utility, and

⁴⁸The survey report is available at: http://prdrse4all.spc.int/system/files/funafuti_2014_household_energy_survey_report_-_final_version.pdf

⁴⁹ Evaluation team hasn't reviewed this report

- 1.2.6 - Demand Side Management (DSM) assessment for government and private sector.
120. Considering the list of activities under this Output, it seems that it is not feasible for the Project to complete all of the activities under the planned budget (i.e., the GEF financing budget for the entire Component 1 is USD 401,000). The Project has managed to complete only part of Activity 1.2.3 by performing long-term solar resource assessment using satellite, numerical model and available surface-based reference stations for all the three Project countries (Nauru, Niue, and Tuvalu). The task was subcontracted to a US-based company specialising in solar data and Geo-spatial analysis.
 121. Unfortunately, the Project did not conduct a demand-side Management (DSM) assessment that could have been key to deliver on “potential for energy conservation”. There are activities conducted by other donor agencies and could be used in assessment of Demand-side Management such as Household Energy Surveys in Tuvalu (UNDP and SPC), and joint activity of Household Energy Survey by UNDP and LCI project in Nauru⁵⁰. However, these studies were not utilized by the LCI project in its Activity 1.2.6.
 122. The Project has completed solar resources assessments but has not completed evaluation of other renewable resource assessments, loss reduction, and demand-side management⁵¹. Output 1.2 is assessed to have delivered 20% of the intended Output. Nevertheless, in evaluating the criteria of achievements (timing of delivery, quality, usefulness of output to users), the solar resource assessment seemed to be of little use for intended users. The study did not have ground measurements, possibly due to limited budget, but it uses already available NASA data and correlates with data from measurement station in the American Samoa. The results are not much deviated from the NASA data. There is no evidence of using solar data from the report in design of solar systems in the 3 countries nor how would it be useful for the government energy policy. Based on the evaluation team’s view, the Project did not have sufficient budget to perform proper assessments for renewable resources (biomass and waste-to-energy)⁵². Nevertheless, as per the project team wind projection data was made available to partners by the project⁵³.

Output 1.3: Feasibility for maximizing low carbon power systems and capable of attracting investment assessed

123. Activities under this Output include:
 - 1.3.1 - Life cycle cost for all low carbon options,
 - 1.3.2 - Financial analysis for all options,
 - 1.3.3 - Simulation and grid stability analysis, and
 - 1.3.4 - Compile low carbon development feasibility studies.

⁵⁰Both the tuvalu and Nauru energy surveys were published under the UNDP and in the case of Nauru supported by IUCN & LCI project.

⁵¹Nevertheless the household energy surveys in Tuvalu, and Nauru can be seen as contributing towards evaluation of Demand-Side Management

⁵² As per the project team: “the resource projection models acquired for the countries cost over \$27k USD, and it is worth noting the IRENA Pacific Lighthouse reports reviewing generation mix and resource potential were conducted and published in the year prior to the project launch, and no further resource assessment activities were requested by the countries”.

⁵³ No Wind Resource Assessment Report as such was provided for evaluation team’s review. As per project team wind and solar data were distributed to the countries’ utilities and SPC for inclusion in the Pacific Regional Data Repository.

124. Under this Output, the Project has performed an analysis of impacts from grid-connected solar systems to the power grid in Tuvalu. The “Renewable Resource Impact Study” report in Tuvalu assessed the impacts on power quality, disconnected voltage and recommend optimum battery size for energy storage. This report also contributed to Activity 1.3.3 - Simulation and Grid stability analysis. However, there is no evidence that similar studies have been undertaken in Nauru and Niue.
125. Since no activities in financial analysis have been undertaken directly by the LCI project, the Project has not produced any result that can lead to the “Output 1.3 Feasibility for maximizing low carbon power systems and capable of attracting investment”. The achievement of this Output is considered to be less than 20%.⁵⁴

Output 1.4: Regulatory and legal framework for grid access & certification modalities for eligible embedded Renewable Energy Technology (RET)

126. Activities under this Output include:
- 1.4.1 - Regulatory framework and gap analysis,
 - 1.4.2 - Regulation experiences documented, and
 - 1.4.3 - Certification scheme for hardware and providers.
127. In this Output, the Project worked with the International Union for Conservation of Nature Environmental Law Program (IUCN ELP), a legal programme of IUCN specialising in Environmental Law.
128. According to the contract signed between the Executing Agency and IUCN ELP in April 2015, the 9-months contract stipulated that IUCN ELP were to provide the following deliverables by December 2015.⁵⁵
- Drafts of Power Purchase Agreements for Nauru, Niue and Tuvalu;
 - Drafts of feed-in tariff policies for Niue, Nauru and Tuvalu;
 - Regulatory, legal framework for grid access and certification modalities for eligible embedded Renewable Energy Technologies (RETs) developed;
 - Drafts of customs, duty & taxation schedules including renewable energy and energy efficiency technology products and services for Niue, Nauru and Tuvalu; and⁵⁶
 - Review and advice of all forthcoming Sustainable Energy Programme contracts through drafting process to signing and execution.
129. During the time of the Terminal Evaluation, the Project was still working with IUCN ELP in supporting the Attorney General Offices of Nauru⁵⁷ and Niue to review and draft legislation for renewable energy grid interconnection. A contract extension was

⁵⁴ As per the project team: Wind power workshop was funded through IUCN EESLI activities, and that the financial analysis of impact of various technologies was conducted by the economic consultant working on the Low Carbon fund

⁵⁵ This deadline has been revised to coincide with the end date of the project but this activity had to be undertaken earlier

⁵⁶ Nauru and Tuvalu both had recent revisions to their Customs schedules and did not request further revisions.

⁵⁷ At the time of the evaluation report review the stakeholder feedback confirmed that there is no legislation including regulations for renewable energy grid interconnection in Nauru. Standardized templates for agreements related to rooftop solar photovoltaic (PV) and Power Purchase Agreements (PPA) respectively have been prepared with support from LCI-project and submitted to the Department of Justice and Border Control (DJBC) for approval.

agreed internally between IUCN, the Executing Agency, and IUCN ELP since according to the interview with IUCN ELP, activities under this contract started in 2016.⁵⁸

130. Government of Tuvalu had expressed that the renewable energy legislation for grid connected renewable energy for the private sector was not needed. This is mainly due to the fact that Tuvalu has been receiving solar systems from other donors and the total installed capacity will soon exceed power demand under the assumption that the load growth is 3%. As a result, Tuvalu is likely to meet its target goal of 100% renewable energy by 2025. In view of this, the Tuvalu's government owned power utility considered that there is no need of adding more renewable systems from private investors. However, the evaluation acknowledges that in April 2017, IUCN ELP organized a Multilateral Environmental Agreement (MEA) training workshop in Tuvalu. The main objective of the workshop was to help the Tuvalu government in its international commitments under Multilateral Environmental Agreements (MEAs) at the national level (i.e. United National Framework Convention on Climate Change [UNFCCC], the United Nations Convention on Biological Diversity [UNCBD] and the United Nations Convention to Combat Desertification [UNCCD]) covering also aspects of energy independence in conserving nature and natural resources. Nevertheless, evaluation assess that this workshop was not designed to contribute to the LCI project Output 1.4 that aims to implement legislative for renewable energy grid access.
131. Despite the fact that the sub-contract with IUCN-ELP was already signed in 2015, most of the activities only began in 2016. The delay in performing the activities under this Output seem to have suffered from the lack of capacity of the sub-contractor assigned to this task. IUCN ELP has proven experience in Environmental Law related to Soil, Marine, Wetland, Endangered species, Biosafety, etc. However, it appears not to have a proven track record in analysing and/or drafting renewable energy legislation or regulatory frameworks related to the power sector. Selection of IUCN-ELP as the sub-contractor for this Output appears to have been based on its management and coordination experience rather than on its capacity and expertise to draft comprehensive energy sector regulations for grid connected renewable energy generation.
132. In Niue, the Project is currently co-financing with the Secretariat of the Pacific Community (SPC) the drafting of legislation related to renewable energy grid interconnection which will serve to update the Niue Electric Power Supply Act of 1960. This co-financing activity was planned to begin in the second half of 2017 based on information available at the time of the mission to Niue.
133. In Nauru, the Project contributed in providing comments in the preparation implementation of the Enabling the Implementation of the Nauru Energy Road Map project under the Adapting to Climate Change and Sustainable Energy Programme (ACSE) funded by the European Union (EU) and implemented by UNDP. However, there has not yet been any agreement of how the LCI Project would contribute to the review and update of the development of the Nauru Energy Roadmap (NERM) 2014-2020 other than being invited to provide comments on the draft NERM review report and draft updated NERM document that can be accounted for the achievement of this Output.

⁵⁸ During the review process the PMU confirmed that a contract extension has been granted.

134. The IUCN-ELP has been providing advice to the Attorney General Offices in Nauru and Niue. However, this has not yet led to a tangible Output.
135. There is a high probability that the Project will be able to deliver the drafting of a regulatory and legal framework for grid access for Niue based on its co-financing agreement with SPC, although with a long delay from what it has been set in the project work plan. A reviewed draft is set for delivery in Q4 2017. Cabinet approval will be pending until 2018.
136. However, it appears to be unlikely that the Project will be able to get involved in the development ACSE's NERM project for Nauru other than providing comments on the draft NERM review report and draft updated NERM document to UNDP and the delivery from this Output is likely to be realized beyond the project end date.
137. As mentioned earlier, there has been no activity would directly support the delivery of this intended Output in Tuvalu (MEA workshop discussed in paragraph 130 is acknowledged by the evaluation).
138. Based on the above, the level of achievement of this Output is assessed to be 30% of the intended result.

Output 1.5 Electricity sector plans including grid access and certification scheme

139. Activities under this Output include:
 - 1.5.1 - Smart grid experiences documented,
 - 1.5.2 - Smart grid options for GPAS assessed,
 - 1.5.3 - Potential for embedded generation determined, and
 - 1.5.4 - Integrated power development plan for each utility.
140. The project installed 5 kW solar photovoltaic systems in each of the countries. The original attempt was to demonstrate the feasibility of incorporating net metering and adopting smart grids, as reported in the Half Yearly Progress Report 2014 Q1-Q2.⁵⁹ However, the Project later changed the objective of the solar systems to be hands-on practice sites for solar installation training. The training was conducted by the Global Sustainable Energy Solutions (GSES), a company based in Australia, who has been conducting solar training courses complying to the PPA/SEIAPI Accreditation (Pacific Power Association / Sustainable Energy Industry Association of the Pacific Islands) that was formed in 2010 (SEIAPI website).
141. Majority of the training participants are from the power utility and Department of Ministry of Energy. Following the solar training, the trainees were required to take an exam. Only one or two trainees passed the criteria of 90% score to be accredited under SEIAPI. GSES had encouraged those trainees that failed the exam to take an online course free-of-charge and to re-take the exam. GSES also recommended to those trainees that had passed the exam to apply for SEIAPI accreditation. GSES reported that neither those trainees that passed the exam nor those that failed have followed their recommendations. It appears that there is a lack of motivation for the technicians to get accredited.

⁵⁹ Evaluation office: as per project team feasibility aspects were discussed in the IPP/PPA workshop in October 2015.

142. As SEIAPI is a voluntary scheme, it is not a requirement for installers to be accredited even in Australia and New Zealand, the Pacific countries are even less likely to adopt the scheme as certification requirement.
143. SEAPI has been promoted in the Pacific countries since 2010. Some of the trainees in the three countries mentioned that they had attended a solar training course by GSES in Australia with funding from other projects in the past. The LCI Project activity in solar training in this Output has helped promote the SEAPI certification scheme in the 3 project countries. However, as the certification scheme is on a voluntary basis none of the 3 countries have adopted the scheme on mandatory basis. Moreover, the effectiveness is rather low based on the report by GSES that only one or two trainees out of 11-12 trainees that have taken the courses passed the test in each country. Some of the trainees dropped out after the first day of training.
144. The Project found that one of the major challenges for adoption of smart grid in these countries were the poor telecommunication systems.
145. Based on the Half Yearly Progress Report during 2015-2016, the Project reported on-going activity in development of Energy Road Map in Nauru and Niue by other donor funded projects. The level of involvement of the LCI Project appears to have been limited. The LCI Project has collaborated with UNDP on the preparation of the Nauru Household Electrical Appliances, Lights and End-Use Energy survey as a part of the implementation of the Nauru Energy Road Map. Nonetheless, an Energy Road Map is different from the Power Development Plan (PDP) that was included as part of Output 1.1. The Energy Road Map includes all energy sectors and lays out the country's strategy and work plan to meet its targets (that usually include renewable energy and energy efficiency targets). A Power Development Plan is generally developed by the power utilities or a committee that comprises government, power utilities and private sectors. The PDP focus only on the electricity planning for the utility (if it is state owned) or electricity sector (if there are more than one government owned and / or private sector power companies). The PDP generally includes a power demand forecast and the plan on how the utility(ies) will supply power to meet the projected demand. The PDP can also address load management matters including Demand-side Management (DSM) practices and supply related issues such as power quality, grid stability, and smart grid. Therefore, The Project involvement in the development of the Energy Road Maps for Nauru and Niue cannot be accounted for the achievement of this Output that called for "Electric Sector Plan/Power Development Plan integrated smart grid and DSM".
146. In the case of Tuvalu, the Project reported that the country will update its power development plan based on the results of a Renewable Impact Study which has been completed in July 2017. Other than the results from the Renewable Impact Study, the Project is not involved in the update or development of the power development plan. Tuvalu Electricity Corporation (TEC) expressed that it is interested in adopting smart grid and demand-side management practices. However, it will depend on the Cabinet whether these topics would be included in the next Cabinet meeting on the TEC power planning. There are uncertainties as to whether these two topics would be incorporated in the power development plan for TEC and if it does happen it is unlikely that this would be achieved within the project end date.
147. Based on the rating criteria in level of achievement, timeliness of output and ownership of output, the effectiveness of this Output is rated 30%.

Output 1.6 Capable, locally based private businesses and/or private-public partnerships to act as providers of low-carbon goods and services, including renewable energy technologies supply established

148. Activities under this Output include:
- 1.6.1- Market analysis for low carbon services,
 - 1.6.2 - In-country workshop for prospective providers, and
 - 1.6.3 - Private sector development plan for low carbon services.
149. There is no evidence that any activity has taken place under this Output. The objective was to enable local private sector entrepreneurs to enter the market for low carbon energy services by providing training and access to relevant information on technical and financial performance characteristics of renewable energy technologies that would be applicable to the local context including real life cycle cost analysis including depreciation and operation and maintenance costs. The Project has sub-contracted an Economist to design a financial mechanism under Output 2.2 as part of the Low Carbon Funds that have been established to subsidise the purchase of high-energy efficiency domestic appliances. The scope of work and deliveries of the Economist did not cover market analysis, training on grid-connected renewable energy technologies applicable to these countries and a development plan for locally-based private businesses and /or private-public partnerships to act as providers of low carbon energy goods and services involving embedded renewable energy technologies. All of these activities had been planned under the Project Document. The economist in charge of designing the Low Carbon Fund acknowledged the problematic scale of providing a facility for RE technology, and a workshop for access to EE technology was provided in each country regarding efficiency improvements through uptake of EE technology. This proves that revision of the logframe was much needed to reflect the fact that there is virtually no private sector in these countries with the needed technical and economic capacity to invest in grid connected renewable energy generation nor there is access to affordable financing.
150. Therefore, the achievement of this Output is assessed as 0%.

Factors affecting performance in Component 1

151. As a result of the challenges posed by the poorly designed budget⁶⁰ and overlapping activities with other projects, there are certain factors affecting performance of Component 1 in each country. These factors are described in more details in the follow paragraphs.
152. Increased grid-connected solar systems from foreign donors have changed the country energy situation and the context of the LCI Project that aimed to increase grid connected renewable energy in the three islands countries. This factor is particularly prominent in the case of Tuvalu where power generation from donated grid-connected solar systems will soon exceed power demand (at present, the country has 30% renewable energy in its power generation portfolio). This factor has affected the implementation of Output 1.4 in Tuvalu. Although, it should be noted that there is no long-term energy demand forecast conducted by the project. The report provides only forecast to the year 2025. The government has also not looked beyond its target in 2025.

⁶⁰ The PMU commented that the budget lines and outcomes were not clearly demarcated, and overlapping efforts took place to fulfil different elements of the outputs with the limited budget.

153. Limited local capacity of locally-based private business to act as providers of low-carbon energy goods and services has affected the implementation of Output 1.6. This problem stemmed from an inadequate stakeholder analysis during the design phase. The three project countries have small populations (around 10,000 in Tuvalu and Nauru and around 1,600 in Niue) with only 2-3 retail shops and limited number of electricians and mechanics. Private sector in these islands is comprised mostly of small household businesses producing handicrafts and local products. Given that the islands countries have such limited private sector capacity, it is highly unlikely that the Project could have been able to achieve Output 1.6 in “Capable, locally-based private businesses and/or private-public partnerships to act as providers of low-carbon goods and services, including RE supply established”, even if the Project had implemented all of the planned activities.
154. Other projects implementing similar activities have also affected project performance. The LCI project had been designed in 2009 but implementation only started in 2012. During this timeframe, several projects from other international agencies began working on similar activities and diverted the attentions of the key stakeholders in the three countries in particular at the government level. The Project itself also seems to have diverted its attention away from what has been planned and ended up by not implementing all of the activities that have been included in the Logical Framework.
155. The achievement of Component 1 assessed by the effectiveness of the deliveries of Outputs is concluded in Table 8 below.

Outputs	Niue	Nauru	Tuvalu	Achievement of Outputs ⁶¹
Output 1.1 Medium and long term Electricity plan	No activity	Household energy survey	No activity	30%
Output 1.2 Resource assessment and potential for energy conservation	Solar resource assessment	Solar resource assessment	Solar resource assessment	20%
Output 1.3 Feasibility for maximizing low carbon power system and capable of attracting investment	No activity	No activity	Renewable Resource Impact Study	20%
Output 1.4 Regulatory and legal framework for grid access & certification modalities for eligible embedded	On-going Draft of energy legislation in co-	Potential co-financing with ACSE	No activity	30%

⁶¹ Percentage of achievement of outputs reflects the approximate format used also in PIRs and is based on evidence available for the evaluators for making a comparison of actual achievement vs planned activities.

renewable energy technology	financing with SPC			
Output 1.5 Electricity sector plans strategies involving decentralized embedded renewable, energy efficiency and energy conservation	Household Energy Survey Solar Installation training	Solar Installation training	Solar Installation training	30%
Output 1.6 Capable Locally based private businesses and/or private-public partnerships to act as providers of low carbon energy goods and services including RE supply established	No activity	No activity	No activity	0%

Table 8 Summary of deliveries of outputs and level of achievement in Component 1

156. In summary, the main deliverables of Component 1 include the Household Energy Electrical Appliances, Lights and End-Use Energy survey for Nauru, Solar Resource Assessments in all three countries, and the Renewable Resource Impact Study for Tuvalu.
157. The deliverables that are still ongoing under Component 1 correspond to activities under Output 1.4 – “Regulatory legal framework for grid access and certification modalities for eligible embedded RETs”. As mentioned earlier, the government of Tuvalu decided against having this output implemented due to the large amount of grid-connected renewable energy generation that it has been installed by other donors. Drafting of energy legislation for Nauru and Niue has suffered important delays but it is now underway since the project has finally been able to establish partnerships with other agencies to undertake energy legislation drafting in Niue and Nauru.
158. The long delays in drafting new energy legislation has had a negative effect in allowing for the participation of the private sector in grid-connected renewable energy generation projects; a key ingredient of project outcome 2 – Feasibility of financing low-carbon energy technologies in small island settings demonstrated through investment from the private sector and/or public private partnerships.
159. Under Component 1, the Project has not completed two out of the six Outputs (1.5 and 1.6) and has partially achieved four out of the six Outputs. Output 1.1 and Output 1.2 have been partially achieved, are deemed to be of good quality and have been utilized by users (use of outputs - that could lead to Outcome 1.1⁶²). The 20% achievement of Output 1.3, was considered useful by users but it did not lead to the intended Output 1.1. Activities under Output 1.4 are still ongoing with potential to

⁶² Outcome 1.1 – National Energy Policy and Targets involving energy efficient end use technologies and decentralized embedded renewable energy based electricity generation systems developed and endorsed by Governments.

deliver a useful output. Actual delivery time is still uncertain but it is unlikely that it will happen before the end of the project.

160. Based on the above, Outputs delivered under Component 1 are rated Moderately Unsatisfactory (MU).

Overall rating of output delivery under component 1: Moderately Unsatisfactory (MU)

Component 2

161. The focus of Component 2 is on “Financing of Low Carbon Technologies”. The lead agencies in executing Component 2 are financial institutions in Tuvalu and Niue, while in Nauru the power utility has taken the executing role. The intended beneficiaries of Component 2 are private investors. Designed activities in this component aim to facilitate investment in renewable energy technologies by providing information, proving financial feasibility and generating access to affordable financing based on demonstrable tangible investments by private sector and / or public-private partnership stakeholders.
162. The expected outputs and indicators for Component 2 are described in Table 9 below.

Outputs	Indicators
Output 2.1: Existing data and information available through Centralized Clearing-house mechanism	<ul style="list-style-type: none"> • Knowledge management systems to provide information for low carbon investments are established within relevant agencies in the three countries and are made operational
Output 2.2: Feasibility of a low carbon subsidy fund assessed	<ul style="list-style-type: none"> • A low carbon power subsidy is established in each of the three counties and start accepting applications at the start of the 3rd year of the project
Output 2.3: Operational decentralized, embedded RET tested for its technical & operational viability, assessed of its techno-economic competitiveness and co-financed by investors	<ul style="list-style-type: none"> • Investment proposal for at least one RE (solar PV or wind) project for each country approved • One RE project has been approved for financing and installation by mid-term period of the project • Two operational embedded RET is installed in each of three countries before the project ends, which has been co-financed by investors, tested for technical& operational viability and assessed for techno-economic competitive

Table 9 Outputs and Indicators in Component 2

163. The results under each Output based on assessment of findings are described below.

Output 2.1: Existing data and information available through Centralized Clearing-house mechanism

164. Activities under this Output include:
- 2.1.1.- Collect all relevant data and information in electronic format,
 - 2.1.2 - Design Knowledge Management Systems, and
 - 2.1.3 - Populate Knowledge Management system with data.
165. The main delivery of Output 2.1 is website www.lowcarbonislands.org. The objective of the website is to become a knowledge platform for the Low Carbon Energy technology and Low Carbon Fund. The Project sub-contracted a company based in Fiji to develop and host the website and planned to use representatives from the Information Communication and Technology (ICT) Offices in each country to upload relevant data.
166. Although, the information platform (website) was set up, the website contents are considered inadequate and not considered useful for the intended users (see also para 167). The Executing Agency made ICT offices in each country responsible for data uploading. However, there seems to be lack of capability in the ICT offices and guidance from the Project. This Output is therefore deemed to be of low quality for intended users.
167. Originally, the knowledge platform was designed to provide information on renewable energy and energy efficiency technologies, financing options, and other information that could stimulate investment in renewable energy and energy efficiency. However, the Project had shifted its focus to target only energy efficiency investments based on the results of the study performed by the Economic Consultant that identified that investing in energy efficiency rather than in renewable energy generation had higher feasibility. Therefore, the website was designed to provide information on the Low Carbon Funds that were established in each country to subsidise the purchase of high-energy efficiency appliances⁶³. Consequently, the intended users for this platform were changed from private sector investors to households and/or general public.
168. In order to assess the usefulness of Output 2.1, statistics of website visits were reviewed. Oceanic Communications, the company that has been contracted to design and host the Website, provided a report with statistics on numbers of visitors and their origin covering the period between **1 August 2016 to 30 June 2017** (visits to the Website that took place after 30 June 2017, are not included in these statistics).
169. This report indicated that only 337 users have visited the website between 1 August 2016 and 30 June 2017 as shown in Figure 4 below. The number of visitors are counted by the number of visits and not by the actual persons who had visit the website. The same person who had visited the website multiple times are counted as multiple visitors.

⁶³ Tools were developed to help demand-side users assess their power bills and identify areas for efficiency

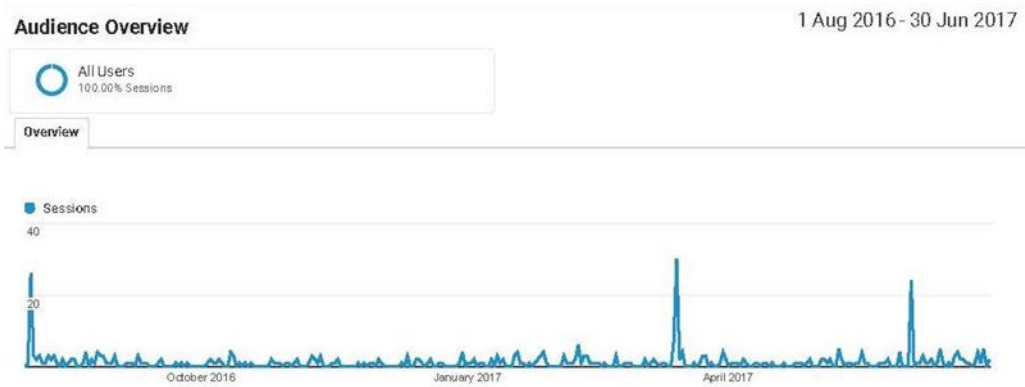


Figure 4 Website visitor sessions (Web Statistics Report, Oceanic Communication - June 2017)

170. Figure 5 below presents the top 10 countries from where the sessions took place based on the statistics provided to the evaluation team. Statistics of the website traffic indicate that the majority of the visitors were from Fiji. The statistics are based on the number of the sessions⁶⁴. Therefore, it is assumed that statistic presents visitors who spent more time and interaction on the Website on the top rank while visitors who had spent less time and less interaction on the Website are on the lower rank. Consequently, brief visits of Website from the three island countries are unlikely to be part of the top 10 countries and as a result, **as short visits are not shown in the statistics**⁶⁵.

Country	Sessions	% Sessions
1. Fiji	74	17.96%
2. Australia	68	16.50%
3. United States	44	10.68%
4. New Zealand	38	8.01%
5. Thailand	31	7.52%
6. Brazil	27	6.55%
7. China	17	4.18%
8. Malaysia	14	3.40%
9. France	11	2.67%
10. India	10	2.43%

Figure 5 Top 10 countries of Website session during 1 August 2016 to 30 June 2017

171. The key factor that affects the effectiveness of Output 2.1 is the selection of an appropriate channel for the information platform. The platform should be designed to deliver information to the target audiences through a suitable channel (see also para 172). Internet connection in the three islands countries was observed by the evaluation team to be relatively slow and expensive. In Tuvalu, for instance, the internet was only available in a small area near the government building in Funafuti. Using a Website as an information platform does not appear to be an appropriate

⁶⁴ A visit or session is defined as a series of page requests or, in the case of tags, image requests from the same uniquely identified client. A 30-minute limit ("time out") is used by many analytics tools but can be changed to another number of minutes. For example, when a user visit a website, the web analytic tool start counting the visit and expire if there is no interaction (click or pages) within 30 minutes but if the user stay inactive and make interaction at the minute 31, the web analytic tool count that it is the second sessions.

⁶⁵ Also, based on the project team comments their visits are not reflected in these statistics

channel based on the demographic profile of the population of these three islands and low internet accessibility.

172. The delivery of Output 2.1 is deemed to be of low quality for the intended users. There is a lack of ownership; prospective users have not been involved during preparation and the selection of the communication channel. An evaluation on how to select a more appropriate marketing channel (i.e., radio broadcast, flyers, events etc) could have assisted the Project in understanding that the key element of an effective communication channel is its ability to reach the intended users effectively. Therefore, Output 2.1 is assessed to have achieved only 20% based on its poor effectiveness.⁶⁶ (Other utilized communications channels are discussed under Component 3 outputs)

Output 2.2: Feasibility of a low carbon subsidy fund assessed

173. Activities under this output include:

- 2.2.1 Review of existing subsidies and incentive schemes,
- 2.2.2 Market assessment for low carbon technology investments, and
- 2.2.3 Feasibility and design of Low Carbon Energy Fund.

174. The project hired an independent consultant to design the Low Carbon Funds (LCFs). As stated in the Mission Reports, the LCF consultant held stakeholder consultations in the three countries during May 2015. The main objectives of these stakeholder consultations were to: (i) identify potential institutions to perform the task of fund manager, (ii) determine legal requirements that had to be taken into account in the design of suitable financial mechanisms and (iii) select the technologies types that would be eligible for the subsidy. The LCF consultant also met with retailers who would be involved in the financial scheme, as suppliers of technology/appliances.

175. The LCF consultant's mission reports also mention that meetings took place with the Broadcast Office in Nauru and the Waste Management Department in Tuvalu. The issue of waste handling was discussed in Tuvalu since there is an on-going initiative of an Energy Efficiency Loan Fund (EELF) by the Energy, Ecosystems, and Sustainable Livelihood (EESLI)⁶⁷ project. The replacement of existing low-efficiency appliances with high efficiency ones will generate electronic waste in the islands that have no capacity in recycling and degassing the refrigerants from old fridges and freezers.

176. The selection criteria for technologies to be subsidized by the LCFs included Accessibility, Affordability, Effectiveness, and Familiarity. The technologies that passed these criteria were solar water heaters and energy efficient appliances.

177. The low carbon subsidy funds were designed as financial mechanism to stimulate purchase of high energy efficiency appliances. The subsidy schemes of the LCFs, that are slightly different in each country, are as follows:

- Tuvalu: (1) 25% rebate; or (2) 3% interest loan and 10% rebate;
- Nauru: 30% rebate and no loan option provided; and
- Niue: (1) 25% rebate; or (2) 0% interest loan and 10% rebate.

⁶⁶ Based on the PMU comments roadshows were conducted in Niue in each village the Low Carbon Vehicle to discuss the Low Carbon Fund (television news broadcasts, and flyers were all included in the process).

⁶⁷ The EESLI project started in 2008 and is part of a larger programme being funded by the Government of Italy (Ministry of Environment, Land and Sea and Ministry of Foreign Affairs), in collaboration with the Government of Austria and the City of Milan.

178. The original design of the fund was to provide revolving loan fund for investment of renewable energy systems.⁶⁸ The assessment of feasible technologies conducted by the economist consultant showed that only solar water heaters and energy efficient appliances were preferred by the local stakeholders. Evaluation found that as IUCN has on-going financial schemes under the Energy, Ecosystems, and Sustainable Livelihood Initiative (EESLI) in Federated States of Micronesia, Palau, Tonga and Tuvalu, stakeholders in Tuvalu deemed that the fund in LCI project can supplement the Energy Efficiency LF Revolving Fund (EERF) scheme. In addition, the local banks have limited capacity and capability in management and handling of Revolving Loan Funds, the PMU and key stakeholders (banks) decided to apply adaptive management and convert the planned revolving fund for renewable systems into a rebate program for energy efficient appliances in the LCI project countries (Nauru, Niue and Tuvalu) as a replication of the EELF fund.
179. One of the major drawbacks of the LCFs design is that after converting to a rebate program, the fund still made attempts to maintain the essence of revolving loan fund but in reality, the fund cannot be revolved⁶⁹. By providing subsidies of 25-30% of the purchase price plus fund administration costs⁷⁰, the funds will need to be replenished over time since while providing subsidies they will not act as a revolving fund. Consequently, the Project decided to design a mechanism to help support the fund with rental fees from three solar powered bicycle solar and pedal hybrid vehicles manufactured by a US company under the name of ELF⁷¹. The Project had purchased one ELF for each of the three countries. However, the ELFs in all three countries appear to have failed in terms of income generation and technical capability. During the missions evaluation team did not observe any advertisement for ELF rental. The opportunity for renting is also very low in Nauru and Tuvalu where the tourism sector is underdeveloped. Furthermore, these vehicles have experienced technical problems stemming from the lack of sturdiness⁷². The weight of the driver tends to sink the rear suspension and as a result the rear wheel ends up scraping the inside of the mudguard causing loud noise and eventually damaging the rear wheel. At the time of the mission, the vehicles in Tuvalu and Nauru are not functioning and are waiting for spare wheels that have to be imported from either Fiji or New Zealand. The one for Niue was being used for road shows but it has not generated any rental income nor is it likely to do it in the future based upon the comments received from local stakeholders.

⁶⁸ As per the project team the project followed consultant's recommendations in terms of the development of the fund.

⁶⁹ The fund for promoting the purchase of energy efficient appliances was not included during the project design/inception stage since the initial intent was to promote the financing of grid-connected electricity generation. Consultants recommendations were the first substantive input to define the fund design

⁷⁰ In the case of Niue, the Niue Development Bank is charging \$NZ 100 commission per transaction which equates to close to 35% of an average rebate based on the rebates that have been granted so far.

⁷¹ <https://organictransit.com/>

⁷² The vehicles have a rated load of at least 500lbs, so it is unlikely passenger weight impacted the frame so the cause may be related to poor road conditions or a combination of both. Tires and tubes have been ordered to put the vehicle back in operation.



Figure 6 ELF in Tuvalu

180. Evaluation notes that it would have been more effective if these funds had been designed as rebate programmes and not as a revolving loan fund from the beginning in the Project Document. Adaptive management was applied but project did not have an adequate study and proper design for the rebate program. Generally, in order to set up a rebate programme a detailed market assessment needs to be undertaken and retailers of the target appliances need to be involved. The Project had conducted a cost-benefit analysis that estimated the amount of energy savings and CO₂ avoidance. These projections were based on setting up a fund of USD 90,000 for each country. Appliance costs were based on the retail prices for appliances in New Zealand and Australia plus a transportation cost of 15%. However, there is no evidence that the Project conducted market assessment or study on the import statistics of these appliances. The rate of import could have been obtained by cooperating with local retailers or the custom departments. There are also data readily available on the website of the Pacific Community (SPC) which has been working on standard and labelling of appliances. The Project had merely assumed the fund to be disbursed in 5 years at the rate of 15%, 30%, 25%, 20%, and 10% for years 1 to 5, respectively. The rate of fund disbursement should have been correlated with the import statistics.
181. Evaluation team acknowledges the involvement of the retailers during the project missions and consultants work (see paragraph 174), nevertheless the evaluation concludes that fund design did not take sufficiently into account retailers that are considered to be one critical stakeholder group. In a rebate programme, the capacity, energy efficiency knowledge and commitment to pricing of the participating retailers should be assessed up front. The rebate programme needs to be carefully designed to avoid that retailers take advantage of the rebate programme by increasing the prices of appliances in anticipation of the rebates that customers will obtain from the Low Carbon Fund.
182. Based on the findings during the evaluation mission, the retailers in the three countries do not appear to be fully aware of the rebate programme and so far have not imported high energy efficiency appliances except Tuvalu that has enforced MEPS since April 2017 under the initiative of the Pacific Community (SPC). Hence, the evaluation team assessed that disbursement rate of the Low Carbon Funds has been very low as a result of lack of awareness from retailers and potential customers. However, based on additional evidence at the time of the evaluation report review process fund activity has started to pick up in the three countries.
183. Activity 2.2.2 “Market for low carbon investment defined” has not been implemented. It should also be noted that although this activity is listed in the project Work plan and

Time Schedule, there is no elaboration of the marketing activity in the Project Document.

184. The evaluation notes that based on the project document the overall objective of Component 2 is to prove the feasibility of financing low-carbon energy technologies through tangible investment by private sector and / or public-private partnership stakeholders. As part of this Component, the Project was expected to fund the installation of embedded renewable energy pilot generation projects in the three countries. Furthermore the target that has been included in the Logical Framework for Output 2.1 calls for “a comprehensive report on options and issues related to the establishment of a subsidy fund for private sector renewable energy investment is completed and presented to developing partners by the end of 2013. Low-carbon power fund operational by end of project”. Based on the above, it is clear that the original intent of the Project was to establish a power subsidy fund oriented towards facilitating investment in grid-connected renewable energy generation by the private sector as well as to promote energy efficiency, something that has not been achieved.
185. The Project had completed the pilots intending to contribute to delivery of “Feasibility of a low carbon subsidy fund assessed” in this case only to promote energy efficiency and not investments in renewable energy generation. Aside from not addressing renewable energy generation, the design of the Low Carbon Funds that have been established is considered to lack several essential parts such as market assessment, rate of disbursement, import statistics, price structure and retailers cooperation. The decision to have the electric vehicle (ELF) to replenish the fund from their rental fee is unreasonable. The fund performance is assessed to be poor based on the low disbursement rate of the fund attained in all the three countries. Based on the findings during the Evaluation missions that took place in June 2017, there were between 2 to 9 applications depending of the country⁷³. The Project had to make no-cost extension of the project end date to December 2017 and hopes to disburse additional funds during the remaining time. Nonetheless, the effectiveness of the Output is assessed at the time the Terminal Evaluation is conducted. The Evaluation Team cannot credit future activity that may or may not happen into the assessment⁷⁴. As such the evaluation considers that the Output 2.2 is delivered 40 %. The content of the output has been revised during the course of project implementation, but these changes were not reflected in the formal log frame. The delivery under this output has not responded to the original purpose of it.

Output 2.3: Operational decentralized, embedded renewable energy technologies (RETs) tested for its technical & operational viability, assessed of its techno-economic competitiveness and co-financed by investors

186. Activities under this Output include:
- 2.3.1 Selection of demonstration projects through call for proposals,
 - 2.3.1 Design assistance to developers, and
 - 2.3.3 Co-financing of Investments.

⁷³ According to the Executing Agency as of December 2017 approved applications for the LCF have continue to increase as follows: Tuvalu 10, Nauru 5 and Niue 24 plus another 12 applications under review.

⁷⁴ Based on the stakeholder feedback IUCN's EESLI programme is expected to continue monitoring mitigation impacts of the Low Carbon Fund on a quarterly basis until the funds are extinguished.

187. The Project did not perform activities according to the designed work plan. This is due to limited capacities and capabilities of the private sector in the three countries (Niue, Nauru, and Tuvalu). The small Pacific Island Countries generally rely on foreign aid and have limited capabilities and capacity at the private sector level. Mission reports of PMU's annual visits to the countries stated that the PMU had inquired some potential investors such as local stores with high consumption of electricity. A couple of sites had shown interest as the installation of solar systems would help offset their electricity bills. However, the co-financing of solar investment has not taken place as planned. The evaluation team has not been provided with clear reasoning why this has not taken place. The evaluation team presumes that there were deficiencies in coordination and communication hindering the process. PMU members visited the countries 2-3 times per year and the islands don't have local coordinators to follow-up the activities. The evaluation view is that this is not a sufficient coordination mechanism for implementing such pilots.
188. There was also no evidence of financial analysis to further convince and conclude the deal with the potential investors. Moreover, investment in grid-connected renewable energy systems require grid-interconnection legislation that allowing private sector investors to connect to the grid with permission from the power utility. The 'Output 1.4 Regulatory / legal framework for grid access & certification scheme for eligible embedded renewable energy technologies' has not been achieved. Without legal enforcement, the private solar system connection to the grid even as a demonstration can be objected by the local power utilities. Most of the existing solar systems in the countries are donated by foreign aids. The ownership of the solar systems are transferred to the governments and/or power utilities. The power utilities have no objection to the solar systems as they are the ones that own and have full control of the systems. Based on a project mission report, there is a private solar system in Niue but it is off-grid. The project made a primary survey with the potential investors and concluded that there are about 2-3 sites in each country.⁷⁵ In view of the evaluation team, there should have been a thorough market analysis to identify the actual potential market size.
189. Consequently, the Project had installed three 5 kW solar systems, one in each country (see Figure 7 and Figure 8 below for the pilot solar systems installed in Nauru and Niue). As it is fully financed by the project, there is no private sector co-finance. The power utilities are the ones who identify the demonstration site and therefore, there is no call for proposal. The design of the solar system was made by the solar training company. Therefore, the project adapted all activities under this output. The main purpose of these solar systems was changed to provide hands-on training of solar installation and maintenance. The Project had sub-contracted a solar company in Australia to conduct the training and supervising installation of the systems in the three countries. The procurement of the equipment was based on a competitive bidding process. A solar company in Fiji won the bid to supply the equipment for the three countries.

⁷⁵ Mission reports



Figure 7 5kW solar installation at the at the roof of the Od'n Aiwo Hotel in Nauru



Figure 8 5kW solar installation at Stone Villa in Alofi, Niue

190. Overall, the Project had successfully tested three solar systems for their technical and operational viability. However, by not having regulatory and legal system in place, and with no private sector participation in the ownership of these projects, it has not been possible to assess the financial feasibility of these investments, as had been planned.
191. Without co-financing from investors, the delivery of this Output is considered to have achieved 50% of its target.

Factors affecting performance in Component 2

192. Limited financial sectors and their capacity and capability have affected the performance in Output 2.2. Tuvalu and Niue has only one commercial and one development bank while Nauru has just had a bank set up recently. The banks in Tuvalu and Niue have limited capacity and lack of capability in handling loans related to renewable energy technologies (RETs). These banks usually handle typical money transactions such as overseas money transfers or cash deposits and withdrawals.⁷⁶ According to interviews with the banks, there are very few cases of loan as the interest rate in these countries are very high. The bank in Nauru did not have capacity

⁷⁶ National Bank of Tuvalu and Niue Development Bank

to handle the management of the Low Carbon Fund and hence this task was assigned to the power utility (NUC) instead.

193. There are different reasons for the lack of private sector involvement in Output 2.3.

- In Niue, a private investor has installed a solar PV system and a small wind power unit that generates electricity at his personal property. showing potential of private sector investment. However, the installation is off-grid due to the lack of grid-connected legislation and this person has an in-depth knowledge of how these systems work. The delay in delivery of Output 1.4 has been the key factor affecting the full implementation of Output 2.3⁷⁷.
- In Nauru, electricity rates have been subsidized by the government for years. With its current financial situation, the Nauru government can no longer continue providing such subsidies. However, people have gotten used to having low electricity rates and are not ready for a rate restructure. This is an ongoing issue of high political sensitivity. With low electricity rates and no incentives such as favourable feed-in tariff in place⁷⁸, it is unlikely that the private sector would be interested to invest in renewable energy. With the anticipated increase in electricity price once subsidies are withdrawn, there would be an interest to invest in Renewable Energy Technology to cut down on the costs.
- In Tuvalu, the country has received solar systems from foreign donor agencies and as a result the current solar power generation is 40% of the country power demand. Additional wind and solar systems will be donated and installed in the next coming years to the extent that it is estimated that renewable power generation might exceed demand. The power utility is considering installing a battery bank to store excess energy. As a result, Tuvalu is in no need of additional renewable systems from private investment to connect to its power grid.

194. The achievement of Component 2 assessed by the effectiveness of the deliveries is summarized in Table 10 below.

Outputs	Niue	Nauru	Tuvalu	Level of Achievement
Output 2.1: Existing data and information available through Centralized Clearing-house mechanism	Website	Website	Website	20% ⁷⁹

⁷⁷ Technical feasibility of installing grid-connected renewable energy generation has been proven, though financial viability has yet to be demonstrated.

⁷⁸ On January 26th 2017, at the request of Nauru Utility Corp. (NUC), Cabinet approved a buy back electricity tariff of AU\$0.2005 per kWh of excess energy purchased from the customer and authorized the CEO of NUC to sign the PPA and Roof Top Agreement (where applicable) on NUC's behalf. This buy back electricity tariffs is comparable to the electricity tariff applicable to domestic users with a consumption of up to 300kWh per month of AU\$ 0.20 per kWh. However, it is substantially below the electricity tariff of AU\$ 0.70 per kWh that applies to domestic users for energy consumption in excess of 300 kWh and also to commercial and government users, irrespective of the level of monthly consumption.

⁷⁹ Evaluation office consider this output as delivered

Output 2.2: Feasibility of a low carbon subsidy fund assessed	Low Carbon Fund	Low Carbon Fund	Low Carbon Fund	40% ⁸⁰
Output 2.3: Operational decentralized, embedded RET tested for its technical & operational viability, assessed of its techno-economic competitiveness and co-financed by investors	5 kW solar system	5 kW solar system	5 kW solar system	50%

Table 10 Summary of deliveries of Outputs and level of achievement in Component 2

195. The deliveries of this component include:

- Output 2.1 - Website (www.lowcarbonfund.org),
- Output 2.2 - Low Carbon Funds and
- Output 2.3 - Solar systems.

196. Output 2.1 has been delivered low quality and appears to have low usability to the intended users.

197. Output 2.2 has been delivered late for its intended use.

198. Output 2.3 has only achieved part of the intended target by installing solar systems but they were not co-financed by private sector, as it has been planned⁸¹.

199. Based on the above, the effectiveness of Output delivery under Component 2 is rated as Moderately Unsatisfactory.

Overall rating of output delivery under Component 2: Moderately Unsatisfactory (MU)

Component 3

200. Component 3 covers the aspect of “Awareness of low-carbon energy utilization and supply technologies of policy makers, potential markets and investors deepened and capacity to promote low carbon energy supply established”.

201. The expected outputs of Component 3 are described in Table 11 below.

Outputs	Indicators
<ul style="list-style-type: none"> • Output 3.1: Training programme in management and administration of low carbon investments for government personal and private sector 	<ul style="list-style-type: none"> • Two training courses on management and administration of low-carbon investments targeting government personnel and private sector participants. The first one at mid-term period of the project; and

⁸⁰ Evaluation Office considers output 2.2. has been delivered considering that focus of the funds were revised following the recommendations of the consultant (adaptive management). At the same time Evaluation Office acknowledges that by doing so the purpose of these pilot changed from the original purpose.

⁸¹ Co-financing was not suitable, based upon feedback from private sector on interaction with PIGGAREP, and in-kind support was provided through use of roof space for training exercises by certification course participants. The log frame should have been revised accordingly to reflect these circumstances and it has not been done.

	<p>the second one, a year after the first training course.</p> <ul style="list-style-type: none"> • At least a total of five to eight people in each country participated in these training courses.
<ul style="list-style-type: none"> • Output 3.2: Investment Promotion Package assessed and developed 	<ul style="list-style-type: none"> • Investment promotion packages to stimulate investments thru low carbon power funds are published and distributed starting the second year of the project, including establishment of a website. • Increase of inquiries on investment received and increase in number of investment application.
<ul style="list-style-type: none"> • Output 3.3: Regulatory capacities of government personnel are enhanced 	<ul style="list-style-type: none"> • Technical training programs for staff of regulatory agencies are conducted; the first one at mid-term period of the project.
<ul style="list-style-type: none"> • Output 3.4: Public awareness and education campaigns launched and skills firmly established 	<ul style="list-style-type: none"> • Public awareness campaigns on internet and print media are conducted starting the second year of the project. • Increase number of inquiries from the public about low-carbon energy
<ul style="list-style-type: none"> • Output 3.5 Sub-regional and exchange of data information and skills firmly established 	<ul style="list-style-type: none"> • Sub-regional cooperation mechanisms for exchange of data and information are designed, tested and made operational by the mid-term period of the project • Increase number of users of data and information and increase number of project idea received.

Table 11 Outputs and indicators of Component 3.

202. The beneficiaries in Component 3 include government personnel, and regulatory agencies who would receive training; private investors who would benefit from the investment packages and general public who would be more educated on the benefits of low carbon energy.

Output 3.1: Training programme in management and administration of low carbon investments for government personal and private sector

203. Activities in this Output include

- 3.1.1 - Training needs assessment,
- 3.1.2 - National training courses low carbon energy, and
- 3.1.3 - Regional training workshop.

204. The Project has conducted training workshops for the fund managers in each country (Niue Development Bank, Nauru Utility Corporation, and Development Bank of Tuvalu). Although, the target audiences were different from what it was included in the work plan, it proved more reasonable to train the fund managers, rather than provide training to the government personal and private sector that would not be directly involved in the management and administration of Low Carbon Funds.
205. Although, the Project did not perform activity 3.1.1 and 3.1.3, the main result in training of management and administration of the fund for the fund managers (banks in Niue and Tuvalu and power utility in Nauru) is deemed to be adequate to enable the fund administration locally. The original design targeted training to government personnel and private sector. Their role is limited in the actual management and administration of fund. In view of the Evaluation team, the Project has made appropriated adaptive management.
206. This Output is assessed to have achieved 100% of the intended delivery.

Output 3.2: Investment Promotion Package assessed and developed

207. Activities in this Output include:
- 3.2.1 - Investment Promotion package and
 - 3.2.2 - National Investor Forums.
208. The work plan in the Project Document for activity 3.2.1 includes creation and distribution of a “low Carbon Investment package” aimed at stimulating investment through comprehensive and attractively presented information including a promotion of the Low Carbon Fund as a means to finance investment.
209. Therefore, activities under this Output were designed to “promote” the result of Output 2.2 (Low Carbon Fund).
210. During the implementation of Output 2.2 in designing of the Low Carbon Fund, the project had hired an independent consultant to review the appropriate financial mechanisms. The consultant had also recommended the design of an Effective Communication Strategy to convey to the public the benefits of this initiative. The recommendation was to include shorts advertisements on local radio and TV, promotion through the Chamber of Commerce mailing list, brochures to be distributed by bank and retailers that are part of the initiative, promotion by local retailers and organization of launch event.
211. Based on the project team feedback, interviews were conducted in Nauru and Niue to support promotion of the Funds (see output 2.2.), interviews were given and radio promotional material was distributed to each country for dissemination. Nevertheless the evaluation did not find evidence of an investment promotion package which would have been developed based on an effective communication strategy identifying the most suitable communication channels to reach the target audiences.
212. The fund managers in each country had put up radio broadcasts⁸² but evidently the frequency of broadcasting has not been sufficient and/or the key message has not been designed to appropriately reach the target audiences, since awareness among the public appears to remain low based on evidence collected during in country

⁸² Also an interview in Niue local news was given on LCF

missions. The mission interviews indicated that level of knowledge concerning the LCF was low among those that were not directly involved in project implementation.

213. The Project provided flyer designs to fund managers. Nevertheless evaluation found that additional channels to reach the target audiences could have been utilized more effectively. Distribution of pamphlets in the places often visited by community members often such as banks, churches, retail stores, and petrol stations, is an example of a more effective channel for an awareness raising campaign in these small islands countries. No analysis appears to have been done to put together an investment promotion package. In the end promotion of the Low Carbon Funds has mostly been done by the fund managers, as an ad hoc activity.
214. The Project has invited private sector associations in each country to the Low Carbon Fund workshops that have been held in each country. The Project has also conducted private meetings with these associations. However, this proved to be an ineffective communication channel since now the target group of the Low Carbon Fund are households and small businesses who will potentially purchase high efficiency appliances and not private investors looking to invest in renewable energy systems.
215. There is also no evidence of any activity in this Output such as a report on Communication Strategy that can be counted as "Investment Promotion Package assessed and developed". Therefore, the results of this Output is assessed to have reach only 20% of its intended target.

Output 3.3: Regulatory capacities of government personnel are enhanced

216. Activities in this Output include:
 - 3.3.1 - Regulatory review,
 - 3.3.2 - Partnership with regulator in Australia or New Zealand,
 - 3.3.3 - National regulatory training, and
 - 3.3.4 - Sub-regional workshop on low carbon regulatory issues.
217. The Project has organized an Independent Power Producer/Power Purchase Agreement (IPP/PPA) workshop in Nadi, Fiji during 28-29 October 2015. Participants of the workshop include government personnel and power utilities from Niue, Nauru and Tuvalu. Trainers included an individual renewable energy consultant, UNDP, Pacific Power Association (PPA), Fiji Electricity Authority (FEA) and Sunergise, a Fiji-based solar company.
218. The topics of the workshop included renewable energy technologies both on-grid and off-grid, Independent Power Producers and grid interconnection schemes, Power Purchase Agreements, grid stability issues and solutions, customer charge and tariff structures.
219. Since the workshop has been organized as a conference rather than as a training workshop, there was no evaluation report of the training available. Therefore, level of enhanced capacity cannot be assessed. However, based on the results of interviews of the Evaluation team with the government and power utility personnel in the three countries, the targeted audiences seem to have had some knowledge and concept of the IPP and PPA issues.
220. The evaluation found that government and power utilities from the three project countries were asked about their energy policy and grid access issues. Nevertheless there wasn't a report that concludes the findings and could be counted as Activity

3.1.1. “a regulatory review”. Activity 3.3.2 was not performed as there was no evidence of partnership with Australia and New Zealand. Activity 3.3.3. was also not performed as the Project decided to conduct a sub-regional training, rather than a national training in each country, mainly due to limited budget. Although only one of the planned activities (Activity 3.3.4) was conducted, the evaluation assesses that the project delivered in satisfactory manner against the Output target of “Regulatory capacity of government personnel are enhanced”.

221. Based on the above, with the emphasis on the knowledge levels of the personnel the delivery of this Output is assessed to have achieved 100%.

Output 3.4: Public awareness and education campaigns launched and skills firmly established

222. Activities in this Output include:

- 3.4.1 - Public Relation (PR) Strategy,
- 3.4.2 - Development and implementation of school program, and
- 3.4.3 - General PR Campaign (print media, radio, TV, internet).

223. The main delivery under Output 3.4 are the school programmes that have been conducted with poster and essay contests in Niue and Nauru. This activity has not been implemented in Tuvalu, where there appears to be limited capacity at the Ministry of Education of Tuvalu.

224. The Project had contracted a consultant to provide (1) English translation of audio narrations from a French language video series and (2) English translation of a cartoon on Bioclimatic House from French language. The content of the Bioclimatic House cartoon is about an energy-efficient house using appropriate architectural design such as passive cooling and natural lights. These contents, covering aspects of energy conservation, are not seen to be aligned with the project objective of promoting the use of low carbon energy technologies. According to the Project Document, this Output was designed to “generate demand for low carbon technologies and complementing the efforts to make these technologies available”. Therefore, the printed media content should have been designed to increase awareness of the eligible appliances in the Low Carbon Fund, standards and labelling of appliances, and energy saving from high efficiency appliances. The contents of energy efficient appliances and household energy usage were made available on the Project website ‘www.lowcarbonenergy.org’. However, with limited access to the internet, this channel appears to be ineffective. According to the key stakeholders in Tuvalu, there were 3-4 radio broadcasts about the Low Carbon Fund. Followed by about 10 inquiries about the fund. Radio broadcasting appears to be an effective communication channel. Nevertheless the evaluation assesses that further efforts should have been taken in this area.

225. The evaluation view is that printed media such as brochures and pamphlets in local languages would have better reached the target audiences. Evaluation assesses that the Bioclimatic House Cartoon does not serve the intended purpose.

226. The Project has succeeded in implementing an “education campaign” in poster and essay contest in schools in Nauru and Niue. The radio broadcasts in Tuvalu cannot be counted as activity in this Output as it was about the Low Carbon Fund and not awareness of renewable energy and energy efficiency. Since public awareness campaigns have not been effectively implemented and there was no Public relation strategy developed and no evidence of renewable energy and energy efficiency

courses approved by the Ministry of Education and adopted into the school curriculum. The Project is assessed to have achieved 40% of this Output.

Output 3.5 Sub-regional and exchange of data information and skills firmly established

227. Activities in this Output include
- 3.5.1 - Regional Meetings and
 - 3.5.2 - Data Exchange, Publication, Media.
228. The main intention of this Output is to establish a mechanism for cooperation and data exchange among the three countries and to allow for dissemination of lesson learned to other small islands countries in the region and around the world.
229. There is an existing tool developed by the Pacific Community (SPC) called Pacific Regional Data Repository (PRDR) under the Sustainable Energy for All initiative. The PRDR website provide energy data and project information of the countries in the Pacific region. The LCI Project has been cooperating with the SPC in providing information from the LCI Project to be uploaded on the PRDR website.
230. The LCI Project has been attending regional meetings⁸³ and also organized a workshop on IPP/PPA that support information exchange among the Project countries. The Project has also work closely with SPC who is one of its partner in providing information for the PRDR.
231. This Output is considered to have achieved 100% of the intended target.

Factors affecting performance in Component 3

232. Having in-country coordinators may have contributed to the implementation of education campaign in Tuvalu. The government of Niue then appointed a local coordinator from its Project Coordination & Management Unit but this has not been the case in the other two countries. As the Project did not seek further local consultants in Nauru and Tuvalu, limited human resources (capacity and capability of local personnel) for project coordination is one of the key factors that affect project implementation in small islands countries in the Pacific region.
233. The achievement of Component 3 assessed by the effectiveness of the deliveries is summarized in Table 12 below.

Outputs	Niue	Nauru	Tuvalu	Level of Achievement
• Output 3.1: Training programme in management and administration of low carbon investments for government personal and private sector	Training for Fund manager	Training for Fund manager	Training for Fund manager	100%
• Output 3.2: Investment Promotion Package assessed and developed	Few radio Broadcasts	Few radio Broadcasts	Few radio Broadcasts	20%

⁸³ Regional meetings such as the IRENA/SPC meeting and the PCREEE meeting in Q4 2017 serve as additional opportunities for project partners to discuss LCI.

• Output 3.3: Regulatory capacities of government personnel are enhanced	IPP/PPA workshop	IPP/PPA workshop	IPP/PPA workshop	100%
• Output 3.4: Public awareness and education campaigns launched and skills firmly established	School essay and poster contest and school curriculum	School essay and poster contest and school curriculum	No activity	40%
• Output 3.5 Sub-regional and exchange of data information and skills firmly established	Cooperation with SPC in PRDR website	Cooperation with SPC in PRDR website	Cooperation with SPC in PRDR website	100%

Table 12 Summary of deliveries of Outputs and level of achievement in Component 3

Overall rating of the output delivery under Component 3: Moderately Satisfactory (MS)

234. The project was successful in setting up one grid-connected solar PV project albeit with no private sector participation on the investment⁸⁴ and without proving its financial feasibility as well as in establishing a Low Carbon Fund in each of the three countries but only oriented towards promoting energy conservation. However, out of the 14 intended outputs only 3 outputs related to awareness raising have been delivered at 100%, 9 outputs have been partially delivered with completions between 20 and 50%, whereas 2 key outputs have not been delivered at all. The project has also included an unintended output which has been delivered partially but without generating its intended contribution.

Overall rating of the project output delivery is rated Moderately Unsatisfactory (MU)

4.4.2 Achievement of direct, medium term outcomes and intermediate states

235. As discussed in Section 4, the LCI project sought to achieve seven direct outcomes that are expected to contribute to two medium term outcomes and two intermediate states as shown in *Figure 3*.

236. The evaluation of the achievement of direct and medium term outcomes is based on the extent to which the direct and medium term outcomes identified in the reconstructed TOC have been attained and to what extent the related drivers and assumptions hold. The above analysis regarding the delivery of intended project outputs will inform the analysis of direct outcomes.

Direct Outcome 1.1 – National Energy Policy and Targets are developed and endorsed by government

237. The LCI project has been moderately successful in getting the governments in the three countries to develop and endorse a national energy policy and targets involving

⁸⁴ Private sector participation was limited to their role in identifying a site for each country to serve as a recipient of grid-connected solar PV.

energy efficient end-use technologies and renewable energy-based electricity generation strategies.

238. Resource assessments were conducted by the LCI project for solar through AWS TruePower in all three countries in 2014. Resource projections were provided to utilities and uploaded to the Pacific Regional Data Repository covering solar and wind data (see also para 122). Potential for Energy conservation should be further examined to improve demand side management (DSM) efforts.
239. Nauru and Niue have developed energy road maps that have been endorsed by their governments including the establishment of renewable energy penetration targets, and in the case of Nauru and Niue additional work is currently being done to update these energy road maps which are being funded by other donors. However, the participation of the LCI project has been limited. In Tuvalu, the government is developing a National Development Plan that covers energy sectors. LCI project also has limited role.
240. The participation of the LCI project in the preparation of these energy road maps has varied from country to country as follows:
 - **Nauru** - The LCI project jointly with a team of experts from the Secretariat of the Pacific Countries, GIZ, IRENA, UNDP and Pacific Power Association participated in the development of the Nauru Energy Road Map (NERM) 2014-2020 that has been endorsed by government. An review and update of the NERM 2014- 2020 is currently underway with the support of the ACSE project and UNDP. This effort will include the review and drafting of energy legislation, a key output under Component 1 that has yet to be completed.
 - **Niue** – In the case of the Niue Strategic Energy Road Map (NiSERM), that outlines Niue’s aspiration to meet 80% of its electricity needs from renewable energy sources by 2025, the participation of the LCI project provided inputs and edited the final draft before its publication. The NiSERM was prepared by Secretariat of the Pacific Community (SPC) and has been adopted by government.
 - **Tuvalu** – During the inception meeting in 2013, the government of Tuvalu mentioned that several Outputs under Component 1 were unnecessary. Instead of activities under the six Outputs that support RE grid integration, energy efficiency, and energy conservation, the LCI project has supported Tuvalu with a Renewable Resource Impact Study that focuses on the study of the optimized size of battery bank for the upcoming solar and wind projects and their impacts on the power quality (voltage and frequency).
241. The assumption that was needed to move from outputs to direct outcome 1: “Governments remain committed” continues to be in place for the three countries.
242. Direct Outcome 1.1 has been partially achieved as a result of project interventions.

Direct Outcome 1.2 – Regulatory and legal framework for renewable energy grid interconnection endorsed by governments and accepted by power utilities

243. The participation of the LCI project in getting the governments of Nauru and Niue to endorse regulatory and legal frameworks for grid-connected renewable energy generation has produced partial results. These include:
- the inception meetings that have been held in both countries between the IUCN Environmental Law Coordinator and the legal departments of the respective governments,
 - certain steps that the governments of Niue and Nauru have taken to remove certain barriers to the widespread utilisation of grid-connected renewable energy generation by the private sector, and
 - recent agreements that the LCI project has made with other donors to undertake the review and drafting of a regulatory and legal framework for renewable energy grid-interconnection, as discussed below.
244. In the case of Nauru, the government has taken a step forward and on January 26th 2017, at the request of Nauru Utilities Corp (NUC), Cabinet approved a buy back electricity tariff of AU\$0.2005 per kWh of excess energy purchased from the customer. In addition Cabinet authorized the CEO of NUC to sign Power Purchase Agreements and Roof Top Agreements (where applicable) on NUC's behalf.
245. This buy back electricity tariff is comparable to the electricity tariff applicable to domestic users with a consumption of up to 300kWh per month of AU\$ 0.20 per kWh. However, it is substantially below the electricity tariff of AU\$ 0.70 per kWh that applies to domestic users for energy consumption in excess of 300 kWh and also to commercial and government users, irrespective of the level of monthly consumption.
246. The gap between the buy-back electricity tariff and the electricity tariff that is being applied to domestic users that consume more than 300kWh per month and to commercial and government users is large enough to allow for the approval of a higher buy-back electricity tariff. This would provide a higher incentive to private sector users to invest in grid-connected solar PV applications and still be beneficial to NUC provided that the buy-back electricity tariff is set above the marginal electricity generating cost of NUC. No indication has been provided of the actual marginal cost structure of NUC.
247. The approval of the buy-back electricity tariff and giving the CEO of NUC authority to sign Power Purchase Agreements and Roof Top Agreements (for which there are no approved drafts yet) is viewed as a step in the right direction.
248. The review and drafting of a regulatory and legal framework for renewable energy grid interconnection is currently under way with the assistance UNDP acting as the implementation agency of the ACSE project and IUCN.
249. In the case of Niue, in March 2016, Cabinet approved the need to review the Electric Power Supply Act 1960 (EPSA 1960) in order to incorporate: (i) renewable energy, (ii) energy efficiency, energy (iii) labelling standards, (iv) prepaid meters, and (v) management of the generation, transmission and distribution network to capture the current operations and future needs. Cabinet also accepted the technical assistance offer from SPC to review and draft the new EPSA for Niue.

250. On 9 August 2016, Cabinet endorsed the signing of the Memorandum of Agreement between the SPC's Economic Development Division (SPC EDD), IUCN, on behalf of the LCI project, and the Government of Niue to formalize the partnership arrangement for the EPSA review. In June 2017, local legal firm has been contracted with fund that is co-financed between Secretariat of the Pacific Community (SPC) and IUCN to undertake the review and drafting of a regulatory and legal framework for grid-connected renewable energy generation by the private sector.
251. Due to the large amount of grid-connected solar PV already in operation, the government of Tuvalu had expressed that it did not want to implement Output 1.4 Legislative for RE grid access.
252. Both in Nauru and Niue, progress to attain direct outcome 1.2 has been slow and work continues. As a result, it is difficult to assess what will be status by the end of the project. The terms of the contracts that have been signed to review and draft regulatory and legal frameworks for Nauru and Niue called for completion of these activities by mid-2019. However, there is no certainty as to how long it will take to get government endorsement and the acceptance of public utilities.
253. The assumption that governments remain committed to adopting a legal and regulatory framework for grid-connected renewable energy generation remains in place for Nauru and Niue. As mentioned before, Tuvalu opted for not allowing private sector participation in grid connected renewable energy generation due to the large amount of renewable energy projects that have been provided by other donors.
254. Direct Outcome 1.2 has been partially achieved as a result of project interventions.

Direct Outcome 1.3 – Power development plan (PDD) integrating Demand Side Management (DMS) plan and utilization of smart grids to enhance grid stability adopted by power utilities

255. The LCI project funded a grid stability study for Tuvalu and similar studies were conducted by Global Sustainable Energy Services for Niue and ITP Renewables for Nauru but without the participation of the LCI project.
256. However, the evaluation found no evidence that the activities conducted have led in the preparation of power development plans (PDP) integrating Demand Side Management (DSM) plans⁸⁵ and utilization of smart grid to enhance grid stability for adoption by the power utilities in the three countries nor that this has been achieved by third parties.
257. Direct Outcome 1.3 has not been achieved as a result of project interventions.

Direct Outcome 2 – Feasibility of financing low carbon energy technologies in small islands setting demonstrated through investment from the private sector and / or public/ private partnerships

258. The three solar PV grid-connected pilot projects that have been implemented by the LCI project have been operating successfully aside from the fact that the Nauru pilot project was not in operation at the time of the mission due to poor internal wiring at Od'n Aiwo hotel, and not with the grid-connectivity with the Utility, something that

⁸⁵ As per the PMU feedback: Household energy survey results have provided useful information for further formulation of demand-side management planning by the national utilities.

should have been checked at the time of the installation. However, the LCI project has not been able to demonstrate the financial feasibility of these investments as planned due to two main reasons:

- None of the three pilot installations has been receiving income from the injection of electricity into the grid since there are no regulatory and legal frameworks in place in the three countries to sell electricity injected into the grid to the power utility⁸⁶. The government of Nauru has approved a buy-back electricity rate but at the time of the evaluation, the drafting of templates for a Power Purchase Agreement (PPA) and roof top agreement (when applicable) had not yet been accomplished.
 - The participation of the private sector in the three pilot projects has been limited to offering their roof space for the installation of the solar panels and utilizing the electricity generated at no cost. None of the private sector participants has made a financial investment in the pilot project. Hence, demonstration of the financial feasibility of the installations based on a private sector and/or public/private partnership model is not yet proven. (Technical feasibility of the pilots is discussed 189).
259. Low Carbon Funds to facilitate the purchase of high efficiency domestic appliances have been established and are in operation in the three countries albeit with some difficulties due to the in-country unavailability of eligible appliances and limited awareness on the existence and benefits of the Low Carbon Funds among the population.
260. The original intent, however, was to establish a low-carbon power subsidy fund in each country to promote the widespread installation of private sector renewable energy investments related to grid-connected electricity generation rather than of energy efficient domestic appliances.
261. Tuvalu has already adopted Minimum Energy Performance Standards (MEPS) albeit not as part of a project intervention⁸⁷. Consequently, in this country the establishment of the Low Carbon Funds has contributed to achievement of the Medium term Outcome 2 “Energy Conservation measures implemented” as is further discussed in paragraph 276.
262. The driver of having suitable renewable energy and energy efficient technologies to support the transition from outputs to this direct outcome is in place.
263. Direct outcome 2 has been partially achieved as a result of project interventions when considering that the project succeeded in implementing subsidy funds for energy efficiency applications rather than renewable energy generation as it was originally intended⁸⁸.

⁸⁶ However, they have been benefiting from the use of the electricity generated by the pilot installation during day time

⁸⁷ According to the PMU the adoption of MEPS is underway in Niue through PALS, as well.

⁸⁸ PMU feedback: It is worth mentioning there is an agreement for Clay Energy to provide renewable energy systems at the same cost to buyers (for local installation) as those pilot installations – included in their contracts.

Direct Outcome 3.1 – Increased awareness of low-carbon energy utilization in the general public and potential markets

264. As mentioned in paragraph 226, awareness raising campaigns have been ineffective in conveying the message of the energy efficiency rebate programmes to white good buyers. Based on the results of in-country interviews, very few people aside from those that have been intimately involved with the LCI project are aware of the rebate programmes being offered by the Low Carbon Funds in each of the island countries. However, in both Niue and Nauru work still continues and national parties are still showing interest to work on this area. With regard to renewable energy generation, not enough efforts have been made to raise awareness of the benefits of installing grid-connected renewable energy generation to the general public. In addition, a number of barriers need to be removed for the private sector to consider installing grid-connected renewable energy units at their homes or businesses including:
- Having a regulatory and legal framework in place with buy back electricity tariffs that would prove the financial feasibility of installing grid-connected renewable energy plants, and
 - Providing access to affordable financing, due to the limited capacity of the private sector to invest.

265. Direct outcome 3.1 has been partially achieved.

Direct Outcome 3.2 – Enhanced capacity of policy makers, power utilities and private sector including investors

266. The LCI has been successful in organizing an Independent Power Producers (IPPs)/Power Purchase Agreements (PPAs) Workshop covering the role of IPPs and PPAs in meeting the renewable energy goals and energy independence priorities highlighted by each of the island countries. Attendance was limited to government and utility representatives of the three countries and no private sector representative were present at the workshop.
267. Direct outcome 3.2 has been partially achieved since the participation of the private sector has been neglected except for certain private electrician that participated in the solar PV training conducted by GSES and the capacity building related to the benefits of the Low Carbon Funds that has been undertaken during the design and implementation of the Low Carbon Funds in each country.

Direct Outcome 3.3 – Enhanced Information sharing and cooperation among SIDS

268. This direct outcome was added to the TOC based on the activities and intentions anticipated in the project document. The evaluation found the project has, to a certain extent, contributed to enhanced information sharing and / or cooperation among other SIDS as a result of the information sharing in the project website and on the Pacific Regional Data Depository.
269. The driver of having a knowledge platform and updated information to support the transition from outputs to this direct outcome is partially in place.
270. Direct outcome 3.3 has been partially achieved.

Overall achievement of direct outcomes is rated Moderately Unsatisfactory (MU)

Medium-term Outcomes

271. The reconstructed TOC has identified two Medium term Outcomes which are:
- **Medium term Outcome 1:** Removal of major barriers to the widespread and cost-effective use of grid-based renewable energy supply, and
 - **Medium term Outcome 2:** Energy conservation measures implemented.
272. The evaluation finds that the following drivers that have been identified by the reconstructed TOC are partially in place or not yet in place:
- Driver 2 – Available information on power and demand supply is partially in place.
 - Driver 3 – Regulatory and legal framework for renewable energy grid interconnection adopted is not in place.
 - Driver 4 – Power utilities are capable in implementation of demand side management plans and smart grid systems is not in place.
273. The assumption that prices of fossil fuel for electricity remain high does hold.
274. Most of the major barriers to the widespread and cost-effective use of grid-based renewable energy supply remain present. In particular:
- information on power supply is available but detailed information on power demand remains limited even though the project has collaborated with the development of household energy survey for Nauru and supported the development of energy road maps as a first step toward the development of medium and long-term electricity demand scenarios and a comprehensive assessment of renewable energy resources and potential for energy conservation as it has been stipulated under outputs 1A and 1B,*
 - financial feasibility of investing in grid-connected renewable energy generation has not been proven under current regulatory and financing environment as it had been envisioned under output 1C,*
 - there is no access to affordable financing by the private sector and/or support mechanisms that would allow private businesses and households to consider investing in low carbon energy generation,*
 - local capacity and capability in renewable energy and energy efficiency implementation remains very limited in spite of the fact that the project has partially trained a limited number of technicians on how to install and operate solar photovoltaic systems⁸⁹,*
 - regulatory and legal frameworks for renewable energy grid interconnection have not yet been adopted, and*

⁸⁹ None of the technicians that have participated in the training courses has been accredited and the majority if not all of them will require additional training

(vi) *power utilities are still not fully capable of implementing demand side management (DSM) plans and smart grid systems.*

275. When analysing the state of the medium-term outcomes included in the reconstructed TOC the evaluation found that the medium-outcomes have been partially achieved as a direct result of the project activities that have been completed so far.
276. With the exception of the impact that the Low Carbon Funds will have on achieving energy conservation and awareness raising efforts reported by the project, no other energy conservation measures have been implemented as a result of project interventions. In this regard, it is worth mentioning that the government of Tuvalu has implemented Minimum Energy Performance Standards (MEPS) for the import of domestic appliances. This is expected to contribute to the achievement of the Medium Term Outcome 2 for the domestic appliance sector. However, the project has not made any specific contribution towards the implementation of MEPS in Tuvalu.
277. It is also worth noting that there are a number of other donor interventions currently taken place in each of the three island countries. These are likely to have positive implications since progress towards achievement of direct outcomes might be still happening even if the LCI contribution towards the achievement of medium term outcomes seems rather low.

Achievement of medium term outcomes is rate Moderately Unsatisfactory (MU)

4.4.2.1 Intermediate States

278. The two Intermediate States that have been identified by the reconstructed TOC are:
- Utilization of renewable energy technologies in the participating countries,
 - Replication of project best practices and lessons in other SIDS countries
279. As discussed above, the project logic assumed that removal of key barriers will lead to *“utilisation of renewable energy technologies in participating countries”* with the assumption that high prices of fossil fuel for electricity hold. There is a positive trend in the participating countries towards increased utilisation of renewable energy technologies. However, it is important to note that due to the interventions of other donors, the three countries have directly benefited from the installation of grid-connected renewable energy installations. As mentioned earlier, both Nauru and Niue have benefited by other donors who have chosen to install several grid-connected renewable energy generation plants. In the case of Tuvalu the amount of renewable energy that will be installed as a result of other donor contributions has been such that the government has decided to ban the installations of grid-connected renewable plants by the private sector and is anticipating reaching its target of 100% renewable generation by 2025.
280. As there was no proven progress in achieving the direct outcome 3.3, the project has not contributed to the second intermediate state *“Replication of project best practices and lessons in other SIDS countries”*. Also assumption 4 that target groups make use of the information platform does not hold. The project has informed the evaluation that additional efforts will be taken in December 2017 to further share best practices and lessons.

4.4.3 Likelihood of impact

281. When evaluated from the perspective of *reducing the participating countries GHG emissions by replacing fossil fuels by renewable energy sources and energy conservation*, the LCI project is far from having achieved or significantly contributing to the desired impacts. The absence of private sector engagement throughout the project implementation in relation to grid-connected renewable energy generation options makes the achievement of reducing GHG emissions in the three countries by replacing fossil fuels by renewable energy resources and energy conservation unlikely in the short to medium term.
282. Aside from the need of having a legal and regulatory framework in place⁹⁰ to allow for grid access for renewable energy technologies (RETs), additional interventions will be required to:
- Continue to increase awareness of low carbon energy utilization among the general public, potential private sector investors and technology suppliers
 - Further enhance local capacity and capability in renewable energy and energy efficiency implementation
 - Prove the financial feasibility of low-carbon energy investments to private sector participants, and
 - Generate access to affordable financing for the installation of grid connected renewable energy installations.
283. Until all of the above conditions are met, it will be unlikely that the project results will contribute to achieving the widespread participation of the private sector in the installation of solar PV grid-connected units capable of generating the expected reduction of GHG emissions and of fossil fuel usage in the three island countries.
284. The project end date has been set for December 2017 hence based on the above the **likelihood of impact as a result of project interventions is rated Highly Unlikely (HU)**.

Likelihood of impact as a result of project interventions is rated Highly Unlikely (HU). When taking into consideration the impact of other donor interventions, the likelihood that the intended impact will be achieved is rated as Moderately Unlikely (MU) in the medium-term.

4.5 Financial Management

285. The Project performed a financial audit in 2014 while the audits for 2015 and 2016 are still pending. The Project plans to undertake the financial audits for 2015 and 2016 and include the results in the final financial audit that will be done in 2017. The decision to forego the conduct of the financial audits in 2015 and 2016 was jointly

⁹⁰ Adopted by government fully operational

made by the Financial Management Office (FMO), the Task Manager (TM) and the PMU based on the fact that the budget was deemed insufficient.

286. Based on the interviews the financial reports have been submitted to the implementing agency on a quarterly basis in a satisfactory and timely manner. The review process of the financial reports appears to have been appropriate involving both the Task Manager and the Financial Management Officer
287. The Project has made a first revision to the project budget in June 2016 and requested an extension of the project duration. Part of a budget revision involves a variance analysis which compared the original budget with the revised budget. The variance was minimal and at component level there were no major changes in the financial figures.
288. The list below provides ratings for the financial management in terms of documentation, financial management process and communication.

Attention paid to compliance with procurement rules and regulations	S
Contact/communication between the TM and FMO	S
TM & FMO knowledge of the project financials	S
FMO responsive to financial requests	S
TM & FMO responsive to addressing and resolving financial issues	S
Were the follow documents provided to the evaluator:	
- An up to date co-financing table	Y
- A summary report on the projects financial management and expenditures during the life of the project – to date	Y
- A summary of financial revisions made to the project and their purpose	Y
- Copies of any completed audits	Y
Availability of project financial reports and audits	MU
Timeliness of project financial reports and audits	S
FMO knowledge of partner financial requirements and procedures	S
Financial Management Overall Rating	S

4.6 Efficiency

289. This section assesses the cost-effectiveness and timeliness of project execution

4.6.1 Cost Effectiveness

290. In terms of cost-effectiveness, that is the extent to which an intervention has achieved, or is expected to achieve, its results at a lower costs compared with alternatives.
291. Fund disbursements in 2013 and 2014 were very low due to a slow implementation start that involved revisions of project activities which created uncertainties in project direction. Project activities began to intensify in 2015 but decreased again in 2016. As of September 30, 2017 there was a cumulative unspent balance of USD 182,499 representing 14 % of the total budget of GEF funds⁹¹.
292. Modifications to the original budget only involved reallocation of funds among project components but changes in the budget lines made the comparison between financial figures and the actual expenditure very difficult. In addition no output or outcome level financial data was available to compare the original GEF approved project budget (at component level) with actual realisation.
293. Under line 2108 of the original budget USD 138,000 was allocated for the financing of Renewable Energy & Energy Efficiency Technologies (to be done with financing institutions). The budget line 2302 was included under the label of Pilot installations and USD 300,000 was allocated for these purposes and 28 497.93 was allocated for ELF.
294. The evaluation considers that the use of the funds allocated to the purchase of the ELF Low Carbon Vehicles has not been cost effective. These investments have been made with the intent of providing a source of income for replenishing the Low Carbon Funds. No rental income has been generated to date and the probability that sufficient rental income would be generated even to recover the initial investment cost is considered close to nil. Furthermore, the purchase of the ELF Low Carbon Vehicles was not included in any of the original project outputs but its purchase was approved by the implementing agency in advance.
295. The project has taken advantage of financial opportunities by sharing the implementation of a number of activities with other donors such as SPC, GIZ, EU, and UNDP. However, according to the PIR report for the fiscal year ending June 30, 2017, the total amount of co-financing realized was USD 4,210,000⁹², substantially below the USD 7,690,000 of co-financing that had been committed by the three governments as per the project document, but no co-financing reports have been provided for the evaluation.
296. Based on the above, cost effectiveness is rated Moderately Unsatisfactory (MU)

⁹¹ Quarterly expenditures statement July-Sept 2017

⁹² As reported by the PMU since at the time of the evaluation co-financing reports were not available

4.6.2 Timeliness

297. The project was approved by UN Environment in June 2011 and by GEF in September 2012. The planned project duration was 36 months. The actual start date took place in May 2013 (first disbursement). The project official completion date is December 31, 2017 after two extensions.
298. The project experienced implementation delays resulting from the resignation of the first Project Manager in 2013 and the fact that it took IUCN six months to name a replacement.
299. The project end date has been extended from the original completion date of February 2016⁹³ to the current end date of December 31, 2017. In spite of this, a number of activities have not been completed and it is unlikely that they will be completed before the project end date. Project extensions could have been avoided through stronger project management and more effective backstopping and supervision by UN Environment.
300. A Mid Term Review (MTR) was not undertaken as planned under the project document. The MTR could have helped identify the main reasons of the delays that have occurred and help adjust the implementation of the pending activities. The whole evaluation budget was set at USD80,000. The implementing agency decided that it would not be sufficient to conduct both mid-term review and terminal evaluation and therefore, decided to forego the MTR.
301. Certain activities like the drafting of the legal and regulatory frameworks for grid-connected renewable energy generation have not been sequenced efficiently. Such drafts were meant to have been ready by project month 12 according to the work plan and time schedule provided in the project document and are still far from being completed, in spite of being a key element to prove the financial feasibility of investing in grid-connected renewable energy generation.

Efficiency is rated as Moderately Unsatisfactory (MU).

4.7 Monitoring and Reporting

5.7.1 Monitoring design and budgeting

302. The design of the Monitoring and Evaluation (M&E) plan for the project included using the standard annual Project Implementation Reports (PIR) to track implementation progress towards the delivery of Outputs and achievement of direct Outcomes. The Project also planned for external reviews/evaluations including a Mid-Term Review and a Terminal Evaluation. This is a standard protocol for GEF funded projects, although having Mid Term-Review is not a requirement for medium-size GEF financed projects. The Project M&E plan appears to be designed properly with the necessary tools to track project progress through both internal and external reviews.⁹⁴
303. The first paragraph of the Appendix 7: M&E plan in the signed Project Document allocated a budget was USD 80,000 for both the Mid-Term Review and Terminal Evaluation and later on it mentions that USD 40,000 has been allocated for each external evaluation. While this may seem tight if country visits to all sites were needed, given the high travel costs in the region, the budget could have covered a

⁹³ As per signed Prodoc

⁹⁴ Some of the external evaluation funds were re-allocated for a terminal project meeting (held in December 2017)

Mid-Term Review with at least a visit to the PMU in Fiji or possibly more if a consultant had been selected from within the region. In order to visit all the implementing countries evaluation budgets of USD 50,000 would have been more than appropriate.

304. The Project's M&E plan has allocated USD 5,000 annually for M&E activities under each component. This adds up to a total budget of USD 45,000 or USD 15,000 per year for internal M&E activities based on a three-year project implementation. Internal M&E activities include the preparation of Quarterly and Annual Project Progress reports submitted to the implementing agency. The budget planned for these activities is shown in Appendix 7 'Costed M&E Plan' in the Project Document. As this budget is planned to be embedded in the Project Personnel cost, it does not show as a separate line item in the Project Budget Sheet. Travel associated with project monitoring is assumed to be under the Travel Cost.
305. Due to the shortcoming in the budget design for monitoring and external evaluations, the project M&E design and budgeting has been evaluated as **Moderately Satisfactory (MS)**.

5.7.2 Monitoring implementation

306. Project Progress reports have been submitted on a Quarterly basis to the implementing agency, except during the period when the first Project Manager had resigned and before the recruitment of the second Project Manager. Project Progress Reports show mostly positive progress and therefore, no adaptive management was implemented. However, the Project Inception Report already shows that the Project had faced key challenges that needed adaptive management. It appears that the monitoring system was not properly operated.
307. The Project did not implement the Mid-Term Review as per the PIR 2017. Implementing agency decided that the budget was not sufficient to conduct both a Mid-Term Review and a Terminal Evaluation.
308. The Mid-Term Review would have provided for an independent review of the shortcomings of the different revisions of Outputs that had been proposed during the early part of project implementation but that in the end were not implemented. In addition, no changes were made to the project indicators to reflect modifications in the Outputs and in the Baseline, in spite of the fact that during the Inception Workshop the project recognized that there had been changes to the project environment from the time the project had been designed to the time in which actual implementation began.
309. Since the Mid-Term Review has not been implemented and the Monitoring System appears to have not been properly operated, the monitoring implementation is rated as **Unsatisfactory (U)**.

5.7.3 Project reporting

310. The contents of Progress Reports and Progress Implementation Reviews (PIRs) have been compared against evidence of results provided by: project document reviews, visits to project sites and interviews with stakeholders.
311. Several PIRs have reported a number of activities to be as 100% completed for which the evaluators have not been able to find supporting evidence. In addition, throughout the PIRs, project risks have been rated as Low to Medium risk where in fact, from the observations made during the Terminal Evaluation, some of the risks particularly

those related to: “Stakeholder involvement”, External Communications” and “Capacity issues” should have been rated as Medium to High.⁹⁵

312. The analysis and tracking of Project risks has not been done accurately. Project risks have been underestimated and have not been appropriately mitigated. Finally, since no Mid-Term Review was carried out, the project progress towards the indicators has not been validated during implementation by external parties.
313. Although the Project has regularly submitted the PIRs to GEF, the quality of the project reports should have been more carefully validated by the Implementing Agency. The project reporting is therefore rated as **Moderately Unsatisfactory (MU)**.

The overall rating for Monitoring & Reporting is rated Moderately Unsatisfactory (MU)
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4.8 Sustainability

314. Sustainability is assessed in terms of the probability of direct outcomes being maintained and developed after the end of the project. This involves determining whether a strategy and a system exists to sustain the persistence of the achieved outcomes and examining the project activities that have been undertaken to ensure the different aspects of sustainability.
315. To evaluate the sustainability of the project and its replication potential three aspects of sustainability are considered as indicated below.

4.8.1 Socio-political sustainability

316. The evaluation did not find strong evidence that the project has succeeded in generating enough political support and buy-in of the different stakeholders to maintain project outcomes in the medium to long term.
317. With the exception of the Inception and the IPP/PPA workshops, and the solar PV trainings, the participation of key stakeholders during the implementation of project activities has been rather limited. Furthermore, the private sector has not participated in the IPP/PPA workshop and only a couple of private sector electricians participated in the solar PV trainings.
318. The project has not succeeded in setting up a strategy to engage the private sector and prove the financial feasibility of installing grid-connected solar PV systems as an alternative to reducing electricity bills since it was not deemed financially feasible under the current legislation and market environment. Efforts to promote the use of energy efficient appliances have also been limited. This is in part due to the fact that no energy legislation is yet in place in any of the three countries and awareness raising campaigns to promote the utilization of the LCFs have not produced the expected results. No workshops have been organised to train private sector participants on how to evaluate investments in grid-connected solar PV equipment.
319. The project has been moderately successful in achieving its objective of influencing national policy and planning since energy roadmaps have been prepared for the three countries (see also paragraphs 236 - 241). However, not all of the planned activities have been completed, leaving an important gap on what was meant to be

⁹⁵ Based on the project team feedback: Issues such as stakeholder involvement and external communications were evaluated by IUCN relative to the project baseline, UN Environment validated according to its standards of project delivery.

accomplished in terms of building-up the necessary level of ownership, interest and commitment among government institutions and key stakeholders to take the project outcomes forward. Capacity development efforts among private sector participants have been very limited and are unlikely to be sustained.

Socio-political sustainability is rated Moderately Unlikely (MU)

4.8.2 Financial sustainability

320. The continuation of project results, especially the maintenance of the grid-connected solar PV pilot installations, depend on continued financial support. Due the absence of energy legislation, the beneficiaries of the pilot installations are not receiving any financial incentives to support the cost of maintaining these installations on their own. As result, the utilities are maintaining the equipment out of their own cash flow and hence the financial sustainability of the grid-connect solar PV pilot installations appears to be guaranteed, as long as the utilities continue to support the O&M costs of the pilot installations.
321. The financial sustainability of the Low Carbon Funds is highly questionable since there is no mechanism in place to replenish the rebates that are being offered.

Financial Sustainability is rated Moderately Unlikely (MU)

4.8.3 Institutional sustainability

322. This section assesses the likelihood that institutional and government structures will allow for the project outcomes/benefits to be sustained.
323. The institutional framework of the project has provided some indications that it may enable project outcomes and benefits to be sustained during the life of the project, as reflected in the extent to which certain aspects outcomes have been achieved.
324. For example, the project succeeded in establishing an institutional framework for the operation of the Low Carbon Funds in the three countries.
325. With the installation of the three pilot projects, the project may be posed to become a catalyst towards the establishment of grid-connected solar PV installations.⁹⁶
326. However, until energy legislation is adopted to allow for grid-connected solar PV installations, it is unclear if the institutional framework and buy back electricity tariffs that will be proposed in each of the three countries will be sufficient to guarantee the widespread installation of these type of installations by the private sector.

Institutional Sustainability is rated Moderately Likely (ML)

Overall Sustainability is rated Moderately Unlikely (MU)

⁹⁶ As commented by the PMU capacity for local installation has been improved as evidenced by TEC providing installation services for Ekalesia Kelisino Tuvalu (a church which has received a 5kW solar PV system through IUCN's small grants programme)

5. Conclusions

327. The project delivered the installation of grid-connected solar PV pilot projects albeit without private sector financial participation as initially envisaged in the project's Logical Framework together with the establishment of a low carbon fund to promote the purchase of energy efficient appliances in each of the three countries⁹⁷.
328. Additional activities⁹⁸ were added which did not contribute to the project's intended objective. This has to do with the decision to purchase three ELF vehicles which were meant to generate rental income to replenish the Low Carbon Funds but that have not yet produced any such rental income and are unlikely to do so in the future.
329. Out of fourteen intended outputs, three outputs haven't been delivered at 100%, 9 have been partially delivered with completions between 20% and 50%, and one output which is considered key considering the project purpose has not been delivered at all. The latter corresponds to output 1.6 – Capable locally-based private businesses and/or private-public partnerships to act as providers of low-carbon energy goods and services including renewable energy technology supply without which it would be very difficult to contribute to the overall project goal of reducing the participating countries' greenhouse gas emissions by replacing fossil fuels by renewable energy resources and energy conservation. The delivery of outputs could have been improved if serious revisions had been made as originally planned.
330. The long time that elapsed between the design of the project and actual implementation negatively affected the relevance of certain outputs, as well as the proposed work plan due to the unforeseen interventions of other donors that have taken place since the completion of project design. The design of the Project is based on: (i) an inaccurate stakeholder and mapping analysis, and (ii) an unrealistic design of activities in comparison to the amount of GEF funds that has been made available to perform all of the planned activities with the level of detail that has been intended.
331. The contributions of other donors have to some extent helped achieve certain outputs but not necessarily in the same manner or with the same emphasis as planned within the project.
332. The total amount of co-financing realized only amounted to USD 4,210,000, substantially below the USD 7,690,000 of co-financing that was committed to by the three governments as per the project document⁹⁹. Evaluation view is that several activities have not been completed due to lack of funding.
333. Out of the 7 direct outcomes that have been included as a result of the reconstructed TOC analysis¹⁰⁰, 6 have been partially achieved and 1 has not been achieved. A number of other donor interventions are currently taken place in each of the three island countries. These interventions are likely to have positive implications since

⁹⁷ According to the project logical framework, the intent was to establish a low carbon power subsidy fund in each of the three countries to promote investment by the private sector and/or through public private partnerships in renewable energy generation plants rather than promoting the purchase of energy efficiency appliances. However, the PIGGAREP project demonstrated that promoting investments by the private sector and /or through public private partnerships would not be feasible and as a result the PMU opted for promoting the purchasing of energy efficiency appliances as part of adaptive management

⁹⁸ The decision to purchase three ELF vehicles that were meant to help replenish the Low Carbon Funds by generating rental income, which has not happened and is likely not to happen in the future.

⁹⁹ According to the PMU, reallocation of the originally committed PALM-5 funds may have contributed to this

¹⁰⁰ TOC reconstruction has been done based on the project log frame, project documents and PIRs

progress towards the achievement of direct outcomes might be still happening even if the LCI contribution towards their achievement seems rather low.

334. The Project has not been able to establish a low carbon power subsidy fund to stimulate investments in grid-connected renewable energy generation as it has been planned. During project implementation, it became evident that private sector engagement is not an easy task, or feasible, to achieve in the context of the three islands. This should have been identified either during project design or in the early stages of project implementation and the project's design should have been amended as a result. In all cases, the solar PV pilot projects were established with minor involvement of the private sector that were open to offer their roof space to install the solar PV systems but not able to get involved with the financing, operation and maintenance of the facilities. The affordability of the private sector to invest in grid-connected solar PV is limited and there is virtually no access to financing sources in the three countries on favourable terms.¹⁰¹
335. The capabilities of the private sector to operate and maintain these installations is still very limited in the three countries. As a result, all solar PV installations in the three countries have to be operated and maintained by utility personnel and the limited number of private sector electricians that have attended the training provided by GSES.
336. No comprehensive policy framework and energy sector regulations for grid access are yet in place in the three countries. This continues to be one of the largest impediments for the private sector to consider investing in grid-connected renewable energy generation. The drafting of energy sector regulations are under way both in Nauru and Niue but they are unlikely to be completed by the end of this project. In the case of Tuvalu due to the large amount of grid-connected renewable energy projects that have been provided by other donors, the government has decided to ban private sector grid-connected renewable energy generation.
337. Project implementation was negatively affected by the limited capacity of the Project Management Unit in implementing renewable energy and energy efficiency projects. The project manager selection was made without emphasis on experience in the management of GEF and UN funded projects or similar regional/multi-country projects in small island developing countries, as required under the Terms of Reference for the Project Coordinator included in the project document. It appears that no specific training related to managing UN Environment / GEF funded projects has been provided to address this deficiency¹⁰².
338. During project implementation, the interpretation and application of the GEF guidelines and good practices were not fully adhered to. The Project Steering Committee was never formalized and a Mid-Term Review was not undertaken as planned under the project document.
339. The project could have been implemented more efficiently if there had been a local consultant/local representative of IUCN in each of the islands, on a part-time basis and more effective technical backstopping from UN Environment
340. In the case of Tuvalu, there has recently been turnover of key personnel in the Department of Energy, Development Bank of Tuvalu (DBT), Ministry of Education and

¹⁰¹ As a mitigation option supply arrangements with Clay Energy were made to ensure a standardized cost for 5kW solar PV systems will remain in effect for future purchases.

¹⁰² Other trainings taken by the team were reported.

ICT office due to retirement, on-study leave and /or move to another position. Some of the replaced personnel has no knowledge of the project at all which has generated a gap in knowledge management and continuation of project activities. In addition, there appears to be no coordination between key agencies due to the lack of a local coordinator.

341. Aside from their participation in the Inception and the Independent Power Producer (IPP)/Power Purchase Agreement (PPA) Workshops, there is no clear evidence that project country partners had any major decision making role for the direction of project activities during its implementation. The evaluators' view is also that the private sector participation to these two workshops would have been vital.
342. *Ratings for the individual criteria are shown in Table 13. **The overall rating for the LCI project based on the evaluation findings is Moderately Unsatisfactory.***
343. The Evaluation TOR introduced overall questions for the evaluation of this project that the evaluation was to answer. The general evaluation questions and conclusions are:
344. ***What are the expected long-term outcomes and impact of the technical and financial mechanisms implemented by the project in the country level (in Nauru, Tuvalu and Niue) and to what extent these mechanisms can be replicated in other Small Island Development States (SIDS)?***
345. The LCI project has not been able to significantly contribute to removal of the key barriers that have been precluding the widespread and cost-effective use of grid-based renewable energy supply and the introduction of energy conservation measures. As a result, the long-term outcomes and impact derived from the technical and financial mechanisms that have been implemented so far are rather limited in comparison with the expectations that have been included in the project document.
346. Both Nauru and Niue are moving forward towards having low-carbon energy strategies involving energy efficient end use technologies and renewable energy based electricity generation defined and endorsed by their governments. In both countries, the drafting of energy policy is ongoing and there is a good probability that they will be ready for government adoption within the next twelve months.
347. The government of Nauru has already established a buy back electricity rate and allow the Nauru Utility Corporation to enter into Power Purchase Agreements with the private sector for the purchase of electricity from grid-connected renewable energy generation. In the case of Tuvalu, due to the large amount of investments in grid-connected renewable energy generation that the country has received from other donors, the government has decided that they are not going to allow for more grid-connected renewable energy generation and hence the drafting of new energy legislation has been cancelled.
348. Having a regulatory and legal framework with favourable tariffs is a "*condition sin a qua non*" to get the private sector interested in investing in grid-connected renewable energy generation. However, given the small size of the private sector in these countries and the fact that there is very limited to no access to financing in favourable terms the likelihood of achieving a widespread and cost-effective use of grid-based renewable energy supply in the short to medium-term remains low.
349. Expectations are higher when looking at the long-term outcomes and impacts associated with the introduction of energy conservation measures. For the long term, there is a high probability of an increased interest in purchasing high-energy

efficiency appliances and a higher conscience in the population of the importance that energy conservation has as a mean to reduce the overall cost of electricity. In the case of Tuvalu, the government has already introduced Minimum Energy Performance Standards (MEPS). This in layman's terms means that the import of low energy efficiency appliances is no longer permitted.

350. ***Based on the experience from this project, what are the key lessons concerning implementation of UN Environment projects in the Pacific region and more precisely in Oceania?***

351. The implementation of regional small to medium size projects in the Pacific region has always been a major challenge. Key aspects that need to be looked at in the detail are:

- The implementation team needs to be highly familiar with the nature, behaviour, culture and customs of the local stakeholders in each of the countries,
- Having stakeholder consultation both during the design and implementation phases to ensure that the different conditions and needs of the countries involved are well understood and duly taken care of is key,
- Given the remoteness of the countries in the region, difficulties in communication and the fact that local governments employees tend to have low capacities and be overwhelmed with other development project from numerous donors, it is important to have an in-country coordinator to ensure that project implementation is proceeding according to plan, and
- Right steps need to be taken to ensure having effective project governance structure in place
- In the case that there is a major time gap between the project design and implementation that the project environment has changed, a serious review and redesign of the project logical framework by expert(s) on the design logframe should be conducted and officially documented and approved.

352. ***To what extent the partner selection and capacity development among partner organizations contributed to the sustainability of the project results?***

353. The Project has succeed in teaming up with several partner organizations that have been effective in providing capacity development to local partners and thus made a contribution towards the sustainability of the project results.

354. Among the various organizations that have supported the implementation of the proposed activities it is worth mentioning the following:

- UNDP that was highly effective in conducting the Household Energy Survey for Nauru. The project has also succeeded in teaming up with UNDP to work on the drafting of a new legal and regulatory framework for grid-connected renewable energy generation for Nauru. Pacific Community (SPC) which has provided its co-financing capacity for the energy policy updates in Niue.
- The high commitment shown by Nauru Utilities Corp has shown taken the lead in its country to implement the pilot project and establish and manage the Low Carbon Fund. The management of Nauru Utilities Corporation (NUC) are well convinced of the benefits of having the private sector participating in grid-connected renewable energy generation. As a result, NUC has requested to and obtained approval from Cabinet to begin signing Power Purchase and when applicable Roof Top agreements with grid-connected renewable energy

generators in anticipation of the new legal and regulatory framework that is under preparation.

- In the case of Niue, the Project Management Coordination Unit (PMCU) created by government to coordinate the implementation of donor projects has been directly involved with the LCI project since the beginning facilitating and in a great manner facilitated the implementation of the in-country project activities and communications among key project stakeholders
- Pacific Community (SPC) is another of the organizations that has supported the implementation of the project activities. In particular, the Project has relied on the Pacific Regional Data Repository (PRDR)¹⁰³ that has been implemented by SPC for establishing a platform for sub-regional information exchange.
- Global Sustainable Energy Solutions (GSES) is another of the partner organizations with which the Project was able to team up. GSES worked on the Niue Electricity Plan and conducted solar training workshops for utility personnel in the three countries. All workshop participants were highly satisfied with the results of the training provided by GSES.
- The review and drafting of Nauru energy legislation will be accomplished in partnership with the Adapting to Climate Change and Sustainable Energy (ACSE) project being implemented by Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) and funded by GIZ and the European Union (EU), the Asian Development Bank (ADB) and the government of New Zealand.

355. In summary, the fact that the project has succeeded in having grid-connected solar PV pilot projects in operation and establishing Low Carbon Funds to promote the purchase of high efficiency appliances in each of the three island countries is considered as a definite step in the right direction, however;
356. Until a business model for private sector investors is proven to be financially feasible and a favourable legal and regulatory framework is adopted, it is unlikely that the Project interventions implemented so far will have a catalytic effect in terms of generating replication potential for the widespread installation of grid-connected solar PV installations in the three countries and/or the region.
357. Ratings for the individual criteria are shown in Table 13. The overall rating for the LCI project based on the evaluation findings is Moderately Unsatisfactory

¹⁰³ The Pacific Regional Data Repository has been implemented by SPC to support Pacific governments and their development partners working in the energy sector by facilitating access to up-to-date, reliable energy data and project information for planning, policy and investment decision purposes. A secondary objective is to make it easy for countries and their donor partners as well as potential investors to access reports and documents relating to existing and proposed energy projects in order to help in the replication of successful activities and to avoid repeating mistakes that have been made in past projects.

Table 13 Summary of Evaluation criteria assessment and ratings¹⁰⁴

Criterion	Summary Assessment	Evaluation Team Rating	Evaluation Office Rating	Evaluation Office Comment
A. Strategic Relevance		HS	HS	
<i>1. Alignment to MTS and POW</i>	The project is directly aligned with UN Environment MTS and POW.	HS	HS	Concurs. Also supported by an explicit alignment with UNEP SSC and BSP policies that are not directly discussed in this report.
<i>2. Alignment to GEF focal areas and strategic priorities</i>	The project is of high relevance to the climate change mitigation aims of GEF: "Reducing or avoiding GHG in the areas of renewable energy, energy efficiency, sustainable transport and management of land use, change and forestry (LULUCCF)	S	HS	HS justified as the project was also part of GEF-GPAS programme.
<i>3. Relevance to regional, sub-regional and national environmental priorities</i>	The project is aligned with the regional, sub-regional and national environmental priorities	HS	S	Relevance of some project activities was influenced by changes in country level energy situation (paragraph 151)
<i>4. Complementarity with existing interventions</i>	There is high complementarity with other existing interventions in the three countries.	S	S	Concurs. (Overlaps with other initiatives discussed in paragraphs 33, 97, 151,153 are considered in effectiveness rating)
B. Quality of Project Design	The project design is based on a clear logic from activities to outputs and outcomes to objectives and goals with indicators that are considered SMART The intervention logic is well described in the project document, both in the text and in the Results Framework but no Theory of Change (TOC) analysis has been included. The two most critical weaknesses of the project design have to do with: (i) the inaccurate stakeholder and	MS	MS	Concurs.

¹⁰⁴ Highly Satisfactory (HS); Satisfactory (S); Moderately Satisfactory (MS); Moderately Unsatisfactory (MU); Unsatisfactory (U); Highly Unsatisfactory (HU). Sustainability and Likelihood of Impact are rated from Highly Likely (HL) down to Highly Unlikely (HU) and Nature of External Context is rated from Highly Favourable (HF) to Highly Unfavourable (HU).

	mapping analysis , and (ii) the unrealistic design of activities in comparison to the amount of GEF funds that has been made available to perform all of the planned activities with the level of detail that has been intended.			
C. Nature of External Context	The Evaluation found that the nature of the external context is Moderately Favourable. Tuvalu was partially affected by the category 5 cyclone PAM that hit the country in March of 2015 causing devastating effects.	F	F	Concurs.
D. Effectiveness¹⁰⁵	The effectiveness of the project in achieving the proposed outcomes has not been entirely satisfactory. A large number of outputs have not been implemented as planned and the project has focussed on energy efficiency neglecting the evaluation of electricity generation from renewable energy resources and the participation of private sector partners in the financing of the pilot projects.	MU	MU	Concurs.
<i>1. Achievement of outputs</i>	The project was successful in setting up one grid-connected solar PV project albeit with no private sector participation and without proving its financial feasibility and in establishing a Low Carbon Fund in each of the three countries but only oriented towards promoting energy conservation. However, out of the 14 intended outputs only 3 outputs have been delivered at 100%, 9 outputs have been partially delivered with completions between 20 and 50%, whereas 2 key outputs have not been delivered at all. The project has also included and unintended output which has been delivered partially but without generating its intended contribution.	MU	U	Based on the analysis provided in this report Evaluation Office assesses that 5 out of 14 planned/approved outputs (36%) were delivered (and meeting their purpose to acceptable extend). This is rated as 'unsatisfactory' delivery.
<i>2. Achievement of direct outcomes</i>	Based on the analysis of the state of the seven direct outcomes that had been identified in the reconstructed TOC based on the project document and log frame, 6 direct outcomes have been partially achieved and 1 has not been achieved at all. However, there are a number of other donor interventions currently taken place in each of the three island countries.	MU	MS	Most direct outcomes are partially achieved and key assumption in place (paragraph 252). Rating is considered as MS, however attribution is difficult to establish due to several other

¹⁰⁵ Where a project is rated, through the assessment of Project Design Quality template during the evaluation inception stage, as facing either an Unfavourable or Highly Unfavourable external operating context, the overall rating for Effectiveness may be increased at the discretion of the Evaluation Consultant and Evaluation Manager together.

	These interventions are likely to have positive implications since progress towards achievement of direct outcomes might be still happening even if the LCI contribution towards the achievement of direct outcomes seems rather low.			initiatives contributing to these same direct outcomes.
<i>3. Likelihood of impact</i>	Aside from the need of having a new legal and regulatory framework in place to allow for grid access for RETs, additional initiatives will be required to: (i) prove the financial feasibility of low-carbon energy investments to private sector participants and (ii) generate access to affordable financing.	HU	U	Evaluation Office rating considering the level of achievement at intermediate states level.
E. Financial Management		S	S	Concurs.
<i>1. Completeness of project financial information</i>	The Financial Audit was conducted only in 2014. There were no audit in 2015 and 2016. The project plan to include them in 2017.	MU	MU	Concurs.
<i>2. Communication between finance and project management staff</i>	The FMO, TM and PM have communicated on a quarterly basis during the time of submission of the Expenditures Statements. The FMO and TM were both responsible for reviewing the expenditures reports and approval.	S	S	Concurs.
<i>3. Compliance with UNEP standards and procedures</i>		n/a ¹⁰⁶		
F. Efficiency	The project took advantage of financial opportunities by sharing the implementation of a number of activities with other donors. However, the original budget went through modifications making the comparison of actual vs original budget extremely difficult. The project experienced important delays in the implementation of activities, the Mid Term Review has not been undertaken and the Project Steering Committee was never formalized. As of September 30, 2017 the cumulative unspent budget of GEF funds was at 14 % with several activities that have not been concluded and a number of others that have not been undertaken. However, project	MU	MU	Concurs.

¹⁰⁶ This criterion was an evaluation TOR requirement. However, in 2017 Evaluation Office removed this criterion from the rating requirements, thus not rated.

	activities will continue until the project end date of December 31, 2017.			
G. Monitoring and Reporting		MU	MU	Concurs.
<i>1. Project reporting</i>	The analysis and tracking of project risks has not been done accurately. Project risks have been underestimated and were not appropriately mitigated.	MU	MU	Concurs.
<i>2. Monitoring design and budgeting</i>	The project M&E plan design includes internal and external evaluation activities. Budget was found sufficient for internal evaluation but insufficient for external evaluation.	MS	MS	Concurs.
<i>3. Monitoring implementation</i>	Overall, M&E activities during implementation have been reported in detail but not always accurately and on a timely basis in the PIRs. There was no Mid-term Evaluation in place, therefore, the project progress towards the indicators has not been validated	U	U	Concurs.
H. Sustainability (the overall rating for Sustainability will be the lowest rating among the three sub-categories)		MU	MU	Concurs.
<i>1. Socio-political sustainability</i>	The evaluation did not find strong evidence that the project has succeeded in generating enough political support and buy-in of the different stakeholders to maintain the project achievements in the medium to long term.	MU	MU	Concurs.
<i>2. Financial sustainability</i>	The operation & management of the pilot projects are dependent on additional funding which for the time being is being provided by the utilities in each of the three countries. The financial sustainability of the LCF is questionable since there is no mechanism in place to replenish the rebates that are being offered. The LCF is in fact acting as a rebate programme rather than being a revolving fund	MU	ML	Para 319 indicates that some project results are <u>not</u> dependent on external funding. Thus higher rating is considered by Evaluation Office.
<i>3. Institutional sustainability</i>	Up until energy legislation is in place allowing for grid-connected solar PV installations, it is unclear if the institutional framework and buy back	ML	ML	Concurs.

	electricity tariffs that will be proposed in each of the three countries will be sufficient to support the sustainability of the widespread installation of these type of installations by the private sector.			
I. Factors Affecting Performance				
<i>1. Preparation and readiness</i>	Due to the changes in the context of the project, from the time of the CEO endorsement to actual implementation several modifications were proposed to the formulation of the project output with poor results. At the end, the project decided to go back to the original design. Stakeholder involvement in determining the proposed changes has been limited with the exception of the discussion that took place during the Inception Workshop. The Project Steering Committee has not been formalized and there is no record of the stakeholders that have participated in the different revisions of the log frame that have taken place. (see paragraphs 42-44, 102-104)	MS	MU	The analysis provided in the report indicates that several key aspects (setting up PSC, partner capacity assessment, addressing weaknesses of the project design) did not take place at early stages of the project implementation. (paragraphs 45, 97-99)
<i>2. Quality of project management and supervision¹⁰⁷</i>	The Project Steering Committee was never formalized (paragraph 45). The technical and backstopping and supervision provided by UN Environment has not been effective enough in ensuring that adaptive measures were taken when needed to ensure that the project remained on track (paragraph 103). Also, the Mid-Term Review has not been undertaken as planned under the project document. A Mid Term Review could have helped identify the main reasons of the delays that have occurred and help adjust the implementation of the pending activities. (section 4.7). Project implementation was negatively affected by the limited capacity of the Project Management Unit in implementing renewable energy and energy efficiency projects.	MU	MU	Concurs. Nevertheless Evaluation Office also notes that project has demonstrated some adaptive management despite official revisions to project design were never completed.
<i>3. Stakeholders participation and cooperation</i>	Participation and cooperation of stakeholders have been limited. With the exception of their participation in the Inception Workshop and during the	MU	MS	Evaluation office notes that some parts of this summary contradict with

	IPP/PPA workshop, there is no evidence that project country partners had any decision making role in determining the direction of project activities. The fact that the Project Steering Committee has not been formalized is another evidence of the limited participation of stakeholders during project implementation (paragraph 45). The participation of the private sector has been minimal even though one of the principal intents of the project was to promote investment in grid-connected renewable energy generation from the private sector and/or public-private partnerships (paragraph 190).			sections 87 and 352-354 discussing the partner cooperation.
4. <i>Responsiveness to human rights and gender equity</i>	There are no references to gender issues in the project document. Nevertheless the evaluation found that both women and men have been treated as equals during project implementation. In addition, a large portion of the stakeholders that have been involved in the implementation are women. (paragraph 109)	S	S	Concurs.
5. <i>Country ownership and drivenness</i>	The project responded to country needs for increasing renewable energy penetration, energy efficiency and energy conservation. However, not all of the activities have been completed, as planned leaving an important gap on what was meant to be accomplished in terms of building-up of the necessary level of ownership, interest and commitment among government institutions and key stakeholders to take the project outcomes forward (paragraph 322)	MS	MS	Concurs (paragraph 253 indicates government support as well)
6. <i>Communication and public awareness</i>	Awareness raising campaigns to promote the utilization of the Low Carbon Funds have not produced the expected results. Also no workshops have been organized to train private sector participants on how to evaluate investments in grid-connected solar PV equipment, as planned. (Direct outcome 3.1)	MU	MU	Concurs
7. <i>Catalytic role, replication and scaling up</i>	The capacity of the project to raise awareness has been limited. Few people are aware of the mechanics and benefits of the Low Carbon Fund and the replication and scaling up potential of the pilot projects will very much depend on the terms and conditions of the energy	MS	MS	Concurs.

	<p>legislation and buy back tariffs that will be implemented in each of the countries coupled with access to affordable financing (see also paragraphs 243-254). The technical viability of the pilot projects is well proven however, financial feasibility still needs to be demonstrated for the private sector to invest. (paragraphs 258 -263)</p> <p>As there was no proven progress in achieving the direct outcome 3.3, the project has not contributed to the second intermediate state “Replication of project best practices and lessons in other SIDS countries”.</p>			
Overall project rating	Moderately Unsatisfactory	MU	MU	

6. Lessons learned

Lesson 1: Having an effective project governance structure in place is key

358. The implementation of the project was negatively affected by not having an effective project governance structure in place. The Steering Committee has not been established, as planned. In its absence, the supervision and backstopping of UN Environment has not been as effective as it should have been. In addition, the Mid-Term Review which is an essential monitoring tool to identify challenges and outline corrective actions before is too late was cancelled.
359. As changes in the project environment occur, there is always a need to adjust or even to re-formulate the original project design in order to ensure that the project remains on track to deliver maximum results by its completion. For this to happen, adjustments and changes in project design should be approved by a Steering Committee. Such committees ought to include all key project parties (Implementation Agency, Executing Agency and key project beneficiaries). The committee would then confirm that agreed changes to the original project design are carried out. As the project outcomes and outputs are redesigned, project indicators should also be adjusted to reflect the changes of the planned activities and outputs and allow for a proper monitoring and evaluation.
360. Another element that contributed to undermine the effectiveness of the project governance structure has to do with the fact that even though a thorough description of the qualifications and experience requirements for the members of the Project Management Unit was included in the project document, these have not been

followed. In addition, training, supervision and guidance at all levels have not been sufficiently provided.

361. In the case of the LCI project, many of the shortcomings that occurred during project implementation are directly attributed to the lack of an effective project governance structure, in part is due to the limited budget that has been assigned to project management activities.

Lesson 2: Implementing regional projects in the Pacific region is a big challenge

362. Pacific Islands Countries (PICs), particularly the smaller ones, have low capacities and weak government organizations. Government employees tend to be overwhelmed by the number of projects from different donors that they have to attend to and are likely to be confused about the particulars of each of the projects.
363. On the other hand, it is key for members of the project management team to be familiar with the nature, behaviours, culture and customs of the local stakeholders in each of the countries. Pacific Island Countries have several tribes and tend to be important differences in the levels of development, economics and infrastructure among the different islands. On top of this, the needs of each of the countries are not always the same. As a result, designing and implementing regional projects that will be able to take into consideration the differences among the countries involved and meet each one of their needs simultaneously becomes an overwhelming challenge.
364. During the project design and implementation, it is fundamental to have stakeholder consultations in each of the island countries to ensure that the different conditions and needs of the participating countries are taken into account.
365. In the case of the LCI project, due to the remoteness between each country and the location of the Project Management Unit (PMU), it would have been essential to have had a local project coordinator on a part time basis in each country reporting directly to the PMU. This local project coordinator should have acted as an in-country focal point between the PMU and the National Project Coordinators, which as mentioned earlier, are typically overwhelmed with other donor projects and unlikely to provide the necessary attention on a timely basis.
366. In this regard, Niue has been an exception since the government has implemented a Project Management Coordination Unit (PMCU) that has been responsive and effective in coordinating the in-country project activities.¹⁰⁸

Lesson 3: Having a marketing strategy in place is a crucial part of the fund performance, something that oftentimes is neglected in technical projects.

367. Prior to setting the rebate program like the one that has been established under the Low Carbon Funds (LCFs), a detailed study of appliance prices should be conducted with the objective of setting a limit/ceiling to the prices of the eligible appliances. This is needed to avoid retailers taking advantage of the rebate scheme by increasing the prices of appliances, once the rebate programme is in operation.
368. The launching of the LCFs should have been accompanied by a more thorough awareness raising campaign. In the case of the three countries involved in the LCI project, the awareness raising campaigns should have included distribution and

¹⁰⁸ Involvement of a short-term consultant was attempted in Nauru unsuccessfully

posting of printed materials in appliance stores and other key spots in combination with radio spots in local languages to reach more effectively the targeted populations that are mainly households.

369. Content of the project Website should also be available in local languages, expanded to: include additional information on how to access the rebate programmes offered under the LCFs and provide a direct access to equipment suppliers in each of the countries.

7. Recommendations

370. Based on the scope of the Evaluation and main findings, conclusions and lessons, the following recommendations are addressed to UN Environment, to help provide discussions on any future project related to energy and climate change in the Pacific region.

Recommendation 1: The Division Director, Head of Branch and GEF Liaison Officer, as senior representatives of UN Environment as an Implementing Agency for GEF, should document the organisation's procedures in relation to the verification of GEF Project Implementation Reports and responses to any performance or risk issues raised therein. The lines of responsibility and accountability beyond that of the Task Manager and Portfolio Manager¹⁰⁹ should be fully articulated. This document should be provided to the Evaluation Office in the first instance and incorporated in the Programme Manual thereafter.

371. This evaluation has established that: a) substantive revisions to the project design and its associated results framework should have been made in the first year of implementation, and b) that project performance was optimistically reported in the annual Project Implementation Reports. Had these two opportunities to exercise adaptive management and formalise much-needed changes to the project and its results framework been taken, it is highly likely that this project would have achieved a more satisfactory performance rating and delivered greater benefits in the targeted areas.
372. The group of staff members involved in making decisions on this project appear to have been able to operate in isolation from the main body of the institution in the sense that they were able to deliberate on the changes to project design that were needed, but then to decide not to initiate those changes. Similarly, they were able to report satisfactory performance even when the project's implementation was no longer synchronised with the project's intended scope and results.

Recommendation 2: Strategic plan for waste management from RE systems and EE appliances to be included in the upcoming energy efficiency project(s) in the Pacific and to be designed in full collaboration with other agencies currently working in the same field.

373. This is an important task that needs to be undertaken to ensure that the electrical and electronics waste created from LCI project, as well as, from other projects in the

¹⁰⁹ Guidance should be provided for instances where the Task Manager and Portfolio Manager are one and the same staff member and an indication of the maximum number of projects (either expressed as a number of project units or a total USD value) any one Task Manager should supervise should be given.

region will be handled properly since island countries have limited recycling capacity to manage appliance waste. UN Environment is planning a large energy efficiency project in the Pacific. A strategic plan for handling and disposal of waste management from renewable energy systems (i.e. battery) and energy efficiency (old appliances) should be integrated in future project planning activities to ensure environmental safeguard.

374. The key stakeholder in waste management in each Pacific Islands Countries is generally the Ministry of Environment. There is also a project funded by the EU, entitled “Pacific-EU Waste Management Project (PEUWMAP)” which includes management of electronics and appliance wastes in the Pacific Island countries. In this case, the project implementer is the Pacific Islands Forum Secretariat (PIFS) in Suva, Fiji, in close consultation with the Secretariat of the Pacific Regional Environmental Programme (SPREP), the Pacific Community (SPC) and the University of the South Pacific (USP). Therefore, it is recommended that these stakeholders also be consulted for the strategic plan for handling and disposal of electronics waste in the planned UN Environment’s energy efficiency project in the Pacific

Recommendation 3: Strategic Plan for capacity building on management, maintenance and monitoring of renewable energy systems

375. To ensure that the solar PV systems that have been installed in the Pacific countries operate at optimum efficiency, technical personnel in power utilities who are generally the ones responsible for operation and maintenance of the solar systems need to be trained on how to perform regular check-ups, monitor system performance, and troubleshooting minor operational problems.
376. The LCI project has provided solar photovoltaic installation training that incorporated system maintenance and monitoring. However, trained staff have expressed that they need refresher courses continuously. These training courses are generally funded under projects related to renewable energy and therefore there is no systematic approach to ensure that the refresher courses will be provided on a regular basis. Consequently, it is recommended that the power utilities set a budget for the training course. Furthermore, there should be an incentive scheme for qualified technicians or those who had successfully passed the training course.
377. The Global Sustainable Energy Solution (GSES), the company that provided training courses for this project has an on-line training course and encouraged the trainees who had failed the course to take the online course and retake the exam. There were very few trainees who had done so despite their low scores in the exam. There is very low motivation and therefore, there needs to be a strategic plan that incorporates an incentives scheme for technicians with its corresponding budget.

The following recommendations are addresses to the partners in Nauru, Niue:

Recommendation 4: Focus on establishing and sustaining an enabling environment for encouraging the private sector to set-up grid-connected renewable energy generation installations

378. Full adoption of a favourable legal and regulatory framework that would allow for grid access for eligible Renewable Energy Technologies is key to encourage the private sector to engage in low carbon energy developments that will help reduce the use of fossil fuels in electricity generation. Work on creating fiscal and financial incentives to encourage private sector participation in low carbon energy developments.

379. Explore alternatives for the creation of a Public Private Partnership (PPP) that will offer services to evaluate the financial feasibility of investing in low carbon energy installations to private sector participants and assist with the purchasing, installation and operation and maintenance of the necessary equipment as well as with the negotiation of the PPA, roof top agreements (if needed). Providing assistance to local banks on how to secure affordable financing related to the procurement of renewable energy generation and energy efficiency equipment will also be a key aspect to explore, as part of a follow-up project interventions.

The following recommendations are addressed to the Project Management Unit in order to maximize the impact of the project before its completion:

Recommendation 5: Continue to supervise closely the drafting of the energy legislation efforts in Nauru and Niue

380. Closely supervise the drafting of the energy legislation efforts that are currently being undertaken in Nauru and Niue with the support of UNDP and SPC, respectively. It is important that work on the drafting of new legislation progresses as planned. The Project Management Unit should stand ready to provide whichever support is within its possibilities to speed up the enactment of the new legislation by the governments so private sector investor can begin evaluating the financial feasibility of installing grid-connected renewable energy units at business and homes. This support take the form of a communication action plan specifying the key ministries, private sector, NGOs/ country that need to be consulted and engaged in the public policy process to enact policy.

Recommendation 6: Continue promoting the benefits of purchasing high efficiency appliances through the LCFs

381. Low awareness has been identified as one of the main reasons why the Low Carbon Funds in the three countries have received so few applications. Additional awareness raising campaigns should be undertaken placing emphasis on the importance of conveying messages in local languages. Additional radio spots and posting of flyers in key locations (i.e., supermarkets, appliance stores, petrol stations, churches, etc.) in conjunction with the organization of workshops at community centres should be planned for.
382. Additional training is needed to ensure that the staff of the organisations that are in charge of administering the Low Carbon Funds are fully capable of processing the applications and answering any questions that potential fund applicants may have regarding the eligibility of the appliances that they are planning to purchase.
383. A detailed study of the appliances prices available in the international markets should be conducted with the objective of setting a limit/ceiling to the prices of the eligible appliances after considering the cost of transportation and importation to each of the countries. This is needed to avoid retailers taking advantage of the rebate scheme by increasing the prices of appliances.
384. Additional coaching to appliance stores owners is needed to ensure a wide selection of eligible appliances are available in each of the countries. Consider educating potential buyers on how to purchase appliances directly on their own, assuming this alternative is possible in accordance with local legislation and availability of freight

forwarding companies willing to offer this type of service to individual customers as it is happening in Niue.

Recommendation 7: Organise workshops in Niue and Nauru to promote the installation of grid-connected renewable energy installations in private businesses and homes

385. Begin collecting information on the amount of electrical energy that each system has generated and the amount that has been injected into the grid and determine the amount of electricity purchases that have been avoided from having the pilot projects in operation.
386. Use these data plus actual investment and operation and maintenance costs to determine the economic and financial feasibility of the installed pilot projects.
387. A case study for each of the pilot projects should be prepared to serve two purposes:
 - To present the results to the government in order to ensure that the buy-back electricity tariffs and other costs that would be part of the proposed energy legislation are attractive enough for the private sector to consider investing in grid-connected renewable energy installations, and
 - To organise workshops in Nauru and Niue to promote the installation of grid-connected renewable energy to the private sector based on actual data collected from the operation of the pilot projects.

ANNEXES

Annex I. Evaluation Terms of Reference

Terminal Evaluation of the UNEP/GEF project “Low Carbon- Energy Islands: Accelerating the Use of Energy Efficient and Renewable Energy”¹¹⁰

I. PROJECT BACKGROUND AND OVERVIEW

1. Project General Information

Table 1. Project summary¹¹¹

UNEP PIMS ID:	GFL-2070-2721-4C85		
Sub-programme:	Climate Change	Expected Accomplishment(s)¹¹²:	-
UNEP approval date:	6 June 2011	PoW Output(s):	-
GEF project ID:	4000	Project Type:	Mid-size project
GEF OP #:	5	Focal Area(s):	Climate Change
GEF approval date:	13/09/2012	GEF Strategic Priority/Objective:	GEF4: CC-SP1; CC-SP3
Coverage - Country(ies):	Nauru, Niue, Tuvalu	Coverage - Region(s):	Regional Pacific / Oceania
Expected Start Date:	September 2011	Actual start date:	March 2013
Planned completion date:	February 2016	Actual completion date:	June 2017
Planned project budget at approval:	8,989,636 USD	Total expenditures reported as of June 2016:	569,706 USD (GEF only)
XBF secured:	-		
GEF Allocation:	1,299,636	GEF grant expenditures reported as of [June 2016]:	569,706 USD

¹¹⁰ Revised TOR template: version September 2016

¹¹¹ Source: Prodoc versions (file name: GPAS-CC Prodoc-Final030611.pdf) and PIRs [source information edited 28/11/2017]

¹¹² To be confirmed during the evaluation

PDF GEF cost:	65,000 USD	PDF co-financing:	27,000 USD
Expected MSP/FSP co-financing:	7,690,000 USD	Secured MSP/FSP co-financing:	
First Disbursement:	21/05/2013		
No. of revisions:	2	Date of last revision:	30 June 2016
Mid-term review/evaluation (planned date):	n/a	Mid-term review (actual date):	2014
Date of last Steering Committee meeting:	November 30, 2015 ¹¹³	Terminal Evaluation (actual date):	September 2017

2. Project rationale¹¹⁴

1. The three countries; Nauru, Niue, and Tuvalu which are targeted by this project, are the smallest states in the Pacific and – unlike their larger neighbours – have been practically 100% dependent on imported fossil fuels for their energy needs, especially for transport and electricity production. These countries are small, remotely located with thin markets for commodities, such as fuel and food. As a consequence, supply cost for all imported items tend to be higher than anywhere else. At the same time their extraordinarily low population figures pose a number of serious challenges for their respective governments including a constant struggle to allocate adequate human resources to the multiple and complex tasks to administer small and vulnerable economies.

2. The main barriers for replacing fossil fuels by renewable energy resources and energy in these target countries were identified during the project preparation phase. The main barriers can be classified in three categories, i.e. technical, financing and informational. Technical barriers relate to the difficulties to integrate intermittent forms of renewable energies into small diesel power systems. Financing of private investment was hindered by the lack of appropriate legal frameworks, lack of regulatory systems and weakness in the banking sectors of the three countries and lack of available funding. Informational barriers related to lack of supply and demand data, inadequate knowledge management and lack of awareness of potential investors and users. An overarching problem common to all three countries is a lack of capacity both in the public and private sectors of the three countries.

3. The rationale of the project is to systematically address these inter-related barriers to the widespread utilization of low carbon technologies require a careful analysis of the existing legal and policy frameworks and an assessment of the technical and economic merits of all options. Once a merit order has been established through thorough analysis, the project was designed to focus on capacity development in both the public and private sectors but aiming mainly at the development of new, sustainable private sector initiatives.

3. Project objectives and components

4. The overall goal of the project is the '*Reduction of the participating countries greenhouse gas emissions by replacing fossil fuels by renewable energy resources and energy conservation*'. The project's goal was designed to be achieved by outcomes and activities geared towards the objective which is the '*Removal of major barriers to the widespread and cost-effective use of grid-based renewable energy supply and to the introduction of energy conservation measures*'. To achieve this objective, the project aimed to build structures, knowledge, skills, awareness and understanding among stakeholders such as policy makers and

¹¹³ As per PIR June 2016

¹¹⁴ Source : ProDoc

the general public in the three countries on the importance and benefits of establishing sustainable low carbon electricity systems (i.e systems that optimize the use of green renewable energy, avoid wastage of energy and allow to meet the energy needs of the countries' populations on a durable basis).

5. While the primary objective of the project is directly related to the overall goal of reducing greenhouse gas emissions, there are other secondary objectives which include an enhancement of the countries' energy security and the creation of local employment in a new energy service industry. The project document highlights the aim to provide start-up and growth support to local energy businesses.

6. The project's logic is to achieve the above objective through three components: (i) Strategic Planning, (ii) Demonstration of feasible financing and (iii) Awareness and capacity building. Under these three components the following main outcomes and outputs were defined as per the original project design¹¹⁵:

Expected Outcome 1	Low-carbon energy strategies involving energy efficient end use technologies and renewable energy-based electricity generation strategies defined and endorsed by governments
Output 1.A	Medium- & long-term electricity demand scenarios per country (business-as-usual & scenario options for low carbon paths) developed.
Output 1.B	Comprehensive assessment of renewable energy resources & potential for energy conservation
Output 1.C	Techno-economic feasibility studies and risk analyses of investment in low carbon power systems
Output 1.D	Regulatory/ legal framework for grid access & certification modalities for eligible embedded RETs.
Output 1.E	Electricity sector plans including energy efficiency and conservation programs & energy supply strategies involving embedded RETs.
Output 1.F	Capable, locally-based private businesses and/or private-public partnerships to act as providers of low-carbon energy goods and services, including RET supply.
Expected Outcome 2	Feasibility of financing low-carbon energy technologies in small island setting demonstrated through investment from the private sector and/or public-private partnerships
Output 2.A	Knowledge management system to provide information for low carbon investments in three countries
Output 2.B	Proposed design for a low carbon power subsidy fund.
Output 2.C	Operational, embedded RETs that have been co financed by investors, tested for technical & operational viability and assessed for techno-economic competitiveness
Expected Outcome 3	Awareness of low-carbon energy utilization and supply technologies of policy makers, potential markets and investors deepened and capacity to promote low carbon energy supply established
Output 3.A	Training programme on management and administration of low carbon investments for government personnel and private sector participants.
Output 3.B	Investment promotion packages to stimulate investments thru low carbon power funds
Output 3.C	Training programs for staff of regulatory agencies
Output 3.D	Public awareness campaigns
Output 3.E	Sub-regional cooperation mechanisms for exchange of data and information

¹¹⁵ The detailed outputs and log frame are available in the project document and revisions.

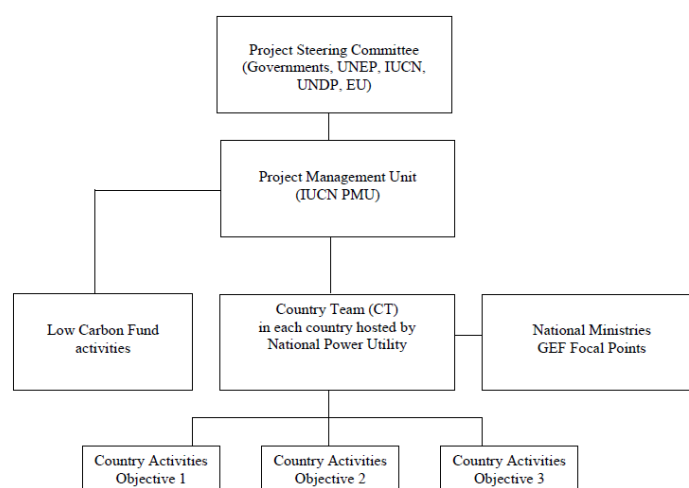
4. Executing Arrangements

7. The implementing agency for the Project is the United Nations Environment Programme (UNEP). UNEP is responsible, in particular, for the scientific project oversight, co-ordination with other GEF projects (particularly those designed by other implementing agencies and developing low carbon energy technologies related financial mechanisms in Pacific Island countries such as PIGGAREP (UNDP), SEDREA (UNDP, Palau) and the GEF projects the World Bank is currently developing. UNEP is also responsible for the internal reporting to the GEF Secretariat on progress of the project. In addition, UNEP is responsible for reporting the CO₂ emissions reductions resulting from project activities to national registries and/or international inventories. The task manager sits in the UNEP Regional Office for Asia Pacific (ROAP).

8. The project's executing agency is the International Union for the Conservation of Nature (IUCN). The regional Oceania office located in Suva, Fiji hosts the Project Management Unit (PMU). IUCN also participates in general regional co-ordination. In response to the multitude of clean energy related activities across Pacific Island countries, and in order to improve donor coordination the World Bank has established a co-ordination mechanism (Donor Working Group) under its Energizing the Pacific Program.

9. At country level there is a lead national partner organization in each country: Niue Power Corporation, Tuvalu Electricity Company and Nauru Ministry for Commerce, Industry & Environment (CIE).

Figure 1. Implementation structure as per the project document



5. Project Cost and Financing¹¹⁶

Table 2. Budget at design as per project components (source: project document)

Project component	GEF		Co-financing		Total
	USD	%	USD	%	USD

¹¹⁶ As per ProDoc

1. Low carbon Energy strategies a& enabling framework	401,000.00	12	2,958,689.00	88	3,359,689.00
2. Demonstration of feasible financing of low carbon investments	504,500.00	14	3,134,042.00	86	3,638,542.00
3. Awareness and capacity building	264,500.00	16	1,397,269.00	84	1,661,769.00
Project management	129,636.00	39	200,000.00	61	329,636.00
Total cost	1,299,636.00	14	7,690,000.00	86	8,989,636.00

6. Implementation Issues

10. The project activities were initiated approximately 3 years after the ProDoc development. Due to the changes in the implementation context the project went through a review in 2014 to adapt the project design as necessary. Nevertheless, due to changes in the project management personnel these changes were never fully integrated in the revised project design.

11. As per the most recent Progress Implementation Reports (PIRs) the project hasn't identified or reported any major issues (risks) hampering the project implementation. Nevertheless, external communications, political, environmental as well as socio-cultural contexts were identified as medium level risks in the 2016 PIR (1 July 2015 to 30 June 2016).

II. TERMS OF REFERENCE FOR THE EVALUATION

1. Objective and Scope of the Evaluation

12. In line with the UNEP Evaluation Policy¹¹⁷ and the UNEP Programme Manual¹¹⁸, the Terminal Evaluation (TE) is undertaken at completion of the project to assess project performance (in terms of relevance, effectiveness and efficiency), and determine outcomes and impacts (actual and potential) stemming from the project, including their sustainability. The evaluation has two primary purposes: (i) to provide evidence of results to meet accountability requirements, and (ii) to promote operational improvement, learning and knowledge sharing through results and lessons learned among UNEP and IUCN. Therefore, the evaluation will identify lessons of operational relevance for future project formulation and implementation [especially for the second phase of the project, if applicable].

13. In addition to the evaluation criteria outlined in section 5, below, the evaluation will address the **strategic questions** listed below. These are questions of interest to UNEP and to which the project is believed to have a substantive contribution:

- (a) What are the expected long-term outcomes and impact of the technical and financial mechanisms implemented by the project in the country level (in Nauru, Tuvalu and Niue) and to what extent these mechanisms can be replicated in other Small Island Development States (SIDS)?

¹¹⁷ <http://www.unep.org/eou/StandardsPolicyandPractices/UNEPEvaluationPolicy/tabid/3050/language/en-US/Default.aspx>

¹¹⁸ http://www.unep.org/QAS/Documents/UNEP_Programme_Manual_May_2013.pdf

- (b) Based on the experiences from this project, what are the key lessons concerning implementation of UNEP projects in the Pacific region and more precisely in Oceania?
- (c) To what extent the partner selection and capacity development among the partner organizations contributed to the sustainability of the project results?

2. Overall Approach and Methods

14. The Terminal Evaluation (TE) of the Project will be conducted by independent consultants under the overall responsibility and management of the Evaluation Office of UNEP (EOU) in consultation with the UNEP Task Manager and the executing partners.

15. It will be an in-depth evaluation using a participatory approach whereby key stakeholders are kept informed and consulted throughout the evaluation process. Both quantitative and qualitative evaluation methods will be used to determine project achievements against the expected outputs, outcomes and impacts. It is highly recommended that the consultant(s) maintains close communication with the project team and promotes information exchange throughout the evaluation implementation phase in order to increase their (and other stakeholder) ownership of the evaluation findings.

16. The evaluation will utilize Theory of Change (ToC) approach. TOC will be drafted presenting the project logic based on the project documentation, log frame, objective tree and stakeholder interviews. Further guidance on the TOC approach is available in Annex 2 and UNEP EO.

17. The findings of the evaluation will be based on the following:

(a) **A desk review of:**

- Relevant background documentation: e.g relevant market studies, regional and country level policies concerning climate change, energy efficiency and renewable energy. Documentation concerning previously implemented similar or related projects in the target countries/region (including UNDP and ADB initiatives). Project documentation of similar UNEP projects (e.g related energy efficient appliances and market transformation initiatives). Relevant/recent studies concerning energy issues of Small Islands Development States (SIDS).
- Relevant documentation related to Nationally Appropriate Mitigations Actions (NAMAs) and nationally determined contributions (NDCs).
- Project design documents (including minutes of the project design review meeting at approval); Annual Work Plans and Budgets or equivalent, inception report, revisions to the project (August 2014), the logical framework(s) and budgets.
- Project reports such as six-monthly progress and financial reports, Progress Implementation reports to GEF (PIRs), progress reports from collaborating partners, meeting minutes, relevant correspondence etc.
- Project outputs such as publications, policy drafts, and recommendations produced during the project lifecycle, materials available at <http://lowcarbonislands.org/>, and public awareness/communications materials and related monitoring data.
- Back to Office reports and other materials
- Data and findings from the Household Energy Surveys conducted at a country level.
- Documentation concerning the project reviews (mid-term reviews)
- Evaluations/reviews of similar projects (such as UNDP conducted PIGGAREP Terminal Evaluation¹¹⁹ and UNEP project evaluations implemented in the Pacific region.

(b) **Interviews (individual or in group) with:**

- UNEP Task Manager and other the key personnel at UNEP
- Project management team
- UNEP Fund Management Officer
- Project partners, including (but not limited to), IUCN, Niue Power Corporation, Tuvalu Electricity Corporation, Nauru Ministry for Commerce, Industry & Environment (CIE), national executing partners and private sector partners

¹¹⁹ <https://erc.undp.org/evaluation/evaluations/detail/6812>

- And other relevant resource persons representing the key stakeholder groups identified in the stakeholder analysis (of the evaluation inception phase).
- (c) **Surveys**, will be specified in the inception phase, if deemed useful
 - (d) **Field visits**, the evaluation team is expected to conduct evaluation missions to Bangkok (UNEP team), Fiji (IUCN regional office), Nauru, Niue and Tuvalu.
 - (e) **Other data collection tools**

3. Key Evaluation principles

18. Evaluation findings and judgments should be based on sound evidence and analysis, clearly documented in the evaluation report. Information will be triangulated (i.e. verified from different sources) as far as possible, and when verification is not possible, the single source will be mentioned (whilst anonymity is still protected). Analysis leading to evaluative judgments should always be clearly spelled out.

19. The evaluation will assess the project with respect to a minimum set of evaluation criteria grouped in nine categories: (A) Strategic Relevance; (B) Quality of Project Design; (C) Nature of External Context; (D) Effectiveness, which comprises assessments of the achievement of outputs, achievement of outcomes and likelihood of impact; (E) Financial Management; (F) Efficiency; (G) Monitoring and Reporting; (H) Sustainability; and (I) Factors Affecting Project Performance. The evaluation consultants can propose other evaluation criteria as deemed appropriate.

20. **Ratings.** All evaluation criteria will be rated on a six-point scale. Section 5, below, outlines the scope of the criteria and the ratings table in Annex 1 provides guidance on how the different criteria should be rated. A weightings table will be provided in excel format to support the determination of an overall project rating.

21. **Baselines and counterfactuals.** In attempting to attribute any outcomes and impacts to the project intervention, the evaluators should consider the difference between *what has happened with, and what would have happened without, the project*. This implies that there should be consideration of the baseline conditions, trends and counterfactuals in relation to the intended project outcomes and impacts. It also means that there should be plausible evidence to attribute such outcomes and impacts to the actions of the project. Sometimes, adequate information on baseline conditions, trends or counterfactuals is lacking. In such cases this should be clearly highlighted by the evaluators, along with any simplifying assumptions that were taken to enable the evaluator to make informed judgements about project performance.

22. **The “Why?” Question.** As this is a terminal evaluation and a follow-up project is likely [or similar interventions are envisaged for the future], particular attention should be given to learning from the experience. Therefore, the “Why?” question should be at the front of the consultants’ minds all through the evaluation exercise. This means that the consultants need to go beyond the assessment of “what” the project performance was, and make a serious effort to provide a deeper understanding of “why” the performance was as it was. This should provide the basis for the lessons that can be drawn from the project. In fact, the usefulness of the evaluation will be determined to a large extent by the capacity of the consultants to explain “why things happened” as they happened and are likely to evolve in this or that direction, which goes well beyond the mere review of “where things stand” at the time of evaluation.

23. A key aim of the evaluation is to encourage reflection and learning by UNEP staff and key project stakeholders. The consultant should consider how reflection and learning can be promoted, both through the evaluation process and in the communication of evaluation findings and key lessons.

24. **Communicating evaluation results.** Once the consultant(s) has obtained evaluation findings, lessons and results, the EOU will share the findings and lessons with key stakeholders. Evaluation results should be communicated to key stakeholders in a brief and concise manner that encapsulates the evaluation exercise in its entirety. There may, however, be several intended audiences, each with different interests and needs regarding the report. The Evaluation Manager will plan with the consultant(s) which audiences to target and the easiest and clearest way to communicate the key evaluation findings and lessons to them. This may include some or all of the following; a webinar, conference calls with relevant stakeholders, the preparation of an evaluation brief or interactive presentation.

4. Evaluation Criteria

(Supplementary information on approaches will be provided by UNEP Evaluation office)

A. Strategic Relevance

25. The evaluation will assess, in line with the OECD/DAC definition of relevance, 'the extent to which the activity is suited to the priorities and policies of the target group, recipient and donor'. The evaluation will include an assessment of the project's relevance in relation to UNEP's mandate and its alignment with UNEP's policies and strategies at the time of project approval. Under strategic relevance an assessment of the complementarity of the project with other interventions addressing the needs of the same target groups will be made. This criterion comprises four elements:

1. *Alignment to the UNEP Medium Term Strategy¹²⁰ (MTS) and Programme of Work (POW)*

26. The evaluation should assess the project's alignment with the MTS and POW under which the project was approved and include reflections on the scale and scope of any contributions made to the planned results reflected in the relevant MTS and POW.

2. *Alignment to UNEP/GEF/Donor Strategic Priorities*

27. Donor, including GEF, strategic priorities will vary across interventions. UNEP strategic priorities include the Bali Strategic Plan for Technology Support and Capacity Building¹²¹ (BSP) and South-South Cooperation (S-SC). The BSP relates to the capacity of governments to: comply with international agreements and obligations at the national level; promote, facilitate and finance environmentally sound technologies and to strengthen frameworks for developing coherent international environmental policies. S-SC is regarded as the exchange of resources, technology, and knowledge between developing countries. GEF priorities are specified in published programming priorities and Climate Change focal area strategies.

3. *Relevance to Regional, Sub-regional and National Environmental Priorities*

28. The evaluation will assess the extent to which the intervention is suited or responding to the stated environmental concerns and needs of the countries, sub-regions or regions where it is being implemented. The evaluation should look at the national development plans, poverty reduction strategies and Nationally Appropriate Mitigation Action (NAMA) plans of Nauru, Niue and Tuvalu. It should also consider regional plans and strategies in Asia Pacific, and especially concerning Small Island Development States (SIDS).

4. *Complementarity with Existing Interventions*

29. An assessment will be made of how well the project, either at design stage or during the project mobilization, took account of ongoing and planned initiatives (under the same sub-programme, other UNEP sub-programmes, or being implemented by other agencies such as UNDP or Asian Development Bank) that address similar needs of the same target groups. The evaluation will consider if the project team, in collaboration with Regional Offices and Sub-Programme Coordinators, made efforts to ensure their own intervention was complementary to other interventions, optimized any synergies and avoided duplication of effort. Examples may include UNDAFs or One UN programming or World Bank initiatives. Linkages with other interventions should be described and instances where UNEP's comparative advantage has been particularly well applied should be highlighted.

Factors affecting this criterion may include:

- Stakeholders' participation and cooperation
- Responsiveness to human rights and gender equity
- Country ownership and driven-ness

¹²⁰ UNEP's Medium Term Strategy (MTS) is a document that guides UNEP's programme planning over a four-year period. It identifies UNEP's thematic priorities, known as Sub-programmes (SP), and sets out the desired outcomes, known as Expected Accomplishments (EAs), of the Sub-programmes.

¹²¹ <http://www.unep.org/GC/GC23/documents/GC23-6-add-1.pdf>

B. Quality of Project Design

30. The quality of project design is assessed using an agreed template during the evaluation inception phase, ratings are attributed to identified criteria and an overall Project Design Quality rating is established. This overall Project Design Quality rating is entered in the final evaluation ratings table as item B.

Factors affecting this criterion may include (at the design stage):

- Stakeholders' participation and cooperation
- Responsiveness to human rights and gender equity

C. Nature of External Context

31. At evaluation inception stage a rating is established for the project's external operating context (considering the prevalence of unexpected conflict, natural disasters and political upheaval). This rating is entered in the final evaluation ratings table as item C. Where a project has been rated as facing either an Unfavourable or Highly Unfavourable external operating context, the overall rating for Effectiveness may be increased at the discretion of the Evaluation Consultant and Evaluation Manager together. A justification for such an increase must be given.

D. Effectiveness

1. Achievement of Outputs

32. The evaluation will assess the project's success in producing the programmed outputs (products and services delivered by the project itself) and achieving milestones as per the project design document (ProDoc). The revision made during project implementation (in August 2014) will be considered part of the project design. The achievement of outputs will be assessed in terms of both quantity and quality, and the assessment will consider their usefulness and the timeliness of their delivery. The findings and achievement described in this section will be disaggregated by the participating countries where applicable.

33. The evaluation will briefly explain the reasons behind the success or shortcomings of the project in delivering its programmed outputs and meeting expected quality standards.

34. Factors affecting this criterion may include:

- Preparation and readiness
- Quality of project management and supervision¹²²

2. Achievement of Direct Outcomes

35. The achievement of direct outcomes is assessed as performance against the direct outcomes as defined in the reconstructed¹²³ Theory of Change. These are the first-level outcomes expected to be achieved as an immediate result of project outputs. The evaluation should report evidence of attribution between UNEP's intervention and the direct outcomes. In cases of normative work or where several actors are collaborating to achieve common outcomes, evidence of the nature and magnitude of UNEP's contribution should be included.

¹²² In some cases 'project management and supervision' will refer to the supervision and guidance provided by UNEP to implementing partners and national governments while in others, specifically for GEF funded projects, it will refer to the project management performance of the executing agency and the technical backstopping provided by UNEP.

¹²³ UNEP staff are currently required to submit a Theory of Change with all submitted project designs. The level of 'reconstruction' needed during an evaluation will depend on the quality of this initial TOC, the time that has lapsed between project design and implementation (which may be related to securing and disbursing funds) and the level of any changes made to the project design. In the case of projects pre-dating 2013 the intervention logic is often represented in a logical framework and a TOC will need to be constructed in the inception stage of the evaluation.

36. Factors affecting this criterion may include:

- Quality of project management and supervision
- Stakeholders participation and cooperation
- Responsiveness to human rights and gender equity
- Communication and public awareness
- Catalytic role and replication

3. *Likelihood of Impact*

37. Based on the articulation of longer term effects in the reconstructed TOC (i.e. from *direct outcomes, via intermediate states, to impact* – see Annex 2), the evaluation will assess the likelihood of the intended, positive impacts becoming a reality. The Evaluation Office’s approach is outlined in Annex 2 and further guidance is available at UNEP Evaluation Office. Essentially the approach follows a ‘likelihood tree’ from direct outcomes to impacts, taking account of whether the *assumptions and drivers* identified in the reconstructed TOC held. The evaluation will pay attention to other on-going initiatives in the region and their contribution to some of the result areas of this project (i.e – IRENA Pacific Lighthouse publications and the launch of the Pacific Regional Data Repository).

38. Any unintended positive effects should also be identified and their causal linkages to the intended impact described. The evaluation will also consider the likelihood that the intervention may lead, or contribute to, unintended negative effects. Some of these potential negative effects may have been identified in the project design as risks or as part of the analysis of Environmental, Social and Economic Safeguards.¹²⁴

39. Ultimately UNEP and all its partners aim to bring about benefits to the environment and human well-being. Few projects are likely to have impact statements that reflect such long-term or broad-based changes. However, the evaluation will assess the likelihood of the project to make a substantive contribution to the high level changes represented by UNEP’s Expected Accomplishments, the Sustainable Development Goals¹²⁵ and/or the high level results prioritised by the funding partner (Eg. GEF focal areas).

40. Factors affecting this criterion may include:

- Stakeholders participation and cooperation
- Responsiveness to human rights and gender equity
- Country ownership and driven-ness
- Communication and public awareness
- Catalytic role and replication

E. Financial Management

41. Financial management will be assessed under three broad themes: completeness of financial information, communication between financial and project management staff and compliance with financial management standards and procedures. The evaluation will establish the actual spend across the life of the project of funds secured from all donors. This expenditure will be reported, where possible, at output level and will be compared with the approved budget. The evaluation will assess the level of communication between the project manager and the fund management officer as it relates to the effective delivery of the planned project and the needs of a responsive, adaptive management approach. The evaluation will verify the application of proper financial management standards and adherence to UNEP’s financial management policies. Any financial management issues that have affected the timely delivery of the project or the quality of its performance will be highlighted.

42. Factors affecting this criterion may include:

- Preparation and readiness
- Quality of project management and supervision

¹²⁴ Further information on Environmental, Social and Economic Safeguards (ESES) can be found at

¹²⁵ A list of relevant SDGs is available on the EO website www.unep.org/evaluation

F. Efficiency

43. Under efficiency the evaluation will assess the cost-effectiveness and timeliness of project execution. Cost-effectiveness is the extent to which an intervention has achieved, or is expected to achieve, its results at a lower costs compared with alternatives. Timeliness refers to whether planned activities were delivered according to expected timeframes as well as whether events were sequenced efficiently. The evaluation will also assess to what extent any project extension could have been avoided through stronger project management and identify any negative impacts caused by project delays or extensions. The evaluation will describe any cost or time-saving measures put in place to maximise results within the secured budget and agreed project timeframe.

44. The evaluation will give special attention to efforts by the project teams to make use of/build upon pre-existing institutions, agreements and partnerships, data sources, synergies and complementarities with other initiatives, programmes and projects etc. to increase project efficiency. The evaluation will also consider the extent to which the management of the project aimed decreasing UNEP's environmental footprint.

45. Factors affecting this criterion may include:

- Preparation and readiness
- Quality of project management and supervision
- Stakeholders participation and cooperation

G. Monitoring and Reporting

46. The evaluation will assess monitoring and reporting across three sub-categories: 'project reporting'; 'monitoring design and budgeting' and 'monitoring implementation'.

1. Monitoring Design and Budgeting

47. Each project should be supported by a sound monitoring plan that is designed to track progress against SMART indicators towards the achievement of the projects outputs and direct outcomes. The evaluation will assess the quality of the design of the monitoring plan as well as the funds allocated for its implementation.

2. Monitoring Implementation

48. The evaluation will assess whether the monitoring system was operational and facilitated the timely tracking of results and progress towards projects objectives throughout the project implementation period. It will also consider how information generated by the monitoring system during project implementation was used to adapt and improve project execution, achievement of outcomes and ensuring sustainability. The evaluation should confirm that funds allocated for monitoring were used to support this activity.

3. Project Reporting

49. The project reports will be provided to the Evaluation Consultant(s) by the UNEP task manager and project team. This will include regular progress reports submitted to GEF by the project team. The evaluation will assess the extent to which both UNEP and donor reporting commitments have been fulfilled.

50. Factors affecting this criterion may include:

- Quality of project management and supervision
- Responsiveness to human rights and gender equity

H. Sustainability

51. Sustainability is understood as the probability of direct outcomes being maintained and developed after the close of the intervention. The evaluation will identify and assess the key conditions or factors that are likely to undermine or contribute to the persistence of achieved outcomes. Some factors of sustainability may be embedded in the project design and implementation approaches while others may be contextual

circumstances or conditions that evolve over the life of the intervention. This section will also consider the project activities taken to ensure different aspects of sustainability.

1. Socio-political Sustainability

52. The evaluation will assess the extent to which social or political factors support the continuation and further development of project direct outcomes. It will consider the level of ownership, interest and commitment among government and other stakeholders to take the project achievements forwards. In particular the evaluation will consider whether individual capacity development efforts are likely to be sustained.

2. Financial Sustainability

53. Some direct outcomes, once achieved, do not require further financial inputs, e.g. a decision to formally revise a policy. However, in order to derive a benefit from this outcome further management action may still be needed e.g. to undertake actions to enforce the policy. Other direct outcomes may be dependent on a continuous flow of action that needs to be resourced for them to be maintained, e.g. continuation of a new resource management approach. The evaluation will assess the extent to which project outcomes are dependent on future funding for the benefits they bring to be sustained. Secured future funding is only relevant to financial sustainability where the direct outcomes of a project have been extended into a future project phase. The question still remains as to whether the future project outcomes will be financially sustainable.

3. Institutional Sustainability

54. The evaluation will assess the extent to which the sustainability of project outcomes is dependent on issues relating to institutional frameworks and governance. It will consider whether institutional achievements such as governance structures and processes, policies, sub-regional agreements, legal and accountability frameworks etc. are robust enough to continue delivering the benefits associated with the project outcomes after project closure.

55. Factors affecting this criterion may include:

- Stakeholders participation and cooperation
- Responsiveness to human rights and gender equity
- Communication and public awareness
- Country ownership and driven-ness
- Catalytic role and replication

I. Factors and Processes Affecting Project Performance

(These factors are rated in the ratings table, but are discussed as cross-cutting themes as appropriate under the other evaluation criteria, above)

1. Preparation and Readiness

56. This criterion focuses on the inception or mobilisation stage of the project. The evaluation will assess whether appropriate measures were taken to either address weaknesses in the project design or respond to changes that took place between project approval, the securing of funds and project mobilisation. In particular the evaluation will consider the nature and quality of engagement with stakeholder groups by the project team, the confirmation of partner capacity and development of partnership agreements as well as initial staffing and financing arrangements.

2. Quality of Project Management and Supervision

57. In some cases 'project management and supervision' will refer to the supervision and guidance provided by UNEP to implementing partners and national governments while in others, specifically for GEF funded projects, it will refer to the project management performance of the executing agency and the technical backstopping and supervision provided by UNEP.

58. The evaluation will assess the effectiveness of project management with regard to: providing leadership towards achieving the planned outcomes; managing team structures; maintaining productive

partner relationships (including Steering Groups etc.); communication and collaboration with UNEP colleagues; risk management; use of problem-solving; project adaptation and overall project execution.

3. Stakeholder Participation and Cooperation

59. Here the term 'stakeholder' should be considered in a broad sense, encompassing all project partners, duty bearers with a role in delivering project outputs and target users of project outputs and any other collaborating agents external to UNEP. The assessment will consider the quality and effectiveness of all forms of communication and consultation with stakeholders throughout the project life and the support given to maximise collaboration and coherence between various stakeholders, including sharing plans, pooling resources and exchanging learning and expertise.

4. Responsiveness to Human Rights and Gender Equity

60. The evaluation will ascertain to what extent the project has applied the UN Common Understanding on the human rights based approach (HRBA) and the UN Declaration on the Rights of Indigenous People. Within this human rights context the evaluation will assess to what extent the intervention adheres to UNEP's Policy and Strategy for Gender Equality and the Environment.

61. In particular the evaluation will consider to what extent project design, implementation and monitoring have taken into consideration: (i) possible gender inequalities in access to and the control over natural resources; (ii) specific vulnerabilities of women and children to environmental degradation or disasters; and (iii) the role of women in mitigating or adapting to environmental changes and engaging in environmental protection and rehabilitation.

5. Country Ownership and Driven-ness

62. The evaluation will assess the quality and degree of engagement of government / public sector agencies in the project. The evaluation will consider the involvement not only of those directly involved in project execution and those participating in technical or leadership groups, but also those official representatives whose cooperation is needed for change to be embedded in their respective institutions and offices. This factor is concerned with the level of ownership generated by the project over outputs and outcomes and that is necessary for long term impact to be realised.

6. Communication and Public Awareness

63. The evaluation will assess the effectiveness of: a) communication of learning and experience sharing between project partners and interested groups arising from the project during its life and b) public awareness activities that were undertaken during the implementation of the project to influence attitudes or shape behaviour among wider communities and civil society at large. The evaluation should consider whether existing communication channels and networks were used effectively and whether any feedback channels were established. Where knowledge sharing platforms have been established under a project the evaluation will comment on the sustainability of the communication channel under socio-political, institutional or financial sustainability, as appropriate.

7. Replication and Scaling Up

64. The evaluation will assess the extent to which the project has promoted replication and/or scaling up. Replication and scaling up are all examples of multiplier effects i.e. ways in which the benefits stemming from the project funded activities are extended beyond the targeted results or the targeted implementation area. Replication refers to approaches being repeated or lessons being applied in different geographic areas or among different target groups. Scaling up refers to approaches being adopted on a much larger scale. Both replication and scaling up are often funded by other sources. Piloting innovative approaches and demonstrating how new knowledge can be applied is a common method used to stimulate replication and justify the scaling up of efforts. Fundamentally, all these roles imply cost-savings in the sense that effective approaches or evidence have been established that can be applied by others or elsewhere, without the duplication of investment or effort.

5. Evaluation Deliverables and Review Procedures

65. The evaluation team will prepare:

- **Inception Report:** (see Annex 3 for Inception Report outline) containing an assessment of project design quality (Annex 4), a draft reconstructed Theory of Change of the project, project stakeholder analysis, evaluation framework and a tentative evaluation schedule.
- **Preliminary Findings Note:** typically in the form of a powerpoint presentation, the sharing of preliminary findings is intended to support the participation of the project team, act as a means to ensure all information sources have been accessed and provide an opportunity to verify emerging findings. In the case of highly strategic project/portfolio evaluations or evaluations with an Evaluation Reference Group, the preliminary findings may be presented as a word document for review and comment.
- **Draft and Final Evaluation Report:** (see Annex 5 for Evaluation Report outline) containing an executive summary that can act as a standalone document; detailed analysis of the evaluation findings organised by evaluation criteria and supported with evidence; lessons learned and recommendations and an annotated ratings table.
- **Evaluation Bulletin:** a 2-page summary of key evaluation findings for wider dissemination throughout the EOU website.

66. **Review of the draft evaluation report.** The evaluation team will submit a zero draft report to the Evaluation Manager and revise the draft in response to their comments and suggestions. Once a draft of adequate quality has been accepted, the Evaluation Manager will share the first draft report with the Task Manager, who will alert the EO in case the report contains any blatant factual errors. The Evaluation Manager will then forward the first draft report (corrected by the evaluation team where necessary) to other project stakeholders, for their review and comments. Stakeholders may provide feedback on any errors of fact and may highlight the significance of such errors in any conclusions as well as providing feedback on the proposed recommendations and lessons. Any comments or responses to the draft report will be sent to the Evaluation Manager for consolidation. The Evaluation Manager will provide all comments to the evaluation team for consideration in preparing the final report, along with guidance on areas of contradiction or issues requiring an institutional response.

67. The UNEP Evaluation Office will assess the ratings in the final evaluation report based on a careful review of the evidence collated by the evaluation consultants and the internal consistency of the report. Where there are differences of opinion between the evaluator and UNEP Evaluation Office on project ratings, both viewpoints will be clearly presented in the final report. The UNEP Evaluation Office ratings will be considered the final ratings for the project.

68. The Evaluation Manager will prepare a **quality assessment** of the zero draft and final draft report, which is a tool for providing structured feedback to the evaluation consultants. The quality of the report will be assessed and rated against the criteria specified in Annex 6.

69. At the end of the evaluation process, the Evaluation Office will prepare a Recommendations Implementation Plan in the format of a table to be completed and updated at regular intervals by the Task Manager. The EOU will track compliance against this plan on a six monthly basis.

6. Logistical arrangements

70. This Terminal Evaluation will be undertaken by two independent evaluation consultants contracted by the UNEP Evaluation Office. The consultants will work under the overall responsibility of the UNEP Evaluation Office and will consult with the EO on any procedural and methodological matters related to the evaluation. It is, however, the consultants' individual responsibility to arrange for their travel, visa, obtain documentary evidence, plan meetings with stakeholders, organize online surveys, and any other logistical matters related to the assignment. The UNEP Task Manager and project team will, where possible, provide logistical support (introductions, meetings etc.) allowing the consultants to conduct the evaluation as efficiently and independently as possible.

7. The Consultants' Team

71. For this evaluation, the evaluation team will consist of a Team Leader and one Supporting Consultant. Details about the specific roles and responsibilities of the team members are presented in Annex 8 of these TORs. The Team Leader should have 20 years of technical / evaluation experience, including of evaluating regional programmes and using a Theory of Change approach; and a broad understanding of large-scale, consultative assessment processes and factors influencing use of assessments and/or scientific research for decision-making. The Supporting Consultant will have a solid environmental education and professional experience; adequate evaluation experience as well as regional knowledge.

72. The Team Leader will coordinate data collection and analysis, and the preparation of the main evaluation deliverables, with substantive contributions by the Supporting Consultant. Both consultants will ensure together that all evaluation criteria and questions are adequately covered.

73. By undersigning the service contract with UNEP/UNON, the consultants certify that they have not been associated with the design and implementation of the project in any way which may jeopardize their independence and impartiality towards project achievements and project partner performance. In addition, they will not have any future interests (within six months after completion of the contract) with the project's executing or implementing units.

8. Schedule of the evaluation

74. Table 3 below presents the tentative schedule for the evaluation.

Table 3. Tentative schedule for the evaluation

Milestone	Deadline
Recruitment process	Mar 1 – Apr 1
Desk review and inception interviews	Apr 1 – May 15
Submission of the inception report (first version)	May 10
Submission of the inception report (final version)	May 15
Mission planning and interview protocols	May 10 – May 30
Evaluation missions – Fiji, Nauru, Niue and Tuvalu (possibly Bangkok)	Jun 1 – June 20
Additional interviews and analysis	June 20 – July 15
Note on preliminary findings and recommendations (Presentation to UNEP and IUCN)	July 15
1st draft report submitted to EOU	July 25
Draft report shared with UNEP Task Manager and PM	Aug 7
Draft Report shared with other stakeholders	Aug 24
Final Report	Sep 15

List of Evaluation TOR Annexes¹²⁶

Annex	Document
Annex 1	Evaluation Ratings Table
Annex 2	Introduction to Theory of Change
Annex 3	Structure and Contents of the Inception Report
Annex 4	Template for the assessment of the Quality of Project Design
Annex 5	Structure and Contents of the Main Evaluation Report
Annex 6	Quality Assessment of the Evaluation Report
Annex 7	Consultant-specific Terms of Reference

¹²⁶ The Evaluation Office of the UN Environment is currently updating its guidance materials at <http://web.unep.org/evaluation/>. Application of these templates and tool described in Annex should be discussed with the evaluation manager.

1. Evaluation Itinerary

Milestone	Timeframe
Recruitment process	Mar 1 – Apr 1
Desk review and inception interviews	Apr 1 –May 15
Submission of the inception report (first version)	May 10
Submission of the inception report (final version)	May 15
Mission planning and interview protocols	May 10 – May 30
Evaluation missions – <ul style="list-style-type: none"> • Fiji, • Nauru, • Niue and • Tuvalu 	June 11-16 June 16 -23 June 23 -30 June 17 -23
Additional interviews and analysis	July 3 – August 20
Note on preliminary findings and recommendations	July 25
1st draft report submitted to EOU	August 30
Draft report shared with UN ENVIRONMENT Task Manager and PM	October 28
Draft Report shared with other stakeholders	December 13
Final Report	January 2018

2. Stakeholders consulted during missions

5 – 9 June 2017 - Suva, Fiji (Alfredo Caprile and Sirikul Prasitpianchai)

Date	Organization	Contact person	Roles/responsibilities/agenda
June 12 – 15	IUCN	Andrew Irvin	Project Manager
June 14	IUCN ELP	Maria-Goreti Muavesi	Legislative for RE grid interconnection (Output 1.4)
June 12	Clay Energy	Tushar Keshav	Procurement of solar PV equipment
June 12	UNDP	Thomas Jensen	Related projects in Pacific + energy home survey for Nauru
June 12	Oceanic Communications LTd	Sera Raisulu	Web page design and hosting
June 12	German International Cooperation (GIZ)	Ravinesh Nand	ACSE projects in Tuvalu and Nauru

June 12	Secretariat of the Pacific Community (SPC)	Makereta Lomaloma	Co-financing PRDR (RE resource assessment, Output 2.1) PALS (Output 1.4)
June 15		Adi Kuini Rabo Frank Vukikomoala	

12 – 16 June 2017 – Tuvalu (Sirikul Prasitpianchai)

Date	Organization	Contact Person	Roles/responsibilities/agenda
June 20	Tuvalu Electricity Corporation	Mafalu Lotolua (General Manager)	RE/EE Acts Solar PV training Output 1.2 (Resource assessment, DSM plan) Output 1.5 (Electricity sector plan, Smart grid, KEMA) Low Carbon Fund
June 20	Development Bank of Tuvalu	Belinda Samhei	Low Carbon Fund
June 20	Ministry of Education	Neaki Letia	Output 3.4 (RE/EE awareness in school)
June 20	Taiwan ICDF	Chao Chiung Liao	Taiwan aids to Tuvalu
June 21	Ministry of Finance	Vava Fatuuga	IPP/PPA
June 21	Department of Energy	Nielu Meisake (Acting Director)	RE/EE Acts Solar PV training Output 1.2 (Resource assessment, DSM plan) Output 1.5 (Electricity sector plan, Smart grid) Low Carbon Fund
June 21	Ministry of Public Utilities and Industries	Siemai Apinelu (Assistant Secretary)	GPAS-LCI project
June 21	UN Joint Office	Seveleni Kapua	UN projects in Tuvalu
June 21	Mika Garage (Solar installation site)	Nielu Meisake (Acting Director)	Solar installation
June 22	Tuvalu National Private Sector Organization (TNPSO)	Kitiona Tausi (Secretary General)	Private sector investment (Output 1.6, Output 3.2) Low Carbon Fund
June 22	New Zealand Volunteer Service Abroad (NZ VSA)	Diane Thorne-George Matthew Young	Possible works of volunteers to compliments GPAS-LCI project
June 22	Ministry of Justice, Office of Attorney General	Laingane Italeli Maina	Output 1.4 (IPP/PPA, EE Legislation)
June 23	ICT Office	Tele Pelosa (ICT Officer)	Output 3.4 (www.lowcarbonislands.org)

		Opetaiia Simati (ICT Director)	
June 23	Tuvalu Association of NGO (TANGO)	Roger Sulata (Vice President)	Civil society participation in the project Low Carbon Fund
June 23	Tuvalu Electricity Cooperation (TEC)	Fatonga Talama (General Manager)	Solar training
June 23	Department of Energy Development Bank of Tuvalu	Nielu Meisake (DOE Acting Director) Manraoi Vaaia (DBT General Manager) Belinda Samhei (Acting Manager)	Cooperation of DOE and DBT on Low Carbon Fund

12 – 15 June 2017 – Nauru (Alfredo Caprile)

Date	Organization	Contact Person	Roles/responsibilities/agenda
June 19	Ministry for Commerce, Industry and Environment (CIE)	Mavis Depaune /Acting Permanent Secretary Reagan Moses / Director of Energy	Project Partner/GEF focal point
June 19	Ministry of Finance	Henry Cocker (Deputy Secretary for Finance, Planning and Aid Division Justin Togorn	Low Carbon Fund IPP/PPA
June 19	Ministry for Home Affairs, Education and Land Management	Dr.Maria Gaiyabu Fay Italia	Output 3.4 (Awareness of RE/EE program in schools)
June 19	Ministry of Justice	Kerryn Kwan	IPP, PPA, legislative
June 21	Media office	Johanna Olsson (Director Government Information Office) Dominic Appir	Output 3.4 RE/EE promotion
June 19	Statistics Office	Ramrakha Detenamo	Energy Survey (capacity building for surveyors, jobs creation)

June 16 June 21	Nauru Utility Corporation	Abe Simpson (General Manager) Apenisa Manuduitagi	Energy Survey RE/EE Acts Solar PV training Output 1.2 (Resource assessment, DSM plan) Output 1.5 (Electricity sector plan, Smart grid) Low Carbon Fund
June 16	UN Joint office	Erana Aliklik	Synergy of UN projects in Nauru
June 19	Taiwanese embassy	Joseph Chow (Ambassador) Shau Ann Lee (Assistant)	Solar Projects and EE lightings funded by Taiwanese government
June 21	-		

19 – 22 June 2017 – Niue (Alfredo Caprile)

Date	Organization	Contact Person	Roles/responsibilities/agenda
June 27	Department of Environment	Sauni Tongatule (Director)	Project Partner/GEF Focal Point
June 27	Department of Natural Resources	Josie Tamate	Resource assessment
June 26 -29	Project Coordination Unit	Angela Tuhipa Jazinta Levi	RE/EE funded projects in Niue
June 27	Niue Tourism Office	Vanessa Limatoa Marsh	Low Carbon Vehicle
June 27	Niue Broadcasting Corporation	Trevor Tiakia	Output 3.4 RE/EE promotion
June 29	Niue Development Bank	Wayne McCaughan (general Manager)	Low Carbon Fund RE Loan program
June 28	Niue Power Corporation	Speedo Hetutu (General Manager) Deve Talagi (General Manager, Public Works)	Solar PV training Output 1.2 (Resource assessment, DSM plan) Output 1.5 (Electricity sector plan, Smart grid) Low Carbon Fund
June 29	Ministry of Infrastructure	Andre Siohane (Director General)	Energy Road Map

June 28	Niue Chamber of Commerce	Rae Finlay	Private sector investment Low Carbon Fund
June 26	Crown Law Office	Peleni Talagi	Output 1.4 (Policy and legislative)
June 29	Member of Parliament	Terry Coe	Owner of a solar PV system and wind power generator off grid
June 29	Department of Treasury	Sione Pokau	Energy Legislation
June 29	Department of Education	Birtha Tongahai	RE/EE awareness in school
June 28	Niue Statistics office	Poi Kapaga	Household Energy Survey
June 29	Department of Justice, Lands and Survey	Richard Siataga	GIS
June 29	Stone Villa	Ida Heseke	Owner of Stone Villa –site of the pilot solar PV project

Annex III. List of key documents consulted

- Project Identification Form (PIF), “Low Carbon-Energy Islands”: Accelerating the Use of Energy Efficiency and Renewable Energy Technologies in Tuvalu, Niue, and Nauru”, August 20, 2009
- Project Document (PRODOC), “Low Carbon-Energy Islands”: Accelerating the Use of Energy Efficiency and Renewable Energy Technologies in Tuvalu, Niue, and Nauru”, July 2011
- Amendment No. 1 to the Project Cooperation Agreement Between United Nations Environment Programme (UN ENVIRONMENT) and IUCN International Union Conservation of Nature and Natural Resources
- Trip reports (Nauru, Niue and Tuvalu) 2014 – 2016
- Half Yearly Progress Reports (Nauru, Niue, and Tuvalu), 2013 – 2016
- Revised LFA 2013 and 2014
- PIRs FY 2013 – 2016
- Terminal Evaluation of UNDP/GEF project: Pacific Islands Greenhouse Gas Abatement through Renewable Energy Projects (PIGGAREP), December 2016
- Mid-term Review, Pacific SIDS Energy, Ecosystems and Sustainable Livelihoods Initiative: Managing the Ecosystem Implications of Energy Policies in the Pacific Island States, 2011
- Low Carbon Fund Mission Reports (Nauru, Niue, Tuvalu), 2015
- Presentations of Low Carbon Fund (Nauru, Niue, Tuvalu), 2015
- Literature Reviews for Low Carbon Fund (Nauru, Niue, Tuvalu)
- Guideline of Low Carbon Fund
- Cost Benefit Analysis of Energy Appliances
- Draft legislation Solar PV Training materials
- Annual work plan
- Financial Reports 2013 - 2017

Annex IV. Revision of Outputs

Source Document	CEO Endorsement Document	Project Inception Report (based on CEO Endorsement)	Project Inception Report (proposed revisions)	PIR 2014 (June 2014)	Half yearly 2014 Progress Report (after mission)
Outcome 1: Low-carbon energy strategies involving energy efficient end use technologies and decentralized embedded renewable energy-based electricity generation systems defined and endorsed by governments					
Outputs:	I A) Medium- & long-term electricity demand scenarios per country (business-as-usual & scenario options for low carbon paths) developed.	Output 1.1. Medium- & long-term electricity demand scenarios per country (business-as-usual & scenario options for low carbon paths) developed	Output 1.1: Low-carbon energy options reviewed for financial, technical and environmental feasibility	Output 1.1: (Training workshops for operational level staff (public utility/ private sector personnel) to build capacity & coordination between organizations/agencies	Output 1.1: Medium- & long-term electricity demand scenarios per country (business-as-usual & scenario options for low carbon paths) developed
	I B) Comprehensive resource assessment for renewable energy & potential for energy conservation undertaken.	Output 1.2. Comprehensive resource assessment for both renewable energy and energy conservation	Output 1.2: Supporting regulations and design standards strengthened including capacity for Implementation	Output 1.2: Provision of implementing guidelines to LCI countries for review by legislature.	Output 1.2: Comprehensive resource assessment for renewable energy and potential for energy conservation

	I C) Feasibility for maximizing low carbon power systems and capable of attracting investments established.	Output 1.3. Feasibility for maximizing low carbon power systems established and capable of attracting investment	Output 1.3: Governments of Nauru and Niue endorse strategic plan for decarbonising Economy	Output 1.3: Provide review & adaptation of available guidelines and policy (such as SPC Energy Efficiency policy & guidelines) to integrate with the needs and meet the demands of LCI countries, adapting the highest efficiency standards of countries providing products imported	Output 1.3. Feasibility for maximizing low carbon power systems and capable of attracting investments (established).
	I D) Regulatory and legal framework for grid access & certification modalities for eligible embedded RETs developed.	Output 1.4. Regulatory/legal framework for grid access & certification modalities for eligible embedded RETs developed.	Output 1.4: Preferred short-term actions are identified and stakeholders are involved	Output 1.4: Preferred short-term actions are identified and stakeholders are involved	Output 1.4: Regulatory and legal framework for grid access & certification modalities for eligible embedded RETs developed
	I E) Electricity sector plans including supply strategies involving decentralized embedded RE, energy efficiency/ conservation programs & smart grids adopted.	Output 1.5. Electricity sector plans including smart grids, energy efficiency and conservation programs & energy supply strategies involving embedded RETs.			Output 1.5: Electricity sector plans including supply strategies involving decentralized embedded RE, energy efficiency/conservation programs, & smart grids adopted.

	I F) Capable, locally-based private businesses and/or private-public partnerships to act as providers of low-carbon energy goods and services established.	Output 1.6. Capable, locally-based private businesses and/or private-public partnerships to act as providers of low-carbon energy goods and services, including RE supply.			Output 1.6: Capable, locally-based private businesses and/or private-public partnerships to act as providers of low-carbon energy goods and services, including RE supply established.
Outcome 2: Feasibility of financing low-carbon energy technologies in small island setting demonstrated through investment from the private sector and/or public-private partnership					
	II A) Knowledge management system to provide information for low carbon investments in three countries established.	Output 2.1. Existing data and information available through centralized clearing-house mechanism.	Output 2.1: Low Carbon Fund structure is developed, particularly the initial financial mechanism/offering	Output 2.1: Low Carbon Fund structure is developed, particularly the initial financial mechanism/offering	Output 2.1: Existing data and information available through centralized clearing-house mechanism
	II B) Proposed design for a low carbon power subsidy fund adopted.	Output 2.2. Feasibility of a low carbon subsidy fund assessed.	Outcome 2.2: In each country, projects demonstrate the financial model and investment opportunity created	Output 2.2: In each country, projects demonstrate the financial model and investment opportunity created	Output 2.2: Feasibility of a low carbon subsidy fund assessed

	II C) Decentralized, embedded RET tested for its technical & operational viability, assessed of its techno-economic competitiveness and co-financed by investors.	Output 2.3. Operational, embedded RET has been co financed by investors, tested for its technical & operational viability and assessed of its techno-economic competitiveness.	Outcome 2.3: Low Carbon Fund is operating	Output 2.3: Low Carbon Fund is operating by the end of the project implementation period	Output 2.3: Operational decentralized, embedded RET tested for its technical & operational viability, assessed of its techno-economic competitiveness and co-financed by investors.
Outcome 3: Awareness of low-carbon energy utilization and supply technologies of policy makers, potential markets and investors deepened and capacity to promote low carbon energy supply established					
	III A) Training programme on management and administration of low carbon investments for government personnel and private sector participants initiated.	Output 3.1. Establishment of training programme on management and administration of decentralized embedded low carbon investments for government personnel and private sector participants.	Output 3.1: Existing data and information available through centralized clearing-house mechanism	Output 3.1: Existing data and information available through PRDRSE4ALL	Output 3.1: Training programme on management and administration of low carbon investments for government personnel and private sector participants established
	III B) Investment promotion packages to stimulate investments thru low carbon power funds disseminated.	Output 3.2. Investment Promotion Package assessed and developed.	Output 3.2: Information on low-carbon energy options and financial mechanisms available through local information networks	Output 3.2: Information on low-carbon energy options and financial mechanisms available through local information networks, including IUCN website & local participating agencies	Output 3.2: Investment Promotion Package assessed and developed

	III C) Training programs for staff of regulatory agencies implemented.	Output 3.3. Regulatory capacities of government personnel are enhanced.	Output 3.3 Sub-regional cooperation and exchange of data, information and skills firmly established	Output 3.3: Exchange of data, information, and knowledge established between SIDS countries by Executing Agency	Output 3.3: Regulatory capacities of government personnel are enhanced.
	III D) Public awareness campaigns undertaken and feedbacks received.	Output 3.4. Public awareness and education campaigns	Output 3.4 Technical skills enhanced from customs to retailers and service providers	Output 3.4: Technical requirements understood across national supply chain for renewable energy & energy efficient technology	Output 3.4: Public awareness and education campaigns launched and periodically undertaken
	III E) Sub-regional cooperation mechanisms for exchange of data and information initiated.	Output 3.5. Sub-regional cooperation and exchange of data, information and skills firmly established	Output 3.5 Improved capacity for administration of low carbon fund and other financial mechanisms	Output 3.5: Improved capacity for administration of Low Carbon Fund and other financial & market driving mechanisms	Output 3.5: Sub-regional cooperation and exchange of data, information and skills firmly established

Annex V. Stakeholder Matrix

1. UN, Development Partners and Regional Organizations

Stakeholder	Responsibility/Role	Engagement	Role in Evaluation	Discussion
IUCN	IUCN is the Executing agency of the GPAS-LCI project. Its Oceania office host the Project Management Unit (PMU).	High	Key informant in project management	Project management Monitoring and Evaluation
IUCN ELP	IUCN ELP was sub-contracted to provide advisory support to in-country Crown Law office and assist in reviewing and localized draft of PPA, IPP, Feed-in Tariff, Regulatory for grid access and certification, Customs, duty and tax for RE and EE technology and other sustainable energy program contracts.	High	Key informant in project output on legislative	Legislative for RE grid interconnection (Output 1.4)
UNDP	Implementing agency for climate change mitigation projects in the region such as PIGGAREP.	Medium	Informant	Related projects in Pacific
GIZ	Implementer of EU-GIZ ACSE program that support climate mitigation projects and Pac-TVET that support vocational training in the region.	Low	Informant	Projects in Tuvalu, Nauru and Niue. Collaboration or overlapping of activates.
PPA (Pacific Power Association)	Inter-governmental agency to promote cooperation of the Pacific island power utilities.	Medium	Informant	Co-financing IPP/PPA (Output 1.4)
SPC (Secretariat of the Pacific Community)	Support Pacific governments working in energy sector and facilitate access to energy data and project information. Provide information and partnering in Pacific Appliance Labeling Scheme	Medium	Informant	Co-financing PRDR (RE resource assessment, Output 2.1) PALS (Output 1.4)

	(PALS) and Pacific Regional Data Repository (PRDR).			
SEIAPI	Organization provide training and certification of RE technology in the Pacific	Low	May not need to be interviewed	RE Certification/training (Output 1.4)
SPREP (not in Fiji – in Samoa)		Low	May not need to be interviewed	Related projects in Pacific

2. Tuvalu

Organization	Responsibility/Role	Engagement	Role in Evaluation	Discussion
Public sector				
Ministry of Public Utilities and Industries	Main partner of Tuvalu. Seems to have limited role and participation in the project implementation.	Low	Informant as project partner	Co-financing commitment
Ministry of Works, Energy and Natural Resources	Project partner and is GEF Focal Point. Limited role and participation in the project implementation.	Low	Informant as project partner	Other GEF funded projects in Tuvalu Co-financing commitment
Department of Energy	Beneficiary of technical assistance and capacity building and policy planning and regulatory. - RE/EE incentives and measures - Solar PV training - Electricity sector plan, resource assessment, DSM plan, Smart grid - IPP/PPA - Low Carbon Fund	High	Informant as key partner including future directions and sustainability of interventions	- National energy policy (whether results from project are integrated into national policy) - Adoption of regulatory - Capacity and capability of DOE - Knowledge and attitude towards electricity plan integrating RE and EE
Tuvalu Electricity Corporation	Beneficiary of technical assistance and capacity building and policy planning and regulatory.	High	Informant as key partner including	- Capacity and capability of TEC - Knowledge and attitude towards electricity plan integrating RE and EE

	<ul style="list-style-type: none"> - RE/EE incentives and measures - Solar PV training - Electricity sector plan, resource assessment, DSM plan - Grid stability, Smart grid, KEMA - IPP/PPA - Low Carbon Fund 		future directions and sustainability of interventions	<ul style="list-style-type: none"> - Level of knowledge in PV design and installation - Attitude towards RE power and grid stability - Has electricity plan and DSM plan been adopted by TEC?
Ministry of Justice, Office of Attorney General	Key partner in drafting of IPP and PPA Energy Efficiency Act	Medium	Informant as key driver to sustainability of Outcome 1	Status of legislation/ regulatory of IPP/PPA
Ministry of Finance	Involve in IPP/PPA regulation	Low	Informant as partner	Status of legislation/ regulatory of IPP/PPA
Gender Affair Office	Not involved in project but is the national agency responsible for gender affair	Medium	Informant	Crosscutting issue (gender) Gender in RE and EE in Tuvalu
Ministry of Education	Beneficiary of RE/EE curriculum and awareness program (essay contest) in schools	High	Informant as key partner including future directions and sustainability of interventions	Effectiveness of RE/EE awareness in schools
ICT Office	Support development and maintenance of www.lowcarbonfund.org	Medium	Informant	Capacity and capability to maintain www.lowcarbonislands.org
Private sector				
Development Bank of Tuvalu	Key partner in Low carbon Fund	High	Informant as key partner in Outcome 2	<ul style="list-style-type: none"> - Fund performance of Low Carbon Fund - Capacity and capability of DBT in fund management - EESLI fund and Low Carbon Fund

Retailer of appliances	Not directly involved in project but is the channel for distribution of high EE appliances	Low	Informant	Awareness, sales and marketing of high EE appliances
Household	Beneficiary of project activities	Low	Informant	A small number of informants may be interview to assess their understanding and awareness of RE power and EE appliances and Low Carbon Fund (effectiveness of awareness activity)
Civil Society / International agency				
Tuvalu Association of NGO (TANGO)	Civil society participation in the project Potential beneficiary of Low Carbon Fund	Low	Informant	Impact of project to energy, environment and livelihood in Tuvalu
Tuvalu National Private Sector Organization (TNPSO)	Main channel to distribute information on Low Carbon Fund to private sector	Medium	Informant	Views of Low Carbon Fund (pro/con), benefits to members, any business development opportunity from the Fund
UN Joint Office	No explicit role but communication maintain	Low	Informant	GEF funded projects in Tuvalu
Taiwan ICDF	Not involved in project but Taiwanese funded solar and EE lighting projects contribute to RE/EE activities in Tuvalu	Low	Informant	Details of solar and EE lightings.

3. Nauru

Organization	Responsibility/Role	Engagement	Role in Evaluation	Discussion
Public sector				
Ministry for Commerce, Industry and	Project Partner/GEF focal point. Keep informed of overall project activities	Medium	Informant	Roles of CIE and sustainability of project results

Environment (CIE)				
Ministry of Finance	Partner in development of Low Carbon Fund	Low	Key informant in financial sustainability	Low Carbon Fund
Ministry for Home Affairs, Education and Land Management	Partner in RE/EE awareness and education program in schools	Medium	Key informant in impact of awareness program	Effectiveness of awareness program in school
Ministry of Justice	Partner in drafting of legislatives. Beneficiary in IPP/PPA training	High	Key informant in politically sustainability	Status of legislative related to IPP, PPA, feed-in tariff, net-metering, customs
Media office	Key partner in RE/EE awareness and promotion activities through television, and radio	Medium	Informant	Effective marketing channel for RE/EE promotion
Statistics Office	Partner in energy survey	Medium	Informant	Energy Survey (capacity building for surveyors, jobs creation)
Nauru Utility Corporation	Beneficiary of technical assistance and capacity building and policy planning and regulatory. - Solar PV training - Resource assessment, DSM plan - Electricity sector plan, Smart grid - Low Carbon Fund	High	Key informant of project result, impact and sustainability	- NUC Acts - Integration of electricity plan developed by the project into NUC policy planning - NUC directions on DSM plan and smart grid - NUC role in Low Carbon Fund - Electricity tariff structure - Knowledge of PV system (M&E after training) - Capacity and capability of NUC in handling RE system grid integration
Private sector				

Bendigo Bank	Partner in Low Carbon Fund	Medium	Key informant in sustainability of Low Carbon Fund	Fund performance of Low Carbon Fund Sustainability of fund Capacity and capability of the bank in fund management
Solar PV installation site (Od'n Aiwo Hotel)	Beneficiary of technical assistance in solar PV system	Low	Informant	Evidence of result (Output 2.3) Performance of system, impact and sustainability
Retailers, suppliers of EE appliances	Not directly involved in project but is the channel for distribution of high EE appliances	Low	Informant	Awareness, sales and marketing of high EE appliances
Potential investors in commercial sector (hotels, supermarkets)	Potential investors of RE/EE	Low	Informant	Awareness of Low Carbon Fund Attitude and/or any plan in RE/EE investment
Civil Society / International agency				
UN Joint office	UNDP energy survey training	Medium	Informant	Energy household survey Synergy of UN projects in Nauru
Taiwanese embassy	Not involved in project but Taiwanese funded solar and EE lighting projects contribute to RE/EE activities in Nauru	Low	Informant	Solar Projects and EE lightings funded by Taiwanese government and their impacts
Nauru Private Business Sector Organization (NPBSO)	Seem not to have much role or engagement in the project activities	Low	Informant	Low Carbon Fund Private sector investment

4. Niue

Organization	Responsibility/Role	Engagement	Role in Evaluation	Discussion
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Public Sector				
Department of Environment	Main project partner and GEF focal point	Low	Informant	Co-financing commitment
Department of Natural Resources	Seem to have limited role in the project but involve in resource assessment	Low	Informant	Resource assessment
Project Coordination Unit	Coordinate project activities	High	Key informant of project activities	Overall project coordination, activities and other RE project in Niue
Niue Power Corporation	Beneficiary of technical assistance and capacity building and policy planning and regulatory. - Solar PV training - Resource assessment, DSM plan - Electricity sector plan, Smart grid - Low Carbon Fund	High	Key informant of project results, output, impact and sustainability	- Grid stability and RE power and Smart Grid - Feed-in Tariff and electricity tariff structure - Knowledge of PV system (M&E after training) - Capacity and capability of NUC in handling RE system grid integration - DSM plan
Crown Law Office	Partner in development of legislative on RE/EE	Medium	Informant of political sustainability	Policy and legislative IPP/PPA Feed-in Tariff Net metering
Department of Treasury	Involved in legislative development	Low	Informant	Energy Legislation
Department of Education	Partner in RE/EE awareness in school activity	High	Informant of project impact	RE/EE awareness in school
Private sector				
Solar installation site (Stone villa)	Beneficiary of technical assistance in solar PV system	Low	Informant	System performance and sustainability

Niue Development Bank	Partner in Low Carbon Fund	Medium	Key informant of project result and sustainability	Low Carbon Fund RE Loan program
Retailers, suppliers of EE appliances	Not directly involved in project but is the channel for distribution of high EE appliances	Low	Informant	Awareness, sales and marketing of high EE appliances
Potential RE investors (commercial sectors i.e. hotels)	Potential investors of RE/EE	Low	Informant	Awareness of Low Carbon Fund Attitude and/or any plan in RE/EE investment
Civil Society / international agency				
NIUNGO (Niue Island United Association of NGO)	NIUNGO is actively involved in project activities and is potential supplier of EE appliances, potential beneficiary of Low Carbon Fund	Medium	Informant	Role of association and Low Carbon Fund
Niue Chamber of Commerce	Potential beneficiary of Low Carbon Fund	Medium	Informant	Business Development Fund and Low Carbon Fund in views of investors
NZ High Commission	Co-finance of solar installation	Low	Informant	Related activities in Niue and co-financing of solar installation

Annex VI. Other Energy Sector Interventions in the Region

	Project Name	Project Timeframe	Project Organizations	Project Description
1	Pacific Regional Data Repository (PRDR)	2009-onward	Lead Agency: Secretariat of the Pacific Community Donors: Australia, EU, World Bank	The Pacific Regional Data Repository is a Data and Information Revolution for the Pacific Island Countries and Territories (PICTs). It is a web-based one-stop-shop energy portal and database management system intended to support Pacific governments and their development partners working in the energy sector by facilitating access to up-to-date, reliable energy data and project information.
2	Energy, Ecosystems and Sustainable Livelihoods Initiative (EESLI)	2008-onward	Lead Agency: IUCN Oceania Regional Office Donors: Austria, Italy, Luxembourg, Spain	While the EESLI project operates across the region, the IUCN ORO office is specifically conducting supplementary work in Tuvalu in the following areas: <ul style="list-style-type: none"> • Installation of solar hybrid systems at Motufoua High School • Energy efficiency loan subsidy programme with the Development Bank of Tuvalu
3	90kW Solar System Niue International Airport	2014	Lead Agency: Niue Government (Niue Power Corporation) Donors: EU	On the 1st May 2015, a 90kW solar system was formally opened at Niue International airport by the Premier Honourable Toke Talagi. The system was designed; supplied and installed by SEIAPI member CBS Power Solutions a Fijian based renewable energy company. This project was funded by the European Union for the Government of Niue. The system has not been properly integrated into the grid operations, however, and has not been operating at full capacity since installed.
4	Pacific Appliance Labelling Scheme	2012-2017	Lead Agency: Secretariat of the Pacific Community Donors: Australia	The PALS Programme was designed to assist Pacific countries implement labelling and standards for energy using equipment such as refrigerators, freezers, air conditioners and lighting. The need for introducing a PALS programme to the Pacific region was realised at the 42nd meeting of Pacific Islands Forum Leaders in September 2011. At that same meeting, Australia's Prime Minister Julia Gillard announced her support for the introduction of energy labelling and standards for electrical appliances in the Pacific region. This led to the establishment of a PALS programme at SPC, supported by Australia. PALS has now expanded to include 12 PICTs (Tuvalu and Niue included – Nauru was not incorporated despite efforts by IUCN to coordinate SPC and Nauru government participation.)
5	Pacific Technical and Vocational Education and Training (PACTVET)	2014-2019	Lead Agency: Secretariat of the Pacific Community, The University of the South Pacific Donors: EU	The general objective of this project is to enhance sustainable livelihoods in and across the Pacific Region. Sustainable livelihoods are a high priority for Pacific Island communities and governments alike. They are central to current development policy including resource management and conservation but also in emerging policy to meet threats such as climate change. The project aims to enhance Pacific regional and national capacity and technical expertise to respond to climate change adaptation (CCA) and sustainable energy (SE) challenges. The project is being implemented by the Secretariat of the Pacific Community (SPC) in partnership with the University of the South Pacific (USP) over a period of 53 months from August 2014 with an overall budget of EUR 6.1 million. (Operating in Nauru, Niue, and Tuvalu.)

6	International Climate Initiative (ICI) - Gender Equity in Climate Change Adaptation and Low Carbon Development	2011-2014	Lead Agency: Secretariat of the Pacific Community Donors: Germany	ICI was a multi-country programme for 10 of SPC's member countries (RMI, FSM, Palau, Fiji, Solomon Islands, Niue, Nauru, Kiribati, Tuvalu, Cook Islands) The objectives of the ICI projects are as follows: <ul style="list-style-type: none"> • Awareness-raising on gender aspects of climate change and increasing the knowledge about the topic. • Increasing the number of women and gender experts in climate policy-making (on local, national, and international level) • Generating and disseminating experience-based knowledge about gender sensitive approaches in adaptation, mitigation and climate policy.
7	Pacific Islands Greenhouse Gas Abatement through Renewable Energy "Plus" Project (PIGGAREP +)	2013-2014	Lead Agency: Secretariat of the Pacific Regional Environment Programme and United Nations Development Programme Donors: Denmark, GEF	PIGGAREP is an ongoing regional UNDP-GEF project project with a specific objective of promoting the productive uses of renewable energy (PURE) to reduce GHG emissions by removing the major barriers to the widespread and cost-effective use of commercially viable renewable energy technologies (RETs). PIGGAREP+ is an expansion of the current PIGGAREP and contributes to the achievement of the PIGGAREP objective. Nevertheless, in the context of the "plus" aspect – additional activities that will showcase feasible EE technology applications and/or EE design and operation of RET applications are included in PIGGAREP+. In Tuvalu, this included Component 2: Energy Efficiency Technology Applications (EE) Sub-Component 2.1: Demonstration EE House (Tuvalu DEEF)
8	Petroleum Sector Review	2013-2015	Lead Agency: Secretariat of the Pacific Community Donor: World Bank	Petroleum sector review was done in Tuvalu by SPC Petroleum Advisory Unit. SPC provided technical assistance to establish guidelines for the fuel gas stations and development of a petroleum sector report. Technical assistance (TA) mission was done in November 2013. Country petroleum profiles have been developed from the review.
9	Pacific Climate Change and Migration Project	2014-2015	Lead Agency: UNESCAP , ILO , UNDP Donor: EU	The Project covers the Federated States of Micronesia, Kiribati, Nauru, Republic of Marshall Islands, Palau, Papua New Guinea, Samoa, Solomon Islands, Tonga, Tuvalu and Vanuatu. In the 'target countries' of Kiribati, Tuvalu and Nauru the Project will have national actions aimed at institutional strengthening through developing migration indicators and sharing of information on labour migration; gathering data on community attitudes to climate change induced migration; assisting with the development of climate change responses and national action strategies to mitigate the risk of displacement; and enhancing national capacity to effectively participate in regional, bilateral and global schemes on labour migration.
10	Pacific Ridge-2- Reef Programme	2016-onward	Lead Agency: UNDP , Secretariat of the Pacific Community Donor: GEF	The Pacific Ridge to Reef (R2R) is a Global Environment Facility (GEF) global test case and programmatic initiative involving multiple United Nations, Regional and National agencies, and Pacific Small Island Developing States (PacSIDS) to support and address national priorities and development needs while delivering global environmental benefits in line with GEF focal area strategies - Biodiversity, Land Degradation, Climate Change Adaptation and Mitigation, International Waters and Sustainable Forest Management. It is now being operationalized in Nauru, Niue, and Tuvalu.
11	UAE Pacific Partnership Fund	2014-2016	Lead Agency: Masdar Donor: UAE	Abu Dhabi's Masdar has completed five new solar and wind projects in Pacific island nations, including Tuvalu and Nauru, as part of the UAE-Pacific Partnership Fund (UAE-PPF), helping the countries save more than US\$1 million in diesel fuel imports. The projects signify the completion of the second cycle of the UAE-PPF, a \$50m initiative that finances renewable energy projects across the Pacific. This is done using grants from the Abu Dhabi Fund for Development (ADFD), with the projects delivered by Masdar in collaboration with the Ministry of Foreign Affairs and International Cooperation.

12	Pacific Environment Community Fund 200kW Solar System Niue International Airport	2012-2014	Lead Agency: Niue Government (Niue Power Corporation) Donors: Japan	The Government of Niue was supported through PEC in a US\$4 million initiative to provide significant benefits to the people of Niue through a 200kW solar installation anticipated to reduce GHG emissions by 329 tons per year once fully operational. The system has not been properly integrated into the grid operations, however, and has not been operating at full capacity since installed.
13	Adapting to Climate Change and Sustainable Energy (ACSE)	2014-2018	Lead Agency: GIZ Donor: GIZ/EU, ADB, New Zealand	<p>The objectives of the ACSE Programme are to enhance sustainable livelihoods in Pacific Island Countries, strengthen countries' capacities to adapt to the adverse effects of climate change and enhance their energy security at the national, provincial and local/community levels.</p> <p>The ACSE Programme has three components:</p> <ul style="list-style-type: none"> • <u>Component 1</u>: the EU-GIZ Adapting to Climate Change and Sustainable Energy Component (18.64 million Euros) which is administered by the Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ); • <u>Component 2</u>: the Energy Catalytic Component (10 million Euros) which is jointly managed by the EU with the Asian Development Bank (ADB) and New Zealand in selected PACPs; and • <u>Component 3</u>: the Technical and Vocational Education and Training (TVET) Component on sustainable energy and climate change adaptation (6.1 million Euros) which is jointly managed by the EU with the Secretariat of the Pacific Community (SPC) in partnership with the University of the South Pacific. <p>The Energy Institutional Strengthening Project in Nauru will be taking on the legal review process to complete revisions begun under LCI. The Sustainable Biogas Project in Tuvalu will help diversify the renewable energy mixture and provide some capacity to offset solar grid demand. The Niue project is water related and outside the scope of the Energy sector.</p>
14	Coping with Climate Change in the Pacific Islands Region (CCCPIR) Project	2009-2018	Lead Agency: GIZ, Secretariat of the Pacific Community Donor: Germany	<p>The regional SPC/GIZ programme 'Coping with climate change in the Pacific Island Region' (CCCPIR) aims at strengthening the capacities of Pacific Island Countries (PICs) and regional organisations to cope with the anticipated effects of climate change that will affect communities across the region.</p> <p>The CCCPIR is focusing on key economic sectors such as agriculture and livestock, forestry, fisheries, and tourism. Further focal areas are energy and education. Improving the sustainable supply of energy with a focus on enhancing renewable energy and energy efficiency is critical for Pacific Island countries to increase the resilience of their economies. Integrating climate change considerations into primary and secondary education and technical and vocational training (TVET) is also vital to equipping young Pacific Islanders with the knowledge and skills required to cope with the effects of climate change.</p> <p>At the regional level, CCCPIR aligns with the Pacific Island Framework for Action on Climate Change 2006-2015 (PIFACC). At the national levels it supports the implementation of relevant adaptation and mitigation policies and strategies, e.g. National Adaptation Programmes for Action, national sustainable development strategies, and National Communications to the United Nations Framework Convention on Climate Change (UNFCCC), as well as other relevant sectoral and national policies and frameworks. In Nauru this involved the development of the National Energy Road Map, and in Tuvalu, review of the draft Tuvalu Masterplan for Renewable Energy and Energy Efficiency.</p>

15	Tuvalu 170kW Solar PV Grid Connected System	2015	Lead Agency: Tuvalu Electricity Corporation Donor: New Zealand	170kW solar PV grid connected system funded by NZMFAT. This system is installed on the roof of the main government buildings and feeding into the grid.
16	Tuvalu Solar Home Standalone (SHS) Systems and PV Cooling Storage Facility for Niulakita/Funafala	2015-onward	Lead Agency: Tuvalu Electricity Corporation Donor: Italy	<p>The Government of Tuvalu has proposed the installation of Solar Home Standalone (SHS) Systems and PV Cooling Storage Facility for the islands of Niulakita and Funafala. The project has been made possible through funding provided by the Italian Government through an agreement signed between the Government of Italy represented by the Ministry of Foreign Affairs and the Ministry of Environment, Lands and Sea and the Pacific SIDS Permanent Missions based at the United Nations in New York.</p> <p>The overall aim of the project is to improve the well-being of the residents living in these outer islands by promoting the use of renewable energy resources through the implementation of cost-effective, equitable, reliable, accessible, affordable, secure and environmentally sustainable energy systems. This is by providing them with quality lighting at night and a community cooling storage facility to drive small-scale economic activities, like preserving the freshness of fish and other food items that resident can sell their product to the main market on Funafuti, the capital of Tuvalu.</p>
17	Tuvalu Outer Islands Solar PV Installations	2014-2015	Lead Agency: Tuvalu Electricity Corporation Donor: EU	<p>The outer islands have been prioritized in the strategy toward 100 percent renewable energy for the Tuvalu MPREEE, due to the escalating costs of transporting diesel fuel to these remote locations, and the relatively low electricity demands on these islands. Seven islands have been identified for the installation of solar panel and battery systems, aimed at providing a 24 hour service for about 90% of the time – the diesel generators will be preserved to cover the emergency backup.</p> <p>The EU is funding the installations of mini-grid systems on the three southern islands, Nukulaelae (45kW), Nukufetau (77kW), and Nui (60kW). All 3 systems were commissioned between March and May 2015. Estimated fuel savings of 55,000 litres/year from these 3 mini-grid systems.</p>
18	Tuvalu Outer Islands Solar PV Installations	2014-2015	Lead Agency: Tuvalu Electricity Corporation Donor: New Zealand	<p>Seven islands have been identified for the installation of solar panel and battery systems, aimed at providing a 24 hour service for about 90% of the time – the diesel generators will be preserved to cover the emergency backup.</p> <p>The EU are funding the installations on the three southern islands (total of 110kWp), Nukulaelae, Nukufetau, and Nui, and NZMFAT are funding the installations on the four northern islands, Nanumea (195kW), Nanumaga (205kW), Niutao (230 kW) and Vaitupu (400kW). The aim is to have all of these remote island installations monitored by TEC on Fogafale, in order to facilitate timely maintenance, and maximize the uptime. These installations will dramatically decrease the cost and logistics of supplying diesel to the outer islands.</p> <p>The 4 mini-grid systems were commissioned between July and December 2015. Estimated fuel savings of 198,000 litres/years is obtained from these RE installations.</p>
19	Tuvalu Energy Sector Development Project - 925kW Solar PV Grid Connected System	2015-2019	Lead Agency: Tuvalu Electricity Corporation Donor: World Bank	<p>The objective of the Energy Sector Development Project for Tuvalu is to enhance Tuvalu's energy security by reducing its dependence on imported fuel for power generation and by improving the efficiency and sustainability of its electricity system. This project consists of the following three components:</p> <p>Component 1. Renewable Energy Investments. Supply and installation, for Tuvalu Electricity Corporation (TEC), of power-generation and grid-management equipment to increase the contribution of renewable energy in Tuvalu's hybrid generation system and to reduce diesel generation. This equipment will include</p> <ul style="list-style-type: none"> • 925 kWp solar photovoltaic (PV) and wind-power generation (200kW);

				<ul style="list-style-type: none"> • 1MWhr battery bank, sufficient for the hybrid system storage requirements, including the expected energy spillovers from the New Zealand and Masdar solar PV systems that are now being built without storage; • battery inverters and an integrated power control system to provide grid stability and other ancillary services; and a satellite-based communications system on Funafuti and three of the seven outer islands. <p>Component 2. Energy Efficiency Investments. A program of activities designed to enhance efficient use of energy will be carried out. These activities include:</p> <ul style="list-style-type: none"> • Supply and installation of prepayment meters for TEC consumers and smart meters for the largest electricity consumers; • Supply and installation of selected energy efficiency (EE) investments, such as enhanced insulation in buildings to be selected by TEC in accordance with criteria agreed with the Bank, and replacement of inefficient lighting and appliances in said buildings; • Development of policy, standards and labeling for EE; and • Activities aimed at raising consumer awareness on EE and related capacity-building activities and training.
20	Nauru Solar Energy & Desalination Plant	2012-2014	Lead Agency: Ministry of Commerce Industry and Environment Donor: Japan	Singapore's Hitachi-Aquatech awarded a contract to two New Zealand companies for a 131 kWp solar system to power a desalination plant for the Pacific island of Nauru. The US\$ 4 million project was funded under the Pacific Environment Community (PEC) Fund.
21	Taiwanese Solar Initiative	2012-2013	Lead Agency: Ministry of Commerce Industry and Environment Donor: Taiwan	The Taiwanese Embassy in Nauru provided solar power system to the government of Nauru. It comes with 66 solar panels, an inverter system and a display board worth 100,000 US dollars. Another 66 panels will be installed in three months. (30kW in total.) Taiwan has also given 92 brand new bicycles to the Nauru government to support its health and fitness programmes. Taiwan also donated 50,000 energy saving bulbs and tube lights (T5) and a variety of solar home systems.

Annex VII. Stakeholder comments

Table below presents those stakeholder comments that were not integrated in the report during the review process of the draft evaluation report.

	Paragraph / section (as in the final report version)	Stakeholder comment	UN Environment Evaluation Office (EO) suggestion to the evaluation team or a response to the comment	Consultant responses/ actions Additional stakeholder comments
1	GENERAL	This was a very under-budgeted project. But there was pressure to implement this because of commitments made to GEFPAS. And as such, the project is rated well on "strategic relevance" but poorly on other categories, particularly on effectiveness. In retrospect, it can be seen that the project was designed primarily to satisfy the approving criteria of GEF and UNEP but which has now shown to be unrealistic and unattainable given the resources provided. Having a multi-sectoral multi-country stakeholders' consultation would have probably somehow remedied the situation (revising the outputs to more realistic levels), as the evaluators pointed out, but that was entirely out of the question because the project could not even afford such a multi-sectoral consultation, a must for project formulation.	The evaluation scope is to assess the project's performance as per the officially approved project document. This evaluation report does discuss the limited budget, unrealistic goal setting, and lack stakeholder involvement in the planning/decision making sufficiently.	

		These things are not coming into the evaluation discussions; the need to design a project that had to satisfy the approving criteria of the GEF and UNEP, but on the other hand the unrealistic budget provided for it, and yet the project was still implemented.		
2	Para 121	Household energy surveys in Funafuti, Tuvalu, and Nauru contribute towards evaluation of Demand-Side Management.	Based on the multiple stakeholder comments (and triangulated data), the LCI project contributed to the survey in Nauru. The Tuvalu survey was conducted by UNDP.	
3	Para 178 [ELF]	This has been deemed the case in Tuvalu – replacement parts have been ordered and shipped for each country to keep their ELF vehicle in operation.		<p>Evaluation team: We believe that even if replacement parts arrived these vehicles are not suitable for the road conditions present in these countries and the heavy weight of the population. More importantly there is very little to no hope that they will generate sufficient income to even recover the cost of the initial investment</p> <p>As stated in the paragraph that it fail in income generation and technical capacity, even after the wheel is fixed with the spare part, it is unlikely to generate income and may suffer more damage that need more maintenance.</p> <p>Stakeholder: The rapid damage caused by in-country use has been a particular disappointment. The lack of proper utilization of the vehicles in accordance with the agreed upon business model canvas has prevented revenue from being generated and distributed according to the roles and responsibilities of the involved stakeholders.</p>
4	Para 183	Is not this considered under the consultancy to design the project.		Evaluation team: The project document called for assessing the market for low carbon investment in the

		It is indicated that through his assessment of the legalities, stakeholder consultations and technologies the fund was designed as a rebate EE fund		sense of evaluating the potential for the implementation of grid-connected generation and not for EE savings obtained as a result of having a Low Carbon Fund. Again the log frame should have been revised and documented to reflect this change and this has not been the case. Stakeholder: RE feasibility for the Low Carbon Fund design was incorporated into the Economic Consultant's initial assessment. It was considered, and it was determined to be a sub-par option for the utilization of the funds at that time.
5	Para 192 (Nauru)	With the anticipated increase in electricity price once subsidies are withdrawn, there would be an interest to invest in RET to cut down on the costs without necessarily having to connect to the grid. With the Nauru utility responsible for managing the fund, investors would receive rebates for their investments in RET. Further the new legislation of January would promote such investments		[text also edited] Evaluation team: But the carbon fund are not offering any rebates for RETs only for appliances. Off-grid systems require battery banks that increase the cost of solar systems. In the case of commercial users, electricity production and consumption are coincide during day time but most of the islands countries are residential users that energy demand occurs during evening ours. Grid-connection is a better way to help lower the cost of the solar systems and reduce the battery wastes on the islands. Stakeholder: None of the RETs available were considered affordable enough to provide broad access to the private sector and general public to participate in renewable energy generation.
6	Para 195 Figure 5	The statistics report was certainly not properly capturing the visitors from the project countries.	The text explains that stats don't show short visits. Additional details have been requested from the site admins. Footnote added to indicate uncertainties in the statistics.	Stakeholder: Revised stats for the whole lifespan of the site are needed – it's lacking in accuracy and comprehensive coverage of visitation. I deliberately tested each site in each country during the visits following the site design, and none of this traffic was captured (nor the navigation through the web page

			Evaluation Office considers the webpage output largely delivered.	during the private sector training workshops I conducted in each country.)
7	Para 223	Passive cooling and natural lights are low-carbon technology. Everything the bioclimatic housing guide promoted fell in line with training activities regarding efficiency for the Household Energy Surveys.	Kindly respond to the comment OR edit text accordingly. I tend to agree with the comment, this is slightly harsh interpretation of the project intentions.	<p>Evaluation team: Low Carbon technology defines as “technology that <u>generate power</u> that has lower emission than conventional technology”. Passive cooling and natural light are classified as “Energy Conservation Measures”. Please also noted that “Energy Efficiency” and “Energy Conservation” are not the same thing.</p> <p>The case of La Brousse en Folie, please provide evidence of printed materials or the promotion/distribution plan. We have not come across any of this. Some stakeholders in countries also indicated not being aware of it. Further, it is about passive cooling, not EE appliances.</p> <p>Stakeholder: Gigabytes worth of files were turned over to each country’s broadcasters and education ministries. Tuvalu’s turnover in Permanent Secretary would explain the lack of institutional knowledge. The material is about bioclimatic housing, which encompasses energy efficiency of appliances, including profiles of consumption by various appliances, scaling water heaters, impact of air conditioning, etc., so energy conservation and energy efficiency are both addressed by the content.</p> <p>The cartoons are focused on primary energy sources and renewable energy generation. I’ve included a screenshot with the video titles and their total runtime. Also, being able to find regionally relevant communication material on renewable energy generation, energy efficiency (and energy conservation), without spending between 10-20 times the budget spent on the translations seemed to be an appropriate opportunity that should not have been overlooked, particularly as SPREP agreed to co-finance the</p>

				translations and saw the utility in having English-language rights to distribute the material freely across the region.
8	Para 234 (regarding level of achievement of establishing LCF)	This was determined through the financial analysis to be the most appropriate area to target, as funding was insufficient for RE products to be financed.	Kindly respond to the comment OR edit text accordingly. To me it sounds that the project proceeded in EE as per recommendations and most suitable approach. Please ensure that proper reasoning is presented. Adaptive management should be considered as a positive thing when justified (even if in this case when logframe was never revised we need to find a balance in terms of accountability) Evaluation Office considers that establishment of the funds is closer to 'delivered'.	Evaluation team: Agree that the PMU decided that pursuing EE was the most suitable approach due to the lack of interest from the private sector to invest in RETs in the absence of affordable financing and due to the fact that there was no legislation that would allow for the sale of excess power into the grid However, none of this reasoning has been properly documented nor has the log frame revised as it should have been the case. In the end the decision may have been the right one but it has not been properly implemented. Stakeholder: It's documented in the project reporting and the Economic Consultant's work indicating the financing of specific EE technologies would yield broader decentralized benefits. The documentation and rationale have been discussed thoroughly through both the reporting and evaluation process.
9	Para 264	Awareness events do not have staying power – even when meetings are held directly with individuals and organizations, their retention of project details is lacking.		Evaluation team: Agree but not sufficient awareness activity has been undertaken. The fact is that local stakeholders are not sufficiently aware of the LCI project and the existence and benefits of the Low Carbon Fund Stakeholder: I chalk a lot of this up to development fatigue, since there were personnel interviewed during evaluation I'd met with sometimes two or three times who claimed no recognition of the project despite having discussed it with me one-on-one for over an hour. The roster of development projects is hard for those not actively engaged in their implementation to keep track. Also, was there any distinct difference in awareness level

				between Nauru & Tuvalu (which had no in-country focal point) and Niue (which had dedicated staff from PCMU)?
	Para 276	Broadening awareness of appliance energy consumption has been undertaken both through LCF promotion and through the La Brousse en Folie material provided to the broadcasters and Ministry of Education.		<p>Evaluation team: It is vice versa. The MEPS is in place and therefore, all appliances imported are already meet the criteria to apply for the LCF.</p> <p>Therefore, the customers are free-riders or the retailers would take opportunity to increase the prices.</p> <p>The case of La Brousse en Folie, please provide evidence of printed materials or the promotion/distribution plan. We have not come across any of this. The Ministry of Education in Tuvalu also has no idea of it. Further, it is about passive cooling, not EE appliances.</p> <p>Stakeholder: The development bank has indicated this is not the case (nor in my personal experience has the introduction of MEPS increased the efficiency standards of all relevant appliances to the eligibility standards of the Low Carbon Fund Labelling standards are mandated, but merely that appliances BE labelled. MEPS does not dictate the energy efficiency of appliances meet the standards for Low Carbon Fund eligibility criteria, so the gap still to be met benefits from the incentives the fund provides.</p> <p>Energy Efficient design and energy consumption of various types of appliances are included, as mentioned above. The Ministry of Education saw turnover and since the Evaluation mission, new staff has been briefed on the material sent previously. I know in Niue, the printing and distribution of material was covered under the grant agreement to government.</p>
	Para 316	Stakeholders were engaged throughout every step of the	kindly respond to the comment OR edit text accordingly	Evaluation team: With the exception of the Inception and the IPP /PPA workshops, and the solar PV trainings, the participation of key stakeholders during the

		project implementation process to the extent available.		<p>implementation of project activities has been rather limited. Furthermore, the private sector has not participated in either the IPP/PPA workshop and the solar PV trainings</p> <p>Stakeholder: Private sector personnel were present in the solar PV training (as per the GSES reports provided), and the IPP/PPA workshop budget facilitated the participation of government delegates only, since it was a regulatory/technical workshop. The participation of stakeholders throughout the project are well-documented in the duty mission reports and half yearly reports which capture attendance and meetings with individuals, since all stakeholder interaction can't be facilitated through costly group workshops and must be done on an individual basis in-office or on-site for many of the relevant parties.</p>
	Para 341	<p>Work did not proceed from the planning process without input by the project country partners</p> <p>**</p> <p>There were no appropriate private sector representatives to include in the workshop as sponsored attendees (private sector was present in the form of Sunergise, which attended to instruct on IPP/PPA activities it undertakes in the region.)</p>		<p>Evaluation team: Not sufficient evidence to support the statement</p> <p>Stakeholder: Read the duty mission reports and the half yearly reports, which provide evidence of the direction and suggestions provided by private sector, government entities, and a broad range of other project stakeholders. From the evaluation process, did any specific private sector representatives stand out as potential attendees? The focus of the IPP/PPA workshop was coordinating the government entities responsible for management of electricity service provision, regulation, and billings/payment to ensure a common understanding of the process and the potential developments into net metering and participation of the private sector were understood before being further explored, as baseline coordination between Ministries of Finance, Justice, and the utilities was found to be very low.</p>

Alfredo Caprile

Alfredo Caprile has over 30 years of professional experience with over 25 years of international experience in providing financial and economic project and policy advisory support to the public and private sectors in developing countries. Throughout his professional career as an engineer and subsequently as an investment banker, his consultancy work has focused on evaluation and financing of energy and infrastructure investments and during the last 15 years also on issues related to GHG mitigation and adaptation, climate change and climate finance. As a consultant, Alfredo has been involved with the evaluation of RE, EE and biofuels projects, energy policy and regulatory frameworks and with the analysis of policy and market instruments related to climate change and climate finance. He has also worked on the preparation and evaluation of GEF funded projects and programmes under contract with UNDP, UN Environment and other MFIs.

Sirikul Prasitpianchai

Sirikul Prasitpianchai is a licensed Electrical Engineer in Thailand with a Master degree in Energy Engineering. She has nearly 20 years of experience in renewable energy, energy efficiency, energy policy and rural electrification in 14 countries in Asia and Pacific region. As a consultant, she has worked closely with the policy makers and provided recommendations on the policy incentives and measures for market stimulation of the RE and EE technologies. In addition, she has provided capacity building on renewable energy, energy efficiency technologies and demand-side management to power utilities in developing countries. Her recent work has focused on preparation, evaluation and assessment of development projects related to climate change and GHG mitigation and adaptation for ADB, EU, and GEF funded projects.

Annex IX. Assessment of the Evaluation Report Quality

Evaluation Title:

Terminal Evaluation of the Project: Terminal Evaluation of the Global Environment Facility/UN Environment Project - Low Carbon-Energy Islands: Accelerating the Use of Energy Efficient and Renewable Energy Technologies in Tuvalu, Niue and Nauru

All UN Environment evaluations are subject to a quality assessment by the Evaluation Office. This is an assessment of the quality of the evaluation product (i.e. evaluation report) and is dependent on more than just the consultant's efforts and skills. Nevertheless, the quality assessment is used as a tool for providing structured feedback to the evaluation consultants, especially at draft report stage. This guidance is provided to support consistency in assessment across different Evaluation Managers and to make the assessment process as transparent as possible.

	UN Environment Evaluation Office Comments	Draft Report Rating	Final Report Rating
Substantive Report Quality Criteria			
<p>Quality of the Executive Summary:</p> <p>The Summary should be able to stand alone as an accurate summary of the main evaluation product. It should include a concise overview of the evaluation object; clear summary of the evaluation objectives and scope; overall evaluation rating of the project and key features of performance (strengths and weaknesses) against exceptional criteria (plus reference to where the evaluation ratings table can be found within the report); summary of the main findings of the exercise, including a synthesis of main conclusions (which include a summary response to key strategic evaluation questions), lessons learned and recommendations.</p>	<p>Draft report: All criteria was covered, no clear responses to strategic questions, table needs to be removed from the Ex.sum. Very long (17 pages).</p> <p>Final report: A brief well summarized section, responding to most key evaluation questions along the lines.</p>	4	5
<p>I. Introduction</p> <p>A brief introduction should be given identifying, where possible and relevant, the following: institutional context of the project (sub-programme, Division, regions/countries where implemented) and coverage of the evaluation; date of PRC approval and project document signature); results frameworks to which it contributes (e.g. Expected Accomplishment in POW); project duration and start/end dates; number of project phases (where appropriate); implementing partners; total secured budget and whether the project has been evaluated in the past (e.g. mid-term, part of a synthesis evaluation, evaluated by another agency etc.)</p> <p>Consider the extent to which the introduction includes a concise statement of the purpose of the evaluation and the key intended audience for the findings?</p>	<p>Draft report: Very brief.</p> <p>UN Environment division details are missing. Also the fact that the project was designed to be part of a larger GEF GPAS programme .</p> <p>Final report: Division details still missing but overall a concise presentation.</p>	4	5

<p>II. Evaluation Methods</p> <p>This section should include a description of how the <i>TOC at Evaluation</i>¹²⁷ was designed (who was involved etc.) and applied to the context of the project?</p> <p>A data collection section should include: a description of evaluation methods and information sources used, including the number and type of respondents; justification for methods used (e.g. qualitative/quantitative; electronic/face-to-face); any selection criteria used to identify respondents, case studies or sites/countries visited; strategies used to increase stakeholder engagement and consultation; details of how data were verified (e.g. triangulation, review by stakeholders etc.).</p> <p>The methods used to analyse data (e.g. scoring; coding; thematic analysis etc.) should be described.</p> <p>It should also address evaluation limitations such as: low or imbalanced response rates across different groups; extent to which findings can be either generalised to wider evaluation questions or constraints on aggregation/disaggregation; any potential or apparent biases; language barriers and ways they were overcome.</p> <p>Ethics and human rights issues should be highlighted including: how anonymity and confidentiality were protected and strategies used to include the views of marginalised or potentially disadvantaged groups and/or divergent views.</p>	<p>Draft report: Mostly very good, it is recommended to elaborate how interviewees especially at country level were selected. Evaluation ethics not covered.</p> <p>Final report: Mostly very good. Evaluation ethics not covered.</p>	5	5
<p>III. The Project</p> <p>This section should include:</p> <ul style="list-style-type: none"> • <i>Context:</i> Overview of the main issue that the project is trying to address, its root causes and consequences on the environment and human well-being (i.e. synopsis of the problem and situational analyses). • <i>Objectives and components:</i> Summary of the project's results hierarchy as stated in the ProDoc (or as officially revised) • <i>Stakeholders:</i> Description of groups of targeted stakeholders organised according to relevant common characteristics • <i>Project implementation structure and partners:</i> A description of the implementation structure with diagram and a list of key project partners 	<p>Draft report: Most sections well described. Should be ensured that this section sets the project context and does not yet include detailed evaluation analysis.</p> <p>Final report: Contains still some evaluation analysis and findings (e.g. section 3.4) but overall clear and well drafted section.</p>	5	5

¹²⁷ During the Inception Phase of the evaluation process a *TOC at Design* is created based on the information contained in the approved project documents (these may include either logical framework or a TOC or narrative descriptions). During the evaluation process this TOC is revised based on changes made during project intervention and becomes the *TOC at Evaluation*.

<ul style="list-style-type: none"> • <i>Changes in design during implementation:</i> Any key events that affected the project's scope or parameters should be described in brief in chronological order • <i>Project financing:</i> Completed tables of: (a) budget at design and expenditure by components (b) planned and actual sources of funding/co-financing 			
<p>IV. Theory of Change</p> <p>A summary of the project's results hierarchy should be presented for: a) the results as stated in the approved/revised Prodoc logframe/TOC and b) as formulated in the TOC at Evaluation. <i>The two results hierarchies should be presented as a two column table to show clearly that, although wording and placement may have changed, the results 'goal posts' have not been 'moved'.</i> The TOC at Evaluation should be presented clearly in both diagrammatic and narrative forms. Clear articulation of each major causal pathway is expected, (starting from outputs to long term impact), including explanations of all drivers and assumptions as well as the expected roles of key actors.</p>	<p>Draft report: Yes, but explanation of drivers and assumptions is missing. This also reflects negatively to the effectiveness analysis.</p> <p>Final report: Explanation of drivers and assumptions is missing (nevertheless these are discussed well in the effectiveness analysis).</p>	5	5
<p>V. Key Findings</p> <p>A. Strategic relevance:</p> <p>This section should include an assessment of the project's relevance in relation to UN Environment's mandate and its alignment with UN Environment's policies and strategies at the time of project approval. An assessment of the complementarity of the project with other interventions addressing the needs of the same target groups should be included. Consider the extent to which all four elements have been addressed:</p> <ol style="list-style-type: none"> 5. Alignment to the UN Environment Medium Term Strategy (MTS) and Programme of Work (POW) 6. Alignment to UN Environment/GEF/Donor Strategic Priorities 7. Relevance to Regional, Sub-regional and National Environmental Priorities 8. Complementarity with Existing Interventions 	<p>Draft report: Good</p> <p>Final report: Good (but discussion on the alignment with UN Environment South-South Cooperation and Bali strategic plan are not available).</p>	5	5
<p>B. Quality of Project Design</p> <p>To what extent are the strength and weaknesses of the project design effectively <u>summarized</u>?</p>	<p>Draft report: Well described , the table will be removed from the annex.</p> <p>Final report: Well described and summarized.</p>	5	6

<p>C. Nature of the External Context For projects where this is appropriate, key external features of the project’s implementing context that may have been reasonably expected to limit the project’s performance (e.g. conflict, natural disaster, political upheaval) should be described.</p>	<p>Draft report: Some general description, that doesn’t below here has been included and needs to be moved to other parts of the project.</p> <p>Final report: Well discussed section.</p>	3	6
<p>D. Effectiveness (i) Outputs and Direct Outcomes: How well does the report present a well-reasoned, complete and evidence-based assessment of the achievement of a) outputs, and b) direct outcomes? How convincing is the discussion of attribution and contribution, as well as the limitations to attributing effects to the intervention.</p>	<p>Draft report: Some mixture between outputs and outcome levels, but over all very detailed description of what was achieved against the planned results.</p> <p>Final report: Evaluation office and stakeholder comments addressed. Very transparent presentation of project deliverables.</p>	3	5
<p>(ii) Likelihood of Impact: How well does the report present an integrated analysis, guided by the causal pathways represented by the TOC, of all evidence relating to likelihood of impact? How well are change processes explained and the roles of key actors, as well as drivers and assumptions, explicitly discussed?</p>	<p>Draft report: Weakest section of the draft report. The TOC provides a good framework to assess the steps towards impact but currently the analysis is very limited and does not provide sufficient discussion on intermediate states or drivers and assumptions.</p> <p>Final report: Sufficient description added.</p>	2	5
<p>E. Financial Management This section should contain an integrated analysis of all dimensions evaluated under financial management. And include a completed ‘financial management’ table. Consider how well the report addresses the following:</p> <ul style="list-style-type: none"> • <i>completeness</i> of financial information, including the actual project costs (total and per activity) and actual co-financing used • <i>communication</i> between financial and project management staff and 	<p>Draft report: Good.</p> <p>Final report: Good, all additional comments addressed.</p>	4	5

<ul style="list-style-type: none"> • <i>compliance</i> with relevant UN financial management standards and procedures. 			
<p>F. Efficiency To what extent, and how well, does the report present a well-reasoned, complete and evidence-based assessment of efficiency under the primary categories of cost-effectiveness and timeliness including:</p> <ul style="list-style-type: none"> • Implications of delays and no cost extensions • Time-saving measures put in place to maximise results within the secured budget and agreed project timeframe • Discussion of making use of/building on pre-existing institutions, agreements and partnerships, data sources, synergies and complementarities with other initiatives, programmes and projects etc. • The extent to which the management of the project minimised UN Environment's environmental footprint. 	<p>Draft report: The section has key points regarding the delays. The section offers a slightly confusing description of project finances without a clear linkage to the efficiency.</p> <p>Final report: All identified issues clarified.</p>	3	5
<p>G. Monitoring and Reporting How well does the report assess:</p> <ul style="list-style-type: none"> • Monitoring design and budgeting (<i>including SMART indicators, resources for MTE/R etc.</i>) • Monitoring implementation (<i>including use of monitoring data for adaptive management</i>) • Project reporting (<i>e.g. PIMS and donor report</i>) 	<p>Draft report: Some good content but needs to be revised to follow the three categories.</p> <p>Final report: Revised as per comments.</p>	3	4
<p>H. Sustainability How well does the evaluation identify and assess the key conditions or factors that are likely to undermine or contribute to the persistence of achieved direct outcomes including:</p> <ul style="list-style-type: none"> • Socio-political Sustainability • Financial Sustainability • Institutional Sustainability (<i>including issues of partnerships</i>) 	<p>Draft report: Good.</p> <p>Final report: Good.</p>	5	5
<p>I. Factors Affecting Performance These factors are <u>not</u> discussed in stand-alone sections but are integrated in criteria A-H as appropriate. To what extent, and how well, does the evaluation report cover the following cross-cutting themes:</p> <ul style="list-style-type: none"> • Preparation and readiness 	<p>Draft report: Responsiveness to human rights and gender is missing from the report text.</p> <p>Final report: One paragraph added to summarize the coverage of gender.</p>	4	5

<ul style="list-style-type: none"> • Quality of project management and supervision¹²⁸ • Stakeholder participation and co-operation • Responsiveness to human rights and gender equity • Country ownership and driven-ness • Communication and public awareness 			
<p>VI. Conclusions and Recommendations</p> <p>i. Quality of the conclusions: The key strategic questions should be clearly and succinctly addressed within the conclusions section? It is expected that the conclusions will highlight the main strengths and weaknesses of the project, and connect them in a compelling story line. Conclusions, as well as lessons and recommendations, should be consistent with the evidence presented in the main body of the report.</p>	<p>Draft report: Some sharpening required after the effectiveness section of the main report is revised.</p> <p>Final report: Clear presentation with key evaluation questions answered.</p>	4	5
<p>ii) Quality and utility of the lessons: Both positive and negative lessons are expected and duplication with recommendations should be avoided. Based on explicit evaluation findings lessons should be rooted in real project experiences or derived from problems encountered and mistakes made that should be avoided in the future. Lessons must have the potential for wider application and use and should briefly describe the context from which they are derived and those contexts in which they may be useful.</p>	<p>Draft report: 3 useful lessons recorded.</p> <p>Final report: 3 useful lessons recorded.</p>	6	6
<p>iii) Quality and utility of the recommendations: To what extent are the recommendations proposals for specific actions to be taken by identified people/position-holders to resolve concrete problems affecting the project or the sustainability of its results. They should be feasible to implement within the timeframe and resources available (including local capacities) and specific in terms of who would do what and when. Recommendations should represent a measurable performance target in order that the Evaluation Office can monitor and assess compliance with the recommendations.</p>	<p>Draft report: Good recommendations. More to UN environment would be better in the sense that for those we have accountability mechanism.</p> <p>Final report: 3 key recommendations to the UN Environment that appear relevant.</p>	4	4
VII. Report Structure and Presentation Quality			
<p>i) Structure and completeness of the report: To what extent does the report follow the Evaluation Office guidelines? Are all requested Annexes included and complete?</p>	<p>Draft report: Most annexes included.</p> <p>Final report: All annexes included.</p>	5	5
<p>ii) Quality of writing and formatting:</p>	<p>Draft report:</p>	4	5

¹²⁸ In some cases 'project management and supervision' will refer to the supervision and guidance provided by UN Environment to implementing partners and national governments while in others, specifically for GEF funded projects, it will refer to the project management performance of the executing agency and the technical backstopping provided by UN Environment.

<p>Consider whether the report is well written (clear English language and grammar) with language that is adequate in quality and tone for an official document? Do visual aids, such as maps and graphs convey key information? Does the report follow Evaluation Office formatting guidelines?</p>	<p>Otherwise very good but the Evaluation Office template was not utilized.</p> <p>Final report: Evaluation Office moved the report to the template and did formatting for the report. Some tables were not numbered.</p>		
<p>OVERALL REPORT QUALITY RATING</p>		<p>4.15</p>	<p>5.05</p>

A number rating 1-6 is used for each criterion: Highly Satisfactory = 6, Satisfactory = 5, Moderately Satisfactory = 4, Moderately Unsatisfactory = 3, Unsatisfactory = 2, Highly Unsatisfactory = 1. The overall quality of the evaluation report is calculated by taking the mean score of all rated quality criteria.