



## TERMINAL EVALUATION: UNDP GEF PROJECT (ID 2568)

### “ACTION FOR THE DEVELOPMENT OF MARSHALL ISLANDS RENEWABLE ENERGIES (ADMIRE)”



12 MAY 2016

AMITAV RATH



Empowered lives.  
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## Acknowledgements

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The views expressed in this final report are those of the author. They do not necessarily reflect the views of UNDP, the government of the Republic of the Marshall Islands or the project stakeholders, who were consulted in the preparation of this report, except as directly quoted or referenced. Earlier drafts have been shared MRD staff at RMI and with the UNDP staff and revised according to comments received. This report, or portions thereof, may not be reproduced without explicit written reference to the source.

Amitav Rath

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## Acronyms and abbreviations

ADB	Asian Development Bank
ADMIRE	Action for the Development of Marshall Islands Renewable Energies
APR-PIR	Annual Project Review – Project Implementation Report
CMI	College of Marshall Islands
CNO	Coconut oil
EDF	European Development Fund
EE	Energy efficiency
EPPSO	Economic Policy, Planning and Statistics Office
EU	European Union
kWh	Kilowatt-hour
GEF	Global Environment Facility
GHG	Greenhouse gas
GWh	Gigawatt-hour (1,000 million Watt-hour)
KAJUR	Kwajalein Atoll Joint Utility Resource
MEC	Marshall's Energy Company
MRD	Ministry of Resources and Development
MIVA	Marshall Islands Visitors Authority
MoU	Memorandum of Understanding
MTE	Mid-Term Evaluation
MW	Megawatt (million Watt)
NEP	National Energy Policy (of the Marshall Islands)
NTC	National Training Council
North-REP	North Pacific Renewable Energy and Energy Efficiency Project (SPC/EU)
O&M	Operation and Maintenance
OEPPC	Office of Environmental Planning and Policy Coordination
PIC	Pacific Island Country
PIGGAREP	Pacific Islands Greenhouse Gas Abatement through Renewable Energy Project
PIREP	Pacific Islands Renewable Energy Project (UNDP/GEF)
PMU	Project Management Unit
PAC	Project Advisory Committee
PSC	Project Steering Committee
PV	Photovoltaic
RE	Renewable Energy
RET	Renewable Energy Technology
RMI	Republic of the Marshall Islands
SEDREA	Sustainable Economic Development through Renewable Energy Applications (Palau)
SHS	Solar Home System
SIDS	Small Island Development States
SPC SOPAC	Secretariat of the Pacific Community Geoscience Division
SPC	Secretariat of the Pacific Community

SPREP	Secretariat of the Pacific Regional Environment Programme
UNFCCC	United Nations Framework Convention on Climate Change
UNDP	United Nations Development Programme
USAID	United States Agency for International Development
USD	United States dollar
USP	University of South Pacific
Wh	Watt-hour
WB	World Bank
WUTMI	Women United Together in the Marshall Islands

**Table 1: Project Identification details**

<b>Project Title:</b>	<i>Action for the Development of Marshall Islands Renewable Energies, ADMIRE</i>			
<b>GEF Project ID:</b>	2568		<i>at endorsement (Million US\$)</i>	<i>at completion (Million US\$)</i>
<b>UNDP Project ID:</b>	PIMS 3094	<b>GEF financing:</b>	0.975	0.975 (planned)
<b>Country:</b>	Republic of Marshall Islands	<b>IA/EA own:</b>	N/A	US\$30,000 The amount used for detailed support assignment by UNDP in 2011.
<b>Region:</b>	Asia-Pacific	<b>Government:</b>	1.650	
<b>Focal Area:</b>	Climate Change Mitigation	<b>Other:</b>	N/A	N/A
<b>FA Objectives, (OP/SP):</b>	SO-5: Promotion of renewable energy for the provision of rural energy services	<b>Total co-financing:</b>	1.650  From SIDSDOCK, US \$214,535 <sup>1</sup> and an unspecified portion of \$99,510 for RMI allocated also for FSM and Tuvalu	
<b>Executing Agency:</b>	Energy Planning Division, Ministry of Resources & Development	<b>Total Project Cost:</b>	2.625	

<sup>1</sup> This is defined as Energy Efficiency (EE) for MEC in the UNDP project PIGGAREP Plus. The project defined two EE sub-components in RMI. The first is stated to support the “MRD’s Petroleum Reform Program in the MEC (MEC-PRP), which is in line with the MEC strategic action plan 2012-2017”. The reform program (not seen by the evaluator) is stated to involve a “study to develop diesel fuel and waste oil-diesel oil blend specifications; installation of the fuel test laboratory for the diesel fuels that will imported, utilized and traded by MEC; and capacity development for MEC staff in the various laboratory test procedures”. This set of activities has been partially funded by ADMIRE and remains incomplete. The PIGGAREP PLUS document specified – the EE sub-component in RMI in the “first part will involve the implementation of power plant performance evaluation and load management optimization at the Majuro Power Plant, involving “plant testing in each power generation unit to establish to determine the energy use performance, identify and quantify energy losses and wastages, wasteful operating practices, and potential energy savings” and then to identify, design improvement projects that will bring about the expected outcome “energy savings, and reduce power generation cost”. The second part of the EE sub-component was for the design of the EE Loan Scheme (EELS), for financing the renovations in existing houses or measures in new houses to make them energy efficient.

Other Partners involved:	Office of Environmental Policy & Planning (OEPPC), Marshall Energy Company (MEC), Marshall Islands Development Bank (MIDB), Women United Together in the Marshall Islands (WUTMI), University of the South Pacific (USP) RMI Campus.	ProDoc Signature (Date project began) <sup>2</sup> :		30 April 2008
		(Operational) Closing Date:	Proposed: 30 April 2013	estimated: 30 July 2016

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<sup>2</sup> The project activities only began when the first project staff person was brought on-board. The Administrative and Finance Officer (AFO) joined in March 2009, and then the (first) Project Manager in June 2009 (on the other hand the Inception Workshop was not held until 4 March 2010).



## EXECUTIVE SUMMARY

### EXECUTIVE SUMMARY

This is a Terminal Evaluation (TE) of the UNDP and GEF supported project “Action for the Development of Marshall Islands Renewable Energies, (ADMIRE) (PIMS # 3094) in consonance with the agencies’ M&E policies and procedures, whereby all full and medium-sized UNDP supported GEF financed projects are required to undergo a terminal evaluation upon completion. The TE was conducted according to the guidance, rules and procedures established by UNDP and GEF.

#### Evaluation objectives

The objectives set for the evaluation are to assess the achievement of project results and to draw lessons that can both improve the sustainability of benefits from this project and aid in the overall enhancement of UNDP programming. The evaluation, following the terms of reference, had two primary purposes:

- To provide evidence of results to meet accountability requirements, and,
- To promote operational improvement, learning and knowledge sharing through results and lessons learned.

Therefore, the evaluation has identified lessons of operational relevance for future project formulation and implementation, for the UNDP, GEF and the Government of the Republic of Marshall Islands (RMI), the primary audiences for the report. Also, other national government agencies and other key stakeholders in RMI, and donor and partner institutions contributing to the development of RE in RMI, should find the report of value.

#### Subject and scope of the evaluation

The project objective was stated as: “Promotion of the productive use of RE to reduce GHG emission by removing the major barriers to the widespread and cost-effective use of feasible RETs.” The objective was then elaborated in two parts - the removal of barriers to the utilization of available RE resources; and, the application of renewable energy technologies (RETs). The project objectives were stated to be achieved through the support provided for the five outcomes below:

- Increased number of RE hardware installations on the ground, which enhance productivity and income generation;
- Enhanced institutional capacity to coordinate, finance, design, supply and maintain RE installations built;
- Improved accessibility of capital for RE businesses;
- Strengthened legal and regulatory instruments to support RE dissemination, financing, and marketing, and
- Improved awareness, skills, and knowledge.

#### Issues for Special Consideration

It was a known fact at the start of the evaluation that the project had been delayed to a very large extent, as seen in Table 3 on project milestones. At inception, discussions were held with UNDP and MRD, on the priorities for focus within the TE and the value added from the evaluation exercise. It was

agreed during the electronic consultations that a priority for UNDP and RMI, would be to closely examine the actual achievement of project outputs, to verify what was in fact achieved, compare that to the plans, and attempt to go beyond the known facts of the inordinate time delay. It was also agreed that for the RMI, UNDP and GEF, it will be important to determine the nature of the outcomes and impacts of this long running project, as the goals and objectives remain of high significance for RMI, and they also have multiple linkages to other ongoing and planned development activities.

Beyond that, it was suggested that the evaluation could be useful for “learning purposes” for future development planning, for all stakeholders to take stock of how a project with initial risk estimated as “moderate” in the project design, deviated from the plans to such a very large degree. This required taking a deeper and wider review of other project experiences in RMI covering RE and involving other external partners and required engaging with wider experiences and assessments of RMI within its inherent constraints, some of which are similar to other SIDS and some highly specific to RMI (see section 2.1).

### **Approach and methodology**

The overall approach and methods followed the details in the UNDP Guidance for Conducting Terminal Evaluations of UNDP-supported, GEF-financed Projects, and focused on the set of questions covering these criteria as specified in the TOR (Annex 1). The approach was further elaborated in the evaluation matrix, taking into account specific issues relevant to ADMIRE. The evaluation followed a participatory and consultative approach, within the constraints of time available for the evaluation, and also as available to the project stakeholders (key stakeholders are detailed in Table 5). The evaluation commenced with an Inception phase, which was used to ensure that the UNDP project team and technical advisers, the staff of MRD and the consultant had a shared understanding of the evaluation (purpose, scope, approach, deliverables, and timeline) and that the assessment would address key stakeholders’ needs. The inception report was shared in draft form to secure feedback from the stakeholders.

The evaluation is evidence-based, triangulating several streams of evidence collected, with cross-referenced findings and recommendation. The evaluation maintained close communication with the Project Manager, MRD and UNDP officers located in Fiji and Bangkok, the primary users of this evaluation – to ensure that the assessment critically supported their information needs. Consultative and participatory processes were used within the constraints of time, to foster shared understanding and ownership of the evaluation. The evaluation maintained open communications with project partners during the evaluation.

The review of all project documents, including the Medium Term Review and annual progress reports, suggested multiple areas of the project had been recorded to have suffered from unsatisfactory performance. The facts of delays and poor ratings were noted and discussed before the field visit. The desk review included the project planning and design documents, which went back to 2004, as well as annual work plans and budgets, original and revised logical frameworks, project progress, and financial reports and project deliverables, and other relevant materials produced as outputs of the project (listed in the annex). They included Steering Committee meeting minutes, minutes from other related meetings, workshop proceedings, and relevant correspondence, and supplemented by additional searches undertaken for online publications relevant to the ADMIRE project components and RMI. In the draft stages, UNDP provided the evaluation with several additional reports relevant to assess ADMIRE.

A field visit was undertaken to Majuro, during 4-12 February 2016. Semi-Structured Interviews (individual and in groups) were undertaken with primary stakeholders, guided by the evaluation matrix, the evaluation criteria, and questions. The list of all stakeholders contacted is provided in Annex 3. Several drafts of the evaluation, which were shared with UNDP and MRD between 20 March and 30 April 2016, were revised to reflect additional information and corrected for errors. This final report was completed on 10 May 2016.

### **Limitations and mitigation of challenges**

The evaluation of the project presented several unique challenges. One related to logistical challenges faced during the visit. A practical limitation faced was that with the many demands on the very small number of persons in RMI dealing with the issues of energy, many meetings could not be held due to their conflicting commitments. The project manager was confronted with difficult challenges due to family bereavement during the field visit to RMI and could not be as available as had been scheduled. The staff at the energy division at MRD very kindly stepped in to ensure that many logistical challenges faced could be resolved but due to their time constraints and lack of knowledge of all project components, there were limitations in the depth of coverage during the visit. The limitation has been partially remedied through follow on email exchanges and several Skype calls. Included in logistical challenges is that in addition to the main island of Majuro, the evaluation had planned to cover the project sites at Arno Atoll, which did not prove possible. Ideally, field visits should have also been undertaken for some of the outer islands, which form a major part of the cooperation between ADMIRE and the North-REP project for the installation of SHS in the outer islands, but the logistical challenges made that impossible.

Another challenge faced was that the ADMIRE project was operational in an unusually dynamic environment for RE in RMI, which had not been anticipated during the project design. There were some other activities supported by other international partners, which had many elements often very similar to ADMIRE, and almost always with much larger financial resources dedicated for the same. This fact certainly contributed to the challenges for the ADMIRE project execution at MRD due to the very limited staff capacities of two to three persons managing a large portfolio. It also provided an insoluble challenge for this evaluation to attribute the contributions of ADMIRE outputs to the multiple outcome developments that had taken place during the period the project has been in existence, beyond noting the contributions were made.

The challenges were mitigated to a large extent through extensive consultations with the persons in RMI and a wider and more extensive review of both the literature and the developments in RMI. The staff at MRD and UNDP have provided additional information on a number of activities and reports that have been used to add to the information and perspectives for ADMIRE, and wider and more extensive review of the literature and the process of consultations delayed the submission of the final report by four weeks.

### **FINDINGS AND CONCLUSIONS**

The evaluation notes that the Republic of Marshall Islands (RMI) has a number of highly specific characteristics that distinguish it from almost all other countries, which are highly relevant for any work in the country. Most significant differences stem first from the fact it is composed of 31 atolls (a singular geological phenomenon) and includes over 1,200 islands, most unpopulated, but with 24 islands with

ongoing human habitation. The land area is only 181 square kilometers, a tiny number when compared to the total RMI territory in the seas of around 2 million square kilometres. According to the national census of 2011, the RMI has a total population of 53,158, the fourth smallest, developing member country of the United Nations. Almost 28,000 persons live in Majuro, the capital (53% of the total) and the other major urban center is Ebeye, in the Kwajalein atoll, with a population of 11,000; together they account for 74% of the total population. There are three other islands which have populations between one and two thousand persons, and 19 others with populations below a thousand persons and between 20 and 150 household or family units. A major component of ADMIRE was to support Solar Home Systems in the 21 less populated outer islands of RMI, with multiple logistical challenges.

Common to most Pacific Island States, RMI is relatively isolated from large market economies, with its nearest industrialized countries almost 4,000 km away. This means that all imported goods including fuel are relatively expensive given the shipping costs and small market size, making for high energy costs in all uses (except with biomass grown locally), and thus replacing fossil fuels with locally available renewable energy sources has been a high priority for RMI. In addition, its extreme vulnerability to a relatively small rise in the level of the surrounding seas due to global warming, has resulted in the RMI government taking a strong global position supporting actions to reduce carbon emissions and use of RE.

During this evaluation, it was seen that the highly distinct features of RMI were often not sufficiently taken into account. Also critically important and not sufficiently allowed for are the capacity constraints in RMI, which have been noted in multiple reviews (discussed in the report) and the significant amount of donor executed technical assistance, especially on renewable energy and related to climate change. It will be seen in the findings, that this has meant that many previous findings were not sufficiently taken fully into account in the design. Hence, an effort has been made in the evaluation to provide such broader contextual information and framework, with short summaries and references to such relevant work, which have been underappreciated in the design and execution of ADMIRE, and for considering the energy options and their costs and benefits.

The evaluation was somewhat unusual in being required to trace the development in the ADMIRE project going back to 2004. On February 26, 2004, the government of RMI endorsed a request to the GEF for a project development grant, which then triggered a GEF grant of \$25,000 towards the project development of ADMIRE. It is shown in Table 3, that the project development grant was approved after 18 months; the PIF for a Medium Sized Project for RMI was submitted in 2007; and, the final ADMIRE project was approved four years after the initial request from RMI. The evaluation noted that the project faced multiple challenges during implementation (see Table 4 for details).

UNDP was concerned and supported a consultant for a period of three months to assist in moving this and other projects in RMI forward. UNDP then authorised an MTE which reported in 2012 and triggered changes. A Project Manager was appointed, and the project moved to MRD. Then the project began to show greater activity. One key recommendation of the MTR that the LFA be revised and simplified did not happen. Hence, the evaluation has reported in Table 9, along all the original outcomes, with 18 activities, for work done and the outputs of ADMIRE. Most positively, the activities and outputs achieved show how the addition of one full time project manager can make a tremendous difference in the context of RMI.

The evaluation then concludes (in agreement with the MTR) on weaknesses in the project design, but this report goes further. The MTR had suggested that the strategic design could be improved by formulating three components in a more thematic fashion - outer islands PV; oil production and processing for energy use; and, assessment of other RE (grid connected and wind) options, as three themes and then the barriers could be explored for each. This evaluation adds that the ProDoc (and its base, the report from the PDF grant) relied on and translated poorly the findings from the PIREP on conditions and options for RMI. The ultimate anticipated results of cumulative CO2 emissions reductions, impacts on copra prices, trading and shipping service, with large scale use of copra oil for power generation and in transportation, and the creation of at least 500 new jobs, were speculative and without basis. ADMIRE has contributed by assisting in the provision of SPV to most households in the outer islands.

The evaluation noted that when the project was moved to MRD in 2012, the project was much better supported than before. But the additional inputs of a coherent and well-functioning Project Advisory Committee (PAC), to provide advice and guidance to the project and integrate the cooperation of the identified stakeholders (see para 40), and the provision of “a team of experts, to be available to the ADMIRE PM”, were never fulfilled. Thus, during the MRD execution, while the activities moved forward, there were no provisions to add new insights and/or make adaptations to the project plans as it had been conceived.

Summing up from the detailed presentations made in Table 9 of the outputs by ADMIRE components, the evaluation concludes that the ADMIRE project did contribute to the first sub-objective of assisting in determining the potential for wind, but only partially and this needs to be followed up. It assisted in the installation of RE as in SHS systems in the Outer Island by working with the EU funded SPC North project. But all the activities related to copra as a diesel substitute were ill conceived in the design and remain poorly executed. In the second category, building institutional capacity, it has supported the two activities but they remain partially completed and building such local capacity is a much longer term task. In the policy and regulatory area, the outputs are uneven. In the fourth area, there is parallel support that has materialized for making business loans for SHS systems, which makes the ADMIRE inputs useful. The evaluation shows that the project has been most successful in the fifth area - advocacy and awareness components. Table 9 also shows that many activities remain partially undertaken and that reports produced need greater analytical components and more rigour in the analysis.

The evaluation concludes that the project aims were highly relevant to RMI but also often poorly articulated and developed in the ProDoc. The project picked up in the second period (see Table 7) and its successes, limited as they are, have been largely due to the inputs of the few energy staff in MRD and the PM. The evaluation report provides an account of the concurrent changes in RMI in SHS and RE use, while noting that system maintenance is likely to remain a challenge; discusses the low likelihood of copra as a replacement for diesel; and, highlights the continuing need to improve assessment of wind resources, of biomass use and supplies, and to make more ambitious goals for RE use in RMI in the future. And all of the above will require much improved capacity in RMI and also a continued need to leverage external skills and financial resources.

The report draws one lesson for possibly wider relevance. If the current GEF or the UNDP process forces project design to be one-time interventions, ways should be found to allow “more flexibility”, allow for

possibilities of a longer-term programmatic approach, possibly with several modules or smaller sub-projects, which address specific issues and barriers. Adaptive capacity in and during execution would have been useful here and can allow for fine-tuning interventions and fixing problems earlier.

## **RECOMMENDATIONS**

The recommendations are first aimed at UNDP, the project executing agency and the MRD, the project implementing agency:

### **The Current Project**

1. Clear recommendations, which are included in Table 8: ADMIRE Activities and Outputs, could be used to complete the ADMIRE project within the rules of UNDP and GEF. It is most important to have the wind data currently available fully analysed and used to resolve a mystery on wind speeds that has been stated for over a decade; the MRD should be able to reinstall the working wind tower and allow additional data to be collected and also must complete the demonstration and testing of the solar pump acquired as planned.
2. Specifically for the ADMIRE project beyond completing the items listed above, the project should complete the activities as approved by MRD and shared with UNDP and listed in the AWP for 2016. The evaluation emphasizes the following from the outstanding activities listed in the AWP – improve the draft 2014 National Energy Policy document by updating all energy statistics in RMI up to 2015, using a much simplified energy balance tool provided by UNDP (the guide can be pared down by over 90% given the specific conditions for RMI with its highly limited uses of energy); coordinate with other agencies and review policies and practices for the maintenance of SPV in the outer islands; for the energy options related to the copra value chain – including VCO and other waste products as renewable energy resources for RMI; and convene a project wrap-up meeting, where this report and all other results of ADMIRE are presented to the stakeholders both government and non-government at a final project wrap up meeting together with recommendations for the future.
3. The above requires MRD to provide support for the remainder of the project management, including the completion of the above, the dissemination of Terminal Evaluation and the final Project Completion reports.

### **Future Project Design**

4. UNDP should take note of the individual and special circumstances of RMI in its future programming, facts which are highly specific to RMI, which require adjustments of standardized GEF project templates for the SRF/LFA that may work well in other countries to take these into account.
5. UNDP should examine the budgetary feasibility of more regular and in person follow up and support from the UNDP regional offices (Bangkok, Fiji and Samoa) to its portfolio of work in RMI and ways to work more closely with the local UN coordinating office established RMI.
6. Ensure during its future involvement the actual and active participation in the work required beyond the formal signing of MOUs, of the broad range of stakeholders as listed (from government, the community leaders, private sector, financial institutions and NGOs and take note of the small populations of outer islands together with the difficulties of the participation of stakeholders living there) with the requirement for a strong and effective project/programme Steering Committee/Advisory Committee.

7. Determine mechanisms which can assist more effective collaborations between groups of relevant stakeholders who are needed to work together and facilitate linkages, collaboration and divisions of work with other energy/development/climate change projects/programs that are implemented in RMI by the World Bank, Asian Development Bank, European Union and the principal bilateral donors, as well as integration with the energy-related work of other regional and PIC organizations to avoid duplication of efforts, increasing effectiveness through sharing of information and expertise, through sharing participation in steering/advisory committees, sharing staff, enabling efficient and effective consultations between various project managers and with stakeholders. In many countries, the national government and/or one of the development partners convenes periodic reviews of sectoral activities to share knowledge and work cooperatively. This should be explored by the UNDP given its global experiences with such mechanisms.

8. Specifically in the area of Energy, follow up with an effort to prepare a consolidated report on the energy situation in RMI, (potentially updating and adding to the RMI reports discussed in para 111-112) including better information on biomass energy use and availability without the long term focus hitherto on copra for biodiesel; the data collected needs to be reviewed by a wind energy expert to ascertain the results from the data available and the intact wind monitoring tower should be re-established and a new data collection plan started; a more ambitious and focused programme in the future should explore small scale smart grid PV with supplemental storage/generation for the one or more islands with population between 500 and 2000 in cooperation with other donors.

**RMI Government:**

9. The human resources allocated to the climate change responses is low relative to the national priority accorded to climate change. EPD and MRD need strengthening with additional staff to enable it to coordinate energy activities more effectively and meet its international commitments and domestic obligations.

10. A number of mitigation options for RMI are win-win on multiple criteria, not only for GHG mitigation. Integration of planning of RE with water needs, use of additional RE resources such as biomass waste, and larger scale and ambitious integration in smart grid is a way for RMI to lead.

11. The government has largely and relatively successfully accessed the majority of its funding from bilateral sources. Its portfolio of multilateral funding is low and poorly performing. It should consider the two sources to have important complementarities in achieving its national goals and take steps to make more effective use by using the synergies of both sources.

12. The government of RMI should explore the possible use of a small portion of the considerable amount of grant funds available to examine the possible role of solar powered vessels of different sizes and using solar, with supplemental wind and diesel (several are now operating globally) that can increase the flexibility of inter-island transport and also reduce costs, thereby resolving a number of development problems including isolation, moving goods to market, education and health, that stem from the difficulties and high costs of such transportation.

**For all development partners working with the RMI government:**

13. Development partners supporting the country should consider formal arrangements to strengthen the sharing of information and lessons learnt across the whole of the development portfolio and in energy to gain from more effective coordination and harmonisation among them and the GRMI.

14. The development partners and GRMI should examine options to go beyond such coordination to examine the options for budget support mechanisms that have been used currently in RMI and its expansion in the energy sector and related to climate change.



## 1. INTRODUCTION

15. This is a Terminal Evaluation (TE) of the UNDP and GEF supported project “Action for the Development of Marshall Islands Renewable Energies, (ADMIRE) (PIMS # 3094) in consonance with the M&E policies and procedures, whereby all full and medium-sized UNDP supported GEF financed projects are required to undergo a terminal evaluation upon completion. The TE was conducted according to the guidance, rules and procedures established by UNDP and GEF, and as reflected in the UNDP Evaluation Guidance for GEF Financed Projects.

### 1.1 Evaluation objectives

16. The objectives of the evaluation are to assess the achievement of project results and to draw lessons that can both improve the sustainability of benefits from this project and aid in the overall enhancement of UNDP programming. The evaluation follows the terms of reference (TOR) as set out in Annex I. The evaluation had two primary purposes:

- To provide evidence of results to meet accountability requirements, and,
- To promote operational improvement, learning and knowledge sharing through results and lessons learned.

17. Therefore, the evaluation has identified lessons of operational relevance for future project formulation and implementation, for the UNDP, GEF and the government of the Republic of Marshall Islands (RMI), the primary audience for the report. In addition, other national government agencies and other key stakeholders in RMI, and donor and partner institutions contributing to the development of RE in RMI, should also find the report of value.

### 1.2 Subject and scope of the evaluation

18. The project **objective** was stated as: “Promotion of the productive use of RE to reduce GHG emission by removing the major barriers to the widespread and cost-effective use of feasible RETs”<sup>3</sup>, which was elaborated as having two parts - the removal of barriers to the utilization of available RE resources; and, the application of renewable energy technologies (RETs). The project objectives have been stated to be achieved through the support provided for five outcomes below:

- Increased number of RE hardware installations on the ground, which enhances productivity and income generation;
- Enhanced institutional capacity to coordinate, finance, design, supply and maintain RE installations;
- Improved accessibility of capital for RE businesses;

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<sup>3</sup> As stated in the “Strategic Results Framework” of the ProDoc (pages 8-10). The project abstract in the ProDoc elaborated that ADMIRE built upon the “work done in the PIREP, which was a regional project development exercise to assess the barriers to the widespread application and commercialization of feasible renewable energy technologies (RETs) in the Pacific. PIREP stated (page X) that GRMI had requested GEF support to develop “a comprehensive program for GEF funding for renewable energy capacity building and barrier reduction relating to solar PV, biofuel and wind” with the stated goal as the reduction of the GHG emissions from the unsustainable uses of fossil fuels in the RMI, through the utilization of the country’s renewable energy (RE) resources.

- Strengthened legal and regulatory instruments to support RE dissemination, financing, and marketing, and
- Improved awareness, skills and knowledge.

### 1.3 Key Issues for Special Consideration

19. Based on the above, and the known fact at the start of the TE that the project has been delayed to a very large extent (see Table 3 on project milestones) discussions were held with UNDP and MRD, on the priorities for focus within the TE. It was agreed during the electronic consultations that a first priority would be to closely examine the actual achievement of project outputs, to verify what was in fact achieved, compare that to the plans, attempting to go beyond the known facts of time delay. It was agreed that for the RMI, UNDP and GEF, it will be important to determine the nature of the outcomes and impacts of this long running project, as the objectives remain of high significance for RMI, and they also have multiple linkages to other development activities<sup>4</sup>. Beyond that, it was felt that the TE would be useful for learning<sup>5</sup> purposes for future development planning to determine with the stakeholders how a project with risks<sup>6</sup> estimated for the overall project as “moderate” deviated from the plans to a very large degree. This required a deeper and wider review of other project experiences in RMI covering RE and involving external partners, and it required engaging with wider experiences and assessments of RMI in overcoming its inherent constraints (see section 2.1).

### 1.4 Approach and methodology

20. The overall approach and method for this terminal evaluation (TE) of UNDP supported GEF financed projects followed the details in the UNDP Guidance for Conducting Terminal Evaluations of UNDP-supported, GEF-financed Projects, and focused on the set of questions covering these criteria as specified in the TOR (see Annex 1). This was further elaborated in the evaluation matrix. The evaluation followed a participatory and consultative approach, within the constraints of time available for the evaluation and also as available to the project stakeholders. Key stakeholders are the government counterparts, UNDP Country Office, the project team, UNDP GEF Technical Adviser based in the region and other programme participants, as detailed in the stakeholder analysis in Table 5.

21. The evaluation is evidence-based, with several streams of evidence collected; triangulation from the evidence was used and cross-referenced findings and areas of recommendation. The evaluation maintained close communication with the MRD, RMI and UNDP officer located in Fiji and Bangkok, the primary users of this evaluation – to ensure that the assessment critically supported the management’s

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<sup>4</sup> For instance, the ProDoc noted (page 44) that ADMIRE contributed to the UNDAF Outcome of “equitable access to sustainable development opportunities and improving RMI’s ability to engage in environmentally sustainable development that benefits the poor” and the provision of increased, efficient and cleaner energy services for the people in the outer islands is also a national priority in RMI strategic plans.

<sup>5</sup> A lesson and learning is used here in its evaluative significance - anchored in the conclusions of the evaluation – which here is the fact of considerable delays and poor annual performance ratings – and are rooted in wider set of project experiences, including the context from which they are derived and may be useful.

<sup>6</sup> The PRODOC identified 7 risks – (1) effectiveness and efficiency of the project implementation team; (2) availability of adequate backstopping support and cooperation of national, regional and international experts; (3) support from the atoll governments, the landowners, the main copra company in the country - Tobolar and the Meteorology office; (4) cooperation of energy consumers and suppliers and government ministries, including Tobolar to release energy data; (5) cooperation and interest of the financing institutions and the atoll communities; (6) support and cooperation of the Ministry of Education and the local media; and, (7) Willingness of the private sector and the NGOs to participate in the project.

information needs. Consultative and participatory processes were used within the constraints of time for the evaluation and available to partners, and of resources. This was to create a sense of ownership and foster shared understandings of the study results. The evaluation maintained open communications with project partners during the evaluation.

22. The evaluation commenced with an Inception phase, which was used to ensure that the UNDP project team and technical advisers, the staff of MRD and the consultant had a shared understanding of the evaluation (purpose, scope, approach, deliverables, and timeline) and that the assessment would address key stakeholders' needs. The primary deliverable for this phase was the Inception Report. The process was initiated with electronic exchanges with project staff. This allowed for the evaluation to have a broad overview of the project activities, timelines, reported outputs and outcomes and other similar information which was used to develop a better understanding of the project - purpose, scope, approach, deliverables and timeline and how the assessment would address key stakeholders' needs. The inception report was shared in draft form to secure feedback from the above stakeholders.

23. As part of the Inception phase, the consultant conducted a preliminary review of available documents to help sharpen the focus of inquiry and probe deeper on emerging issues, trends, and ideas. A review of the MTR and annual progress reports suggested multiple areas of the project had suffered from unsatisfactory performance. This was noted and discussed prior to the field visit.

24. The desk review of project documents included the project planning and design, annual work plans and budgets, logical frameworks, project reports such as progress and financial reports, project deliverables, and other relevant materials produced as outputs of the project. Then, other documents including Steering Committee meeting minutes, minutes from other related meetings, workshop proceedings, annual reviews, relevant correspondence, and monitoring reports were used. Additional searches were undertaken for online publications relevant to the ADMIRE project components.

25. Subsequent to the document reviews, a field visit was undertaken to Majuro, during 4-12 February 2016. Semi-Structured Interviews (individual and/or in groups) were undertaken with primary stakeholders, guided by the evaluation matrix, the evaluation criteria, and questions. The list of all stakeholders contacted is provided in Annex 3.

## 1.5 Timeline

**Table 2: Evaluation timeline**

	Planned	Actual
Inception Report	30 January 2016	30 January 2016
Field trip to RMI	2 February – 12 February 2016	2 February – 12 February 2016
Early draft for consultations	11 March 2016	20 March 2016
First Draft Report	20 March 2016	8 April 2016
Final Report	31 March 2016	1 May 2016

## 1.6 Limitations of the evaluation

26. The evaluated project presented several unique challenges. As will be seen in table 2 the design of the evaluation activity began in January 2016, with document reviews in the remaining weeks of January, with an Inception Report from document reviews and with the plans for the field visit. The field trip was completed as planned, though with several logistical challenges faced during the visit, discussed below. Some of the gaps, and also the fact that there have been a considerable number of activities and

reports that add to the information and perspectives for ADMIRE, were resolved through a wider and more extensive review of both the literature and the developments in RMI in areas most relevant to ADMIRE. This delayed the submission of the final report by 2 weeks.

27. The project was operational in an unusually dynamic environment in RMI, where there were a number of other activities supported by other international partners, which had many elements similar to ADMIRE, and often with much larger resources. This proved to be a challenge for the ADMIRE project execution due to limited national capacities. It also provided an insoluble challenge to this evaluation to attribute the contributions of ADMIRE to multiple developments that have taken place during the period the project has been in existence beyond noting the contributions.

28. A practical limitation that was faced is that with the many demands on the very small number of persons in RMI dealing with the issues of energy, many meetings could not be held due to their conflicting commitments. The project manager was confronted with difficult challenges due to family bereavement during the field visit to RMI and could not be as available for discussions and visits as had been scheduled. The staff at the energy division kindly stepped in to ensure that many logistical challenges faced could be resolved but due to their own time constraints and lack of knowledge of all project components, there were limitations in the depth of coverage during the visit. This has been partially remedied through follow on email exchanges and skype call.

29. Finally, the evaluation had planned to cover besides the main island of Majuro, the project sites at Arno Atoll, but did not prove possible. Ideally, besides that, field visits should have been planned for some of the outer islands, a major part of the cooperation between ADMIRE and the North-REP - but the logistical requirements made that impossible.

## 1.7 Structure of the report

30. Following the above introduction together with the approach, methodology, and limitations, the next section provides background information on the ADMIRE project, the goals, objectives, outcomes and metrics which were defined for in the PRODOC. The presentation of the exact project LFA or SRF was challenging as there several versions. For clarity the original LFA in the Prodoc and subsequent revision is provided in a table that clarifies the changes. The main findings follow in the third section.

31. The findings summarize a key document, the Mid-Term Evaluation of ADMIRE in 2012, which found that the project had run into many challenges in execution, there was very little progress until 2012 and the MTR made a number of recommendations going forward. The report then discusses the implementation of the recommendations, during the next period of ADMIRE, 2012-2015, covering activities, outputs, the use of resources and possible outcomes, in the context of developments and capacity needs in RMI most pertinent to ADMIRE. This is followed by answers to the evaluation questions as defined in the Terms of Reference and are organized along different key areas in which the evaluation questions were grouped. Finally, the report ends with conclusions on how ADMIRE has “added value” and the key challenges that were faced. From this set of findings, the evaluation finishes with conclusions and ratings about the initiative and recommendations for moving forward for the UNDP and the government of RMI. For the purposes of clarifications of some issues in this long running project, and relevant additional information on RMI and on energy in RMI, the additional material is placed in the fourth annex at the end and referred to as appropriate.

## 2. PROJECT BACKGROUND

### 2.1 The RMI Context

32. The Republic of Marshall Islands (RMI) has a number of highly specific characteristics that distinguish it from many other countries, which are highly relevant for any work in the country. First, it is composed of 31 atolls (a singular geological phenomenon)<sup>7</sup> and over 1,200 islands, most unpopulated. The land area is only 181 square kilometers, while RMI occupies a total sea area of around 2 million square kilometres, and with 24 islands with ongoing human habitation. RMI has a population of 53,158 (as per the national census of 2011). Almost 28,000 persons live in Majuro, the capital and with the largest population (53% of the total). The other major urban center is Ebeye, in the Kwajalein atoll, has a population of 11,000, and together they make up 74% of the total population of RMI. There are three other islands which have populations between one and two thousand persons, and 19 others with populations below a thousand persons and between 20 and 150 household or family units.

33. Its population places it as the fourth smallest, developing member country of the United Nations (larger than only Palau, Nauru and Tuvalu). The RMI became a sovereign, independent country in 1986. Common to a number of other Pacific Island States, it is relatively isolated from large market economies, with for instance Australia, Japan and Korea, its closest industrialized countries on the eastern side, are around 4,000 km away and it is almost 8,000 km to the Pacific coast of the USA. This means that all imported goods including fuel are relatively expensive given the shipping costs and small market size, making energy costs in all uses (except for biomass grown locally) very high compared to the rest of the world (but similar to other small Pacific Island Countries (PIC)). Thus replacing fossil fuels with renewable energy has been a high priority for RMI (as well as other PIC). In addition to this, its extreme vulnerability to a relatively small rise in the level of sea water due to global warming, have resulted in the RMI government taking a strong global position supporting actions to reduce carbon emissions and promoting RE. The importance of energy and climate change for the RMI is reflected in a number of international resolutions and agreements and ongoing international partnerships for PIC countries and for RMI<sup>8</sup>.

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<sup>7</sup> An atoll, most often a coral atoll, is a ring-shaped coral reef that encircles a lagoon partially or completely. The coral of the atoll often grows along the rim of an extinct volcano, which has subsided beneath the water, creating the lagoon. The continued erosion or subsidence must be at a rate slow enough to permit reef growth upwards and outwards. Most of the world's atolls are in the Pacific Ocean, and some in the Indian Ocean, with few in the Atlantic Ocean and the reef-building corals thrive only in warm tropical and subtropical oceans and seas. See <https://en.wikipedia.org/wiki/Atoll>

<sup>8</sup> The summary by the United Nations at <http://www.un.org/en/events/islands2014/smallislands.shtml> June 1992, notes that Small Island Developing States (SIDS) were recognized as a distinct group, with special issues for environment and development, and as extremely vulnerable to global warming and sea level rise, at the UN Conference on Environment and Development in Rio de Janeiro. A “Barbados Programme of Action” was agreed to in April 1994, at the UN Global Conference on the Sustainable Development of SIDS and set out specific actions and measures, most relevant here, on energy resources, covered in section VII, stating – “Small island developing States are currently heavily dependent on imported petroleum products, largely for transport and electricity generation, energy often accounting for more than 12 per cent of imports. They are also heavily dependent on indigenous biomass fuels for cooking and crop drying. Small Island developing States will continue to be heavily dependent on petroleum fuels and biomass both in the short and medium term”. It added - the uses of those fuels tend to be highly inefficient; and all have substantial solar resources, which remain underdeveloped. Wind potential was variable with location. It concluded that the constraints to the use of RE included - technology, investments, local skills and management capabilities. In September 1999, the UN special session appraised five

34. During this evaluation it was seen that RMI has some highly distinct features that have often not been sufficiently taken into account, which include the multiple challenges in the Outer Islands and the lack of data on livelihood and energy use in those islands. Also critically important and not sufficiently allowed for are the capacity constraints in RMI, which have been noted in multiple reviews (to be discussed later) and the significant amount of donor executed technical assistance, especially on renewable energy and related to climate change. It will be seen in the findings, that this has meant that many previous findings are not sufficiently taken fully into account in the design and in the ProDoc. In order to frame the evaluation within its most relevant context, an effort has been made to provide such broader contextual information and framework, with short summaries and references to such relevant work, that have been underappreciated in the design<sup>9</sup> and execution of ADMIRE, and for considering the energy options and their costs and benefits.

## 2.2 Background to ADMIRE

35. The energy background stated above is in fact very well described at a macro-level in the UNDP prepared proposal for project preparation funding<sup>10</sup>, but it does not provide for sufficient consideration of the special issues emerging out of the very small population, its distribution and attendant capacity issues. The document highlights that the Republic of the Marshall Islands (RMI), and other Pacific Island Countries (PICs) have long been concerned about the serious impacts of human-induced climate change, and the impacts affecting the low-lying atolls. RMI has been active in the international negotiations, to urge global GHG emission reductions. The RMI is not obligated under the UNFCCC and its Kyoto Protocol to lower its emissions, as a developing country, but its emission per capita by PICs standard is high. The RMI planned to work with the international community to address its per capita emissions and also, address its sustainable development priorities. A number of small-scale rural renewable energy (RE)-based electrification and energy efficiency projects had “been carried out in the country over the last two decades, their impacts have been minimal. These were due to many reasons including poor

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years of progress of the Barbados Programme and found the progress as ‘uneven’ and also prioritized freshwater resources to RE. In 2002 at the World Summit on Sustainable Development, several subsequent gatherings, countries have reaffirmed the issues above and to refocus their efforts. This summary is provided to confirm some issues relevant to RMI and their similarity with other SIDS. A notable first is that Tokelau became the “world’s first 100% solar nation” with the entire population of Tokelau using solar power for more than 1,400 Tokelauans across 3 separate atolls, reported at: <https://www.sprep.org/piggarep-success-stories/> for Dec 2012, a goal for RMI.

<sup>9</sup> The PIREP report stated (page 44)– “On February 26, 2004, the Govt of RMI endorsed a request to the Global Environment Facility (GEF) for a PDF-A grant<sup>27</sup> of \$25,000 to develop a comprehensive program for GEF funding for renewable energy capacity building and barrier reduction relating to solar photovoltaics, biofuel and wind. The project to be developed is called ADMIRE (Action for the Development of Marshall Islands Renewable Energies) and was initially proposed during PREFACE implementation. The intent is to bring all government and donors initiatives under one technical and management strategy to avoid duplication, standardize equipment and place implementation and management under one structure, with MRD as the focus”.

<sup>10</sup> Medium-sized project (MSP) proposal request for funding under the GEF Trust Fund, prepared by the UNDP Regional Technical Advisor for Energy & Climate Change, Manuel L. Soriano, 30 October 2007 for a GEF grant (PPG) of \$25,000. It entered the GEF pipe line in March 2005. MSP Brief that was prepared in June 2006 and submitted for re-pipelining in November 2006. It was included in the GEF CY 2007 Pipeline on the basis of the earlier GEF-4 strategic objective on promoting renewable energy for the provision of rural energy services. The 2007 document was “an updated version of the June 2006 version, incorporating the changes/modifications and additions done based on the responses to the comments and suggestions in the 3 GEFSec reviews”. The document suggested a total cumulative CO2 emissions reduction of approximately 12,542 tons by the end of the project and at least 500 new jobs created out of businesses operating on RE-based energy systems by end of project.

technical designs, weak institutional capacities, ineffective policies, inadequate funds for maintenance and the lack of understanding and awareness including donor-driven and little ownership”<sup>11</sup>.

36. A National RE Assessment was carried out in RMI under the regional GEF OP-6 project, Pacific Islands Renewable Energy Project (PIREP). The PIREP report of 2004 is quoted - “This had identified the country as having excellent potential for harnessing solar energy to provide electricity to the 60% of its population who still do not have access to electricity. It also identified that copra oil has an excellent potential to substitute diesel oil use in power generation and in land and sea transportation. It confirmed the disappointing experiences with the failure of RE-based energy system installations in many of the outer atolls of the country” and the reasons were the many inter-twined barriers, which needed to be removed to allow for increased use RE. The proposal stated that it built upon the work done in the PIREP, which had been a regional exercise to assess the barriers RETs in the Pacific, which had been followed by another regional GEF approved regional project – “Pacific Islands Greenhouse Gas Abatement through Renewable Energy Project (PIGGAREP)”, under Operational Programme 6 (OP-6), under implementation in 11 PICs<sup>12</sup>. Following PIREP, the ProDoc stated “it was apparent that the RMI needed to carry out its own project which would still address regional priorities but would better suit its national circumstances and its sustainable development aspirations and goals” which then led to the PDF-A exercise, which then developed the project under review (summary of project information in Table 1). The ProDoc did not clarify the reason why RMI needed a project to be undertaken by itself, while 12 other PICs should continue working within a regional project framework nor did it address the issues raised in PIREP as project specific risks and on the other hand considered them among the barriers to be addressed (PIREP, page 38).

### 2.3 Project goals and context

37. The project objective “promotion of the productive use of RE to reduce GHG emission by removing the major barriers to the widespread and cost-effective use of feasible RETs” focused on removal of barriers to their utilization so expanding the use of RETs, was to be achieved through support provided for five outcomes (see paragraph 5 and Table 4). The medium-sized project proposal request

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<sup>11</sup> Ibid, paragraph 2; and selected summaries and quotations from MSP document. It missed other key issues in the PIREP document, most relevant to ADMIRE – “The key barriers to renewable energy and energy efficiency in the RMI are: i) inadequate capacity within the government to regulate, develop, implement and monitor renewable energy and energy efficiency projects; ii) fragmented implementation of projects with little sharing of resources, information and experience; iii) a lack of standards or certification for components and training; iv) irregular incomes on outer islands, making difficult for households to make regular cash payments; v) the RMI’s small size and its wide geographical distribution; vi) poor access to outer island villages; “ and concluded that key capacity development needs were: i) improved capacity of the Energy Planning Division of MRD; ii) improved capacity of MEC for its role in renewable energy and concluded that large scale use of individual solar home systems was not problematic except for initial and recurrent costs, maintenance costs and the collection and recycling of batteries. While the benefits would include better quality of life through improved communications, education, and health and improved lighting.

<sup>12</sup> The UNDP/GEF project document is Pacific Islands Greenhouse Gas Abatement through Renewable Energy Project (PIGGAREP), available at [https://www.sprep.org/attachments/climate\\_change/CC-Regional-PIGGAREP\\_Project\\_Brief\\_Final\\_000.pdf](https://www.sprep.org/attachments/climate_change/CC-Regional-PIGGAREP_Project_Brief_Final_000.pdf). An earlier preparatory phase for PIGGAREP was a US\$760,000 SPREP/UNDP/GEF medium scale project (MSP4) called Pacific Islands Renewable Energy Project (PIREP), undertaken between 2003 to mid-2006. PIREP had undertaken national assessments of a number of PICs, including Marshall Islands. PIREP had estimated the potential GHG savings for RMI to be only from Bio-diesel and Solar PV (with 7.6 and 0.4 ktons CO<sub>2</sub> respectively; PIREP Regional Overview) The PIGGAREP PRODOC noted that “economics and the technical feasibilities of harnessing these RE resources were not evaluated in detail during PIREP” but would be dealt more comprehensively within the PIGGAREP.

for funding under the GEF trust fund was more ambitious in its statement than the ProDoc, and stated (page 3) that “By end of project, it is anticipated that there will be in RMI:

- A total cumulative CO<sub>2</sub> emissions reduction of approximately of approximately 12,542 tons by end of project<sup>13</sup>, which should approximately reach 131,082 tons, a decade later.
- At least 20 atolls have own/joint copra trading company and shipping service
- The copra processing plant runs at 90% - full capacity
- Copra price rise to about 20-22 cents/lb, generating an extra income of at least USD 0.9 million annually
- At total of 7 million liters of copra oil is used annually for power generation and in transportation
- At least 500 new jobs are created out of businesses operating on RE-based energy systems
- At least a total of 500 locals receive training on technical, economics and the project management aspects of RE
- Bank loans for RE-related business ventures reach US\$10 million
- An additional 1500+ households, 20 school and 15 health centers are electrified with solar PV.

**38.** The PRODOC stated that the expected overall project risk would be moderate. And it planned to address the anticipated risks, by effective monitoring to mitigate the risks – “a strong emphasis on hands-on project management and conducting some capacity development activities for the project staff; enhanced participation of the stakeholders particularly in the outer islands inasmuch as they are the primary beneficiaries of the project; continuous dialogue and coordination with the private sector, especially the entrepreneurial entities; and, constant dialogue between the project’s executing agency and project partners.

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<sup>13</sup> ProDoc page 44 - the reductions stated included the reductions “attributed to the baseline EU-funded installations in 2007-2011, plus replications influenced by the enabling environment created under the ADMIRE project”. The MSP Brief to the GEF On page 9, the document listed 9 other project activities supported by international, regional and national projects and programmes that the project had direct linkages with.



### 3. FINDINGS

39. The findings begin with details of the planned project, which have been re-stated here with new tables of the activities planned, in order to simplify the narrative in this report. This is immediately followed by the Mid-Term Evaluation of ADMIRE, undertaken in 2012, which found that the project had run into “many challenges in execution”, “there was very little progress until 2012” and the MTR made a number of recommendations going forward. This report then focuses on the implementation of the recommendations of the MTR and the progress during the next period of ADMIRE, 2012-2015, covering activities, outputs, the use of resources and possible outcomes, within the context of developments and capacity needs in RMI most pertinent to ADMIRE.

#### 3.1 Milestones in Project Design and Implementation

The table below presents the milestones and key dates in project design and implementation:

**Table3: Milestones and key dates in project design and implementation**

Milestones	Dates
GRMI endorsed a request to the GEF for a PDF-A grant	February 2004
Planned PDF Implementation	August 2005
Planned PDF Completion	April 2006
Letter from RMI Government to UNDP committing \$1 million EU funds and \$650,000 over five years on ADMIRE	23 March 2006
PIF for MSP Submitted and approved by GEF	19 October 2007
Project Approved/Endorsed by GEF CEO for five years, and signed by UNDP and RMI	30 April 2008
Administrative and Finance Office (AFO) began work	March 2009
First Project Manager began work in June 2009, part time	June 2009
Inception Workshop	4 March 2010
Project officially moved from OPEEC to MRD and the second Project Manager began work	January 2012
Mid Term review	March 2012
Project completion – planned	30 April 2013
Project completion – actual anticipated	30 July 2016

Source: Compiled from different project documents.

#### 3.2 PROJECT FORMULATION

40. The PRODOC provided for detailed guidelines for the project implementation, discussed in the next section, stated that as ADMIRE was a climate change project, the OEPPC would have the overall responsibility, on behalf of the RMI government, as it is the RMI focal point for all matter relating to the

environment and climate change, for the GEF and related multilateral environment agreements. Hence they could execute ADMIRE with the bigger picture of CC in mind and how the outputs from the project will relate to the RMI's "obligations"<sup>14</sup> and positions under the UNFCCC and Kyoto Protocol. It also stated that while OEPPC would coordinate, implementation would be with the MRD in the lead role<sup>15</sup>. The MRD in turn would work hand-in-hand with the MEC – the agency responsible for the EU RE project in the RMI, (the key co-financing project to ADMIRE); and also with Tobolar<sup>16</sup>, for the copra processing in RMI for CNO as a diesel replacement. MEC is the main electrical utility; also wholly government owned and both report to the MRD). The plans required a Project Advisory Committee (PAC), to provide advice and guidance to the project. The PAC was to be made up of representatives from OEPPC, MRD, MEC, Government Ministries (Finance, Statistics, Health and Education), the Tobolar Copra Processing Authority, NGOs, private sector, mayors, donors, etc.; and was required to "meet at least twice a year, allowing for the stakeholders to agree on a coordinated annual project implementation plan" which would be endorsed at annual "Tripartite Review" meetings.

**Table 4: ADMIRE SRF/LFA AS APPROVED & AS REVISED**

	<b>As Approved</b>	<b>Revised Inception Workshop, March 2010. (revisions in green)</b>
Objectives and Outcomes	Activities/Indicators	Activities/Indicators (Coloured cells indicate changes were made and those without colour indicate no changes were made)
Objective: Promotion of the productive use of RE to reduce GHG emission by removing the major barriers to the widespread and cost-effective use of feasible RETs.  Total Budget: US\$ 975,000	Annual GHG emissions reduced by 0.85 ktons	Annual GHG emissions reduced

<sup>14</sup> It is our understanding that the RMI has no obligations to reduce emissions under the UNFCCC and the Kyoto Protocol.

<sup>15</sup> MRD would "house the Project Manager and employ the Project Coordinators in each of the densely inhabited atolls".

<sup>16</sup> Formally named as the Tobolar Copra Processing Plant, Inc. (TCPPI), a wholly owned corporation of the government of RMI. TCPPI was established in 1977 for the primary purpose of the production and processing of copra products on Majuro Atoll. TCPPI is funded, in part, through appropriations by the government. TCPPI's principal lines of business are coconut oil from copra, copra cake and soap products. The principal market for the oil and copra are Australia and the United States, with sales made on the world market price at the time of sale for the respective products. Soap and value added coconut products are sold primarily to customers in the Marshall Islands. Raw copra is purchased at a price set by the Board, taking into a government subsidy for copra. In the fiscal year 2011 TCPPI received a copra subsidy of \$1,200,000 and a capital improvement projects subsidy of \$270,000. In 2010 and 2009, TCPPI received copra subsidies of \$1,340,002 and \$997,000 respectively, with gross revenues of \$3,991,691 and \$3,293,266 respectively, while in 2008, with higher world prices for coconut oil it had revenues of \$6,019,527. Source: Financial statements and Independent Auditors' report, for years ended September 30, 2010 and 2009, dated June 3, 2011.

<p>Outcome 1: Improved understanding of RE potential and increased number RE installations on the ground which enhances productivity and income generation.</p> <p>Budget: US\$ 356,000</p>	A1. Solar and wind monitoring studies and training are completed in 10 atolls by Year 2	A1. Solar and wind monitoring studies and training are started in 2 atolls by Year 2
	A2. Study of the nation-wide copra oil potential and technical viability for power generation completed by Year 2	A2. Study of the nation-wide copra oil potential and technical viability for power generation initiated by Year 2
	A3. Technical viability of RE applications confirmed by Year 2	A3. Technical viability of solar, wind and biomass RE applications confirmed by Year 4
	A4. Installation of 1,500+ solar PV systems in 2 big atolls completed by Year 2	A4. Installation of 1,000 solar PV systems completed by Year 4
	A5. Electrify 20 schools and 15 health centres with RE/PV by Year 3	A5. Electrify, maintenance and/or monitoring of 20 schools and 15 health centres with RE/PV by Year 4
	A6. RE technical standards for PV, wind and biomass prepared and adopted by Year 3	A6. RE technical standards for PV, wind and biomass prepared and adopted by Year 3
<p>Outcome 2: Enhanced institutional capacity to coordinate, finance, design, supply and maintain RE installations</p> <p>Budget: US\$ 118,000 86,000</p>	B1. Review of the MRD and OEPPC legislations completed by Year 1	B1. Review of the MRD and OEPPC legislations completed by Year 2
	B2. Complete the Energy Balance by end of Year 1	B2. Complete the Energy Balance by end of Year 2
	B3. A reviewed National Energy Policy adopted by end of Year 2	B3. A reviewed National Energy Policy adopted by end of Year 2
<p>Outcome 3: Strengthened legal and regulatory instruments to support RE dissemination, financing and marketing</p> <p>Budget: 190,000</p>	C1. Existing Legislations and Policies are reviewed by Year 2 and new amendments and enactments by mid-Year 4	C1. Existing Legislations and Policies including for the copra industry are reviewed by Year 3 and new amendments and enactments by Year 4
	C2. Commercial energy pricing policies and practices reviewed by Year 2	C2. Commercial energy pricing policies and practices reviewed by Year 3
	C3. Policies relating to the copra industry are reviewed by Year 2	Included in C1
<p>Outcome 4: Improved accessibility of capital for RE businesses</p> <p>Budget: US\$ 190,000</p>	D1. Confirmed list of bankable projects by Year 3	D1. Confirmed list of bankable projects by Year 3
	D2. At least one training workshop and technical assistance to financing institutions by year 5	D2. At least one training workshop and technical assistance to financing institutions by year 5

	D3. Technical assistance to atolls on business opportunities in copra trading and shipping by Year3	D3. Technical assistance to atolls on business opportunities in copra trading and shipping by Year 3
Outcome 5: Improved awareness, skills and knowledge  Budget: US\$ 127,500	E1. RE in schools' curriculum by Year 4	E1. RE in schools' curriculum by Year 4
	E2. RE public awareness programmes are operational through the local media by end of Year 1	E2. RE public awareness programmes are operational through the local media by end of Year 1
	E3. Two local university and/or tertiary graduates on RE by end of Year 4	E3. Two local university and/or tertiary graduates on RE by end of Year 4
	E4. More than 100 trainees per year participate in the RE training activities of the ADMIRE	E4. More than 100 trainees per year participate in the RE training activities of the ADMIRE
Outcome 6: Learning, Evaluation and Adaptive Management Increased  Budget: US\$97,500	Effective and efficient implementation of the ADMIRE	Effective and efficient implementation of the ADMIRE
Coloured:	Activity done	
Not Coloured:	Activity not done	

Note: Table 3 columns 1 and 2 above are extracted from the PRODOC, where it is laid out in in 6 columns with Baseline, Target, Sources of Verification and Risks & Assumptions, in order to make it simpler to present the principal elements of the plans. Column 3 is taken from the revised LFA at the Inception Workshop in 2010. See later discussions on the MTR and its critique of the project design.

### 3.2 RISK ANALYSIS/ASSUMPTIONS

41. The PRODOC had listed the following to be important - support from the RMI Government, with support by responsible ministers and government ministries to release energy data; political stability in RMI; effective and efficient country team; backstopping support and cooperation of national, regional and international experts; support from the atoll governments, the landowners, Tobolar and the Meteorology office; continued close collaboration with co-financing partners. In addition it required the co-operation of energy consumers, Tobolar and suppliers and widespread consultations and acceptance of new policies and plans.

42. The project design appears to have focused too narrowly on its goals without taking into account the specific issues of RMI that would be most relevant to the project implementation. Its small size, the distribution of its land and people in many islands and atolls and its own acknowledged lack of "capacity".<sup>17</sup>

<sup>17</sup> The submission of the RMI government, "National Report to the World Summit on Sustainable Development" to the Rio + 10, the United Nations "Earth summit" held in September 2002, has stated in its assessment of RMI, 35 times in 65 pages, the overwhelming lack of local capacity, for example – "utility services are far from adequate, as

### 3.3 Implementation Arrangements

43. The project design stated that “since ADMIRE is a climate change project, it is viewed that the OEPPC will have the overall responsibility for the project” and was designated as the project-executing agency<sup>18</sup>. Hence they could execute ADMIRE with the bigger picture of CC in mind. It also stated that while OEPPC would coordinate, implementation would be with the MRD in the lead role<sup>19</sup>. The MRD in turn would work hand-in-hand with the MEC, (the main electrical utility in RMI) the agency responsible for the EU RE project, (the key co-financing project to ADMIRE) and; and Tobolar, the national copra processing plant (see later on MEC and Tobolar, both government-owned).

44. The plans required a Project Advisory Committee (PAC<sup>20</sup>), which would provide advice and guidance to the project (see para 40), incorporate all stakeholders, “meet at least twice a year, allowing for the stakeholders to agree on a coordinated annual project implementation plan” which would be endorsed at annual “Tripartite Review” meetings. The ProDoc had also noted a number of resources that were to be available to the ADMIRE PM. There was to be one administrative / financial officer (AFO); a group of project coordinators (PCs) - contracted by ADMIRE and hosted in designated agencies in each of the outer atolls where work would be done.

45. It also provided for five task specialists (TS) - one for each of the five components (see Table 3 above); who would play the lead role in the implementation of activities under each component; three Renewable Energy Assessment Experts (REAE) for Biomass, Solar and Wind reporting to the TS above; one RE EXPERT (REE); one energy planning expert (EPE); an energy systems financial expert (EEFE); an RE market development expert (RMDE). In addition to those persons supporting the PM, the project would subcontract the development of ADMIRE Website and RE Database; a Feasibility Study of Establishing Copra Trading Companies and Copra-Based Power Generation in the Outer Atolls; and finally a subcontract for the design of RE Module for Inclusion in School Curricula.

### 3.4 Stakeholder analysis:

46. The project plans in the PRODOC had stated that barriers to RE development and application in the RMI could only be removed with a high degree of participation from all stakeholders listed and described below. It had made a good and complete assessment of the stakeholders who must be involved closely in and during the project execution. Stakeholders’ participation and interaction was considered to be critical for the project.

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are education and health care” and there is a need for “greater local capacity building and training of personnel in the health, education and environmental sectors” (page 8).

<sup>18</sup> OEPPC is the focal point in RMI for all matter relating to the environment and climate change, for the GEF and all multilateral environment agreements. UNDP stated “It is critical to execute the ADMIRE with the bigger picture of CC in mind and how the outputs from the project will relate to the RMI's obligations and positions under the UNFCCC and Kyoto Protocol – two key global instruments, which OEPPC coordinates for the RMI. However, OEPPC's role in the project will be one of coordination mostly”. It is our understanding that the RMI has no obligations under the UNFCCC and the Kyoto Protocol.

<sup>19</sup> MRD would “house the Project Manager and employ the Project Coordinators in each of the densely inhabited atolls”.

<sup>20</sup> A cross ministry committee was set up, which was called the “Project Steering Committee (PSC)” in its formulation and in the minutes of its meetings. It was understood from the interviews that the names PAC and PSC refer to the same structural and governance arrangements specified in the ProDoc, and the name PSC as used in RMI and their reports will be used interchangeably in this evaluation report.

**Table 5: Summary List of Stakeholders and Key Roles in the ADMIRE**

Stakeholder	Key Role in the ADMIRE
OEPPC	Designated Executing Agency as per standard UNDP/GEF rules and procedures under the National Execution (NEX) modality (e.g. responsible for the planning and overall management of project activities, reporting, accounting, monitoring and evaluation, supervision of contractors, management and audit of UNDP resources, etc.). It would also be responsible for facilitating the securing of project co-financing.
MRD	Execution of the project activities on behalf of the OEPPC – It will serve as the Project Management Office (PMO), and manage all project consultancies and contracts, etc.
Project Advisory Committee	Provision of policy advice and guidance to OEPPC and MRD in the implementation of the project.
MEC	Assistance in the execution of the project, in particular, in the implementation and monitoring of the operations of the RE-based energy systems installations funded by the EU.
EPPSO	Assistance in the data collection and statistics, and in linking the project to other lending institutions
Ministry of Finance	Main controller of project funds disbursed by UNDP and will deal with the PMO and EA in housing funds, as well as payments
Tobolar Copra Processing Authority	Assistance in project execution particularly in the implementation and monitoring of the copra oil-related activities.
RMI College of Higher Education	Design and conduct of the project's training activities
Private Sector/Consultants	Conduct of the resource monitoring activities and feasibility studies; Installation of the RE-based energy system projects; Evaluation of existing RE installations; Conduct of technical training activities
Banks/Financing Institutions	Provision of financial support to RE development activities; Participation in the financial capacity building activities
UNDP	Provide GEF Implementing Agency oversight on the project implementation (e.g. financial and substantial oversight, monitoring, evaluation, administrative backstopping, coordination with other UNDP initiatives, etc.)
Marshall Islands Council of NGOs (MICNGOs)	Information dissemination, conduct of relevant workshops and training
Marshall Islands Chamber of Commerce	Information dissemination and training activities for the business community. Ensures that interests of the RMI business community are adequately addressed in the ADMIRE.
Women United Together Marshall Islands	Conduct targeted training, capacity building and awareness activities for women.
Pacific Resources for Education and Learning in RMI	Conduct and collaborate with the other project stakeholders in the conduct of capacity building, training and awareness activities of the project.

Source: UNDP MSP Project document, pages 24-25.

### 3.5 Strengths and Weaknesses of the Project Design

47. The PRODOC largely followed PDF/PPG report which undertook the assessment evaluating the solar, wind and biofuel resources available in the Republic of Marshall Islands; Identification of potential project sites for the application of the available RE resources; a Logical Framework Analysis (LFA) workshop to analyze the identified barriers to RE development (under PIREP and the PDF-A exercise), and the project goal, purpose, outputs and activities. LFA is in the MSP Brief; interventions that will address the barriers to renewable energy access and remove them; project stakeholders/partners and documenting of all stakeholder consultation meetings; assessment of the institutional framework; co-funding possibilities and requirements; Local Project Assessment Committee (LPAC) Meetings.

48. It did not mention any donors as stakeholders and partners<sup>21</sup>, though it had mentioned that an “EU funded solar home system project in the outer islands provided for the co-financed component”. And besides the EU, the RMI has another half dozen important and large donors involved in multiple activities in the RMI on CC related work, many with RE elements, that link with ADMIRE (see later)<sup>22</sup>.

49. The PRODOC also missed some of the known challenges in RMI to PV systems, noted in the 2004 PIREP project report and later again in the PIGGAREP report (referred to in the PRODOC), page 74, of poor electricity tariff collection; lack of understanding among users and of commercial orientation; poor enforcement of project rules, political pressure to subsidize O&M, both leading to lack of collections, which had been noted in RMI. It noted also that the RMI Energy office had 2 staff (page 126), which was double that noted in PIREP in 2004, but clearly insufficient for the ambitious goals.

50. This evaluation finds the design had a number of useful features – in particular the elements to provide for a strong PMU based in the MRD, with sufficient staff and technical knowledge to be able to boost the capacity at MRD, which would in turn support the larger ambitions of the GoRMI towards greater ownership and control, improve coherence and effectiveness of renewable energy developments in the country. It was largely built on the findings from a relatively good study of energy in RMI (PIREP). A key component of the plan required a strong, coherent and well-functioning Project Advisory Committee (PAC), to provide advice and guidance to the project and integrate the cooperation of the identified stakeholders; it was required to “meet at least twice a year, allowing for the stakeholders to agree on a coordinated annual project implementation plan” which would be endorsed at annual “Tripartite Review” meetings. Finally, the ProDoc had assumed and provided for a number of expert knowledge and human resources that were to be available to the ADMIRE PM (it is later seen that neither of these assumptions were fulfilled).

51. While the evaluation found the PIREP report to provide a good background and overview of RMI and to make useful recommendations, the report has statements on the difficulties faced in completing the assignment – the reassignment of the National PIREP Coordinator, an accident, which prevented the National Consultant from participating, the absence of a local consultant for an extended period, numerous data gaps, particularly for the islands away from Majuro atoll, and finally the review by the “RMI National PIREP Coordinating Committee, Secretariat of the Pacific Regional Environment Programme, United Nations Development Programme and others” resulted in only very minor comments received.

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<sup>21</sup> The PIREP report had noted - RMI is heavily dependent on external assistance, grants averaging 60% of Gross Domestic Product (GDP) since independence.

<sup>22</sup> It is stated by UNDP that there were fewer development partners and donors in 2006/2007 when the project was prepared.

52. The design weaknesses stemmed from a number of factors. One is the patchwork nature of the reporting in the MSP PDF/PPG report, this has been mentioned at several places. It was unduly ambitious in its expected impacts. It mixed risks of country capacity issues, with RE barriers, and generic versus project specific risks. The mistaken notions of risk did not then allow for suitable risk mitigation strategy. A second stems from the melange of activities and outcomes as listed in Table 3. The MTR for the project in 2012, also critiqued the project design, stating it had a “typical GEF format by having a capacity building, policy component, institutional component, financial and awareness component with various activities that relate to the two technologies (PV and oil from copra processing) scattered over various components”. Third, it was seen in during the evaluation, the absence of key data on energy use and more often, the lack of pulling together data that is available to create a coherent map of energy in RMI was noted in the design.

### 3.6 Rating of Project Design

**Table 6: Summary Ratings of Project Design**

	Criteria	Rating <sup>23</sup>	Comments
	Relevance to RMI, UNDP and GEF	HR	The project objective was and remains highly relevant.
1	Implementation approach	MU	The design was marred by a lack of appreciation of specific risk and challenges in RMI and a weak appreciation of lessons and experiences in other projects
2	Project logic	MU	Too many disparate components, which should have been clubbed more organically allowing for a more adaptive project execution.
3	Strategy	MS	The stated strategy of stakeholder involvement, the use of an active and well constituted PAC and the technical resources to be made available at the PMU were all excellent as proposed. It did not anticipate and take measures for non-working PAC.
4	Indicators	U	Beginning with the highest goal level indicator, there was considerable confusion in the statements of achievements of likely GHG reductions and socio economic impacts

<sup>23</sup> The ratings used follow UNDP and GEF guidelines and are as follows: Highly Satisfactory (HS): no shortcomings; Satisfactory (S): minor; Moderately Satisfactory (MS): moderate; Moderately Unsatisfactory (MU): significant shortcomings; Unsatisfactory (U): major problems; and Highly Unsatisfactory (HU): severe problems. For sustainability, Likely (L): negligible risks, Moderately Likely (ML): moderate risks, Moderately Unlikely (MU): significant risks; Unlikely (U): severe risks; Relevant (R); Not relevant (NR); and Not Applicable (N/A).



5	Country ownership and driven ness	MU	Country policy statements may have clouded the judgement to have the project designated at entry as ML. But other project experiences suggest a MU rating should have been used.
6	Stakeholder participation	MU	While well described did not consider the impacts of small numbers of people at each organization and the multiple demands on their time.
7	Replication approach	MS	Scaling up was considered through domestic and international funding; new national policies and regulations; strengthened national capacity at MRD; training of individuals.
8	Cost-effectiveness	S	Adequately described under GEF principles and it noted the high travel and unit costs within RMI.
9	UNDP comparative advantage	H	Commitments to SIDS; specific plans to enhance support to RMI including a local representative supported from the Fiji, MCO.
10	Management arrangements	S	Good descriptions of anticipated regular and frequent reviews and support.
11	M&E	S	Appropriate descriptions of activities anticipated.
	Overall Rating of Design	MU	The major factor that was weighted in arriving at MU is the significant discrepancy between what was and should have been known about the national context and what was assumed.

### 3.7 PROJECT IMPLEMENTATION

53. The project faced multiple challenges during implementation. As pointed out in the milestones (Table 4), it could not be minimally staffed with a project manager. With considerable effort on the part of UNDP, an Inception workshop was held in Majuro (4 March 2010) attended by 21 key stakeholders from RMI and two UNDP staff. The workshop<sup>24</sup> concluded that ADMIRE activities would contribute directly to meeting RMI's policy priorities outlined in the National Energy Policy & Energy Action Plan endorsed in September 2009. It commented that given "recent developments since project design in 2006, the inception workshop provided an opportunity to familiarize key stakeholders with project details – including its agreed strategy, expected outcomes and outputs, measurements of results, impacts and benefits and risk that must be mitigated to ensure project success". The workshop was seen as an opportunity to review the strategic results framework (SRF or LFA), work plans, implementation arrangements" so, "new momentum is brought to the project after the relatively quiet period" since February 2008. The Inception Report noted there were "revisions made". Table 3 presents the original goals, objectives and the indicators/activities and in column 4, presents the revisions made. It is seen (colour coded cells) that there was very little change in the content of the SRF but most changes focused on shifting the time line, given that two years had elapsed since the approval.

54. The UNDP PIR for 2010 and 2011 continued to report slow progress and the table of project expenditures by years 2008-2011 (Table 6 below) show little change in project expenditures between 2009 and 2011<sup>25</sup>. The increasing concerns by UNDP, required the UNDP to send a mission in 2011 to attempt to improve the project implementation (and also three other UNDP projects in RMI)<sup>26</sup>.

55. The lack of progress until 2012, are detailed in the UNDP PIRs for the period and was followed by a Medium Term Review (MTR) in 2012 by an independent external consultant. The status of project expenditures between 2008 to 2011 is provided in the table below and a short summary of the status of ADMIRE as determined by the MTR in 2012 is provided after, together with the recommendations made in the MTR for improved project performance.

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<sup>24</sup> See Inception Workshop Report of 4 March 2010. It recommended that the (PMU) "be re-located back to Ministry of Resources & Development (MRD) in accordance with was what agreed to in the Project Document. MRD has now addressed capacity and space issues initially experienced in 2008 and beginning of 2009 and is ready to commence activities"; suggested progress had taken place in the awareness component, but very little happened in the four (4) other key components. It confirmed "an urgent need to accelerate progress in all project components" and, in particular *in light of the mandatory independent mid-term evaluation* (emphasis added) that is to be undertaken in second half of next year. Therefore the ADMIRE PMU "needs to take an increased proactive approach when implementing activities and should immediately initiate consultations with key stakeholders"; "committees that steer and advice the ADMIRE Project need to be re-confirmed. Membership and roles of the *Project Advisory and Project Steering committees* (emphasis added) and their linkages with RMI's Energy Task Force need to be clarified". It recognized linkages with other environmental projects funded by GEF/UNDP, which needed to be recognized and strengthened. Examples provided included - "community center enhancement through renewable energy in Kwajalein"; and "GHG inventory component of the Second National Communication could be used as baseline for the energy balance component" of ADMIRE.

<sup>25</sup> The lack of progress and low performance ratings are noted in the UNDP PIR for the period 2008, 2009, 2010 and 2011.

<sup>26</sup> This is from the TOR for a three month Project Implementation Support Mission - "Environmental Consultancy – Republic of Marshall Islands", 10 June 2011, for supporting "Sustainable Land Management (SLM)", the "Second National Communications (SNC)" to the UNFCCC; and National Capacity Self Assessment (NCSA) projects as well as ADMIRE, and the report from the support provided.

**Table 7: Expenditures in ADMIRE 2008-2011**

	ADMIRE GEF Components (all figures in US\$)	Budget	2008	2009	2010	2011
1	RE Potential & Installation	356,000	444	7,173	51,334	25,022
2	RE Institutional Capacity	118,000				38,874
3	Policy & Regulatory	86,000			906	753
4	RE Business financing, copra	190,000				272
5	RE Advocacy & awareness	127,500		28,320	7,000	
6	Project Management	97,500	469	32,044	18,871	16,098
	From UNDP CDR		913	67,537	78,110	95,750
	Details of expenditure in rows 1-6 are from the MTR and the total expenditures are from UNDP CDR					

### 3.7.1 The Medium Term Evaluation (MTE) and Report (MTR)

56. The MTE of the ADMIRE project was undertaken in March 2012<sup>27</sup>. It concluded that the project had “encountered severe implementation problems”. It noted that implementation did not even start after a delay of 12 months, when the Administrative and Finance Officer (AFO) began work in March 2009. Then the first Project Manager was appointed in June 2009, and resigned after about less than six month. Then a Local Counterpart, the OEPPC Financial Officer, was made responsible on a part time basis. An “Inception Workshop” was only held in March 2010. The review of the Annual APR/PIR, project budgets and AWP, UNDP/GEF tracking tools and UNDP mission reports also confirm that there was very little progress until 2012 leading to considerable concern by UNDP.

57. The MTR proposed that the responsibility for ADMIRE be transferred from OEPPC as soon as possible, as the OEPPC did not have any real energy-specific capacity. The MTR also noted that the Energy Team at MRD was dedicated, but it also had a very small contingent of staff – “there are a maximum of four persons full time in the energy team at MRD, who were already overstretched to effectively handle the multi-million dollar projects provided by donors such as Japan, Taiwan, European Union and the ADB”, all at the same time as the UNDP/GEF project. The MTR noted that the implementation issues were related to the small size and inherent limitations of human capacity of the Marshall Islands.

58. The transfer took place after the MTR, in middle 2012. A number of changes were implemented in 2012 following the MTR and it was then reported that the project made better progress. This is covered subsequently.

<sup>27</sup> MID-TERM REVIEW, Action for the Development of Marshall Islands Renewable Energies (ADMIRE), Government of the Republic of the Marshall Islands; United Nations Development Programme/Global Environment Facility, March 2012.

59. The MTR also critiqued the project design, as noted earlier. It suggested that the design could be improved by formulating three components in a more thematic fashion - 1) outer islands PV, 2) copra oil production and processing, 3) assessment of other RE (grid connected and wind) options; and then to detail the activities needed according to perceived barriers for the goal, as appropriate - policy, institutional, capacity and finance, and these barriers may well differ in importance and not necessarily addressed in the same project.

60. It noted that the co-financing letter from the Ministry of Finance referred to a USD 1 million co-financing from the EU (European Union), as part of its REP-5 project<sup>28</sup>, which had ended in 2009, while ADMIRE had not really taken off yet by that time. It remarked that the new EU financed successor project, North-REP (implemented by the Secretariat of the Pacific Community, SPC), did open a new opportunity for ADMIRE to combine the project's technical assistance with the outer island electrification (largely hardware) activities supported by North-REP.

61. The MTR recommended the expedited contracting of a full-time project manager; integration of ADMIRE activities with North-REP, in which ADMIRE could add value to the planned installation of 1,500 SPV systems in the outer islands, by exploring more sustainable technology support systems in RMI for SPV; additional support by UNDP experts, together with close monitoring and technical support by UNDP.

62. It made suggestions for revised outcome indicators for ADMIRE linked with priorities as stated in the Marshall Islands National Energy Policy and Energy Action Plan (2009) and outputs of the EU-supported North- REP project as well as proposed grant assistance by the Asian Development Bank, which includes a component on copra oil production and processing for fuel. (See Table A in Section 3.2 of MTR)

63. The MTR also recommended focusing the training programs for the design, operation and maintenance of stand-alone and grid-connected PV systems in the country; the use of copra as form of payment for electricity tariff for the outer islands households SHS; and user training and awareness campaigns in rural schools and health centers; to explore and conclude opportunity of cooperation (similar to North REP MoU) with Tobolar and ADB on copra oil processing.

### 3.7.2 Implementation after the MTR: 2012-2015

64. The evaluation found that the transfer of all responsibility from OEPPC to MRD was completed in early 2012<sup>29</sup> and a first full-time project manager was hired at almost the same time. The new manager worked on the integration of ADMIRE activities with North-REP, in which ADMIRE could add value to the planned installation of 1,500 SPV systems in the outer islands, by exploring more sustainable technology support systems in RMI for SPV. The MTR suggested revised outcome indicators but the evaluation did not find any revisions to the LFA and to the outcome indicators for ADMIRE as recommended by the MTR. In fact the subsequent Annual Work Plans reviewed continued to list the same six outcomes, with 18 activities (not counting learning and M&E). Hence the activities as revised at the Inception workshop and shown in Table 3, column 3, are used below to discuss the ADMIRE work done and results.

<sup>28</sup> The MTR noted that the REP-5 project had installed 420 solar home systems (SHS) on Ailinglaplap atoll, and SPV systems for lights and office equipment in six primary schools (on the five atolls of Arno, Ebon, Mejit, Namdrik and Nam).

<sup>29</sup> It was seen that in the April 2010 meeting (the first minutes of the PAC/PSC, the minutes noted, "the PMU was under MRD, OEPPC and MRD were ready for the transitioning from OEPPC, but it remained the Executing Authority, with all reporting to be via OEPPC for final reporting to UNDP". But that had not happened.

65. The MTR also recommended focusing the training programs for the design, operation and maintenance of stand-alone and grid-connected PV systems in the country; the use of copra as form of payment for electricity tariff for the outer islands households SHS; and user training and awareness campaigns in rural schools and health centers; to explore and conclude opportunity of cooperation (similar to North REP MoU) with Tobolar and ADB on copra oil processing. Any evidence that the recommendation for additional support to be provided by UNDP experts, together with close monitoring and technical support by UNDP office<sup>30</sup>, was fulfilled was not seen in the evaluation.

### 3.7.3 Project Expenditures: 2012 - 2016

**Table 8: ADMIRE Expenditures 2012-2016**

	ADMIRE GEF Components (USD)	2012	2013	2014	2015	Expenditures (2012-15)	Planned Budget 2016
1	RE Potential & Installation	51,301	129,903	17,146	13,704	212,053	
2	RE Institutional Capacity	36,939	21,762	5,765	7,726	72,192	4,000
3	Policy & Regulatory		33,835	17,550	23,411	74,795	4,000
4	RE Business financing, copra	200	600	104,251	66,214	171,265	6,385
5	RE Advocacy & awareness	23,291	34,726	16,867	2,236	77,120	
6	Project Management	61,797	5,720	432	3,245	71,193	32,000
	Total Expenditure from UNDP CDR	173,528	226,546	162,011	116,536	678,621	46,385

<sup>30</sup> The UNDP Fiji Multi-Country Office (MCO) Environment Unit had been concerned in 2011 at the slow implementation of all four UNDP environmental projects in RMI, and had supported a consultant for a period of three months to assist in moving them forward. It anticipated this additional support could “effectively assist in the revitalization of projects, in particular ADMIRE” (Project Implementation Support Mission to Republic of Marshall Islands, April - June, 2011, Terms of Reference). This support assisted in the progress on outer island survey; wind monitoring installation; completion of the required 2010-2011 APR/PIR for ADMIRE; and agreements for the MTR Consultant and with MRD on the appointment of a new Project Coordinator, to work exclusively on ADMIRE. Perhaps the UNDP office had used its support budget in 2011 and was unable to respond to the recommendation of the MTR for additional support to ADMIRE, but it is also noted that two UNDP technical advisers also visited RMI in 2012 after the appointment of the PM to provide further support to ADMIRE.

## 3.7.3 Project Outputs 2012 – 2016

Table 9: ADMIRE Activities and Outputs

No.	Description	To 30 June 2012 as per MTR.	Work done 2013-2015. Status Feb 2016 Blank cells show either no work done or no evidence seen in the evaluation.	Evaluation Comments
1.	A1. Solar and wind monitoring studies and training are started in 2 atolls by Year 2	Provided support for household energy availability through surveys for installation of solar home systems on Utrik, Ailuk, Maloelap and Aur atolls.	Energy surveys for the installation of solar home systems in Namdrik, Kili and Jaluit atolls (2013) ; 2014 wre done and reports available- All eleven atolls listed in the SPC North REP - Inspection completed for Kwajalein, Lib, Ujae, Lae, Namu and Wotho.  Solar water pumping demonstration activity installation contracted and delivered.	Reports seen. Good for its thorough coverage by island and for determining new installations by household. :  The solar pumping demonstration could not done due to differences within MRD. Issues- well size; protection of equipment
2.	A2. Study of the nation-wide copra oil potential and technical viability for power generation initiated by Year 2		Purchased, installed and commissioned bio-fuel testing equipment at Marshalls Energy Company laboratory It was stated - The availability of the biofuel testing equipment contributed to establishment of Standards for coconut oil for power generation established by ADB	See comments on biofuel in report.
			ToR approved and MOA signed with Tobolar for implementation of bio-diesel activities and local consultant assigned. A December 2015-report from Tobolar; was stated as accepted by UNDP office as regards to the main plant not pursuing bio-diesel production. Not seen. A contract was signed for consultancy report and to test methanol as a possible fuel in the Outer Islands. Tobolar awaits the shipment of methanol. The pilot project in Arno continues.	Above.
			Initial results of the bio diesel operation for Marshalls Energy Company indicate “that the bio-diesel operation for MEC is viable”	As above.

No.	Description	To 30 June 2012 as per MTR.	Work done 2013-2015. Status Feb 2016 Blank cells show either no work done or no evidence seen in the evaluation.	Evaluation Comments
			However, the Pielstick generator, which was retrofitted to run on bio-diesel, is currently not in service(note as stated in the report).	
3.	A3. Technical viability of solar, wind and biomass RE applications confirmed by Year 4	Procurement, arrangements and preparation for the wind-monitoring tower on Jaluit Atoll.	Installed wind-monitoring tower on Wotje and Jaluit respectively.  One collapsed and other was taken down. Report seen- "Report on Wind Monitoring Tower for Jaluit and Wotje, RMI, July 2014".	Data was collected and needs to be reviewed by a wind energy expert to ascertain the results from the data available.  The intact wind monitoring tower should be re-established and a new data collection plan started.
4.	A4. Installation of 1,000 solar PV systems completed by Year 4	No ADMIRE Budget. Cooperated with EU-SPC North.	2013 and 2014- installation of 1305 SHS (2013- Ailuk, Utrik, Maloelap, Namdrik , Lib and Lae atolls) (2014-Aur, Namdrik, Jabot, Kili, Jaluit, Kwajalein and Enewetak) under ADMIRE; remaining funded by other sources.	See subsequent discussion on SPV on outer islands and reports discussed there-
5.	A5. Electrify, maintain and/or monitor 20 schools and 15 health centres with RE/PV by Year 4	-Same as above-	EE air conditioning units for all public schools- joint effort with Ministry of Education.  ADMIRE was only designed as a RE project but at the same time it was agreed to cooperate fully with SPC North REP, which had an EE component.	Energy Efficiency measures in all public schools- Flyers were distributed in this regard- translated into Marshallese.  The evaluator considers this effort joining hands with North REP as reasonable.
6.	A6. RE technical standards for PV, wind and biomass prepared and adopted by Year 3			Component Specifications for Standard Grid-Connected Solar Kits Minimum size 1.5 to 1.75 kWp currently in place - joint effort between ADMIRE/MRD, MEC and MIDB; SPC North REP developed standards for the outer atoll SHS.
7.	B1. Review of the MRD and OEPPC legislations completed by Year 2	Legislation in place on duty free import on selected RE systems approved by the RMI	Review of legislation completed in 2013.  Bill No: 85NDI was approved effective 10 March 2011. Exempts RE equipment and EE imports as certified by Energy Star from import duties. Bill No.62ND1 was approved duty exemption on electric and hybrid-vehicles.	Fully completed.

No.	Description	To 30 June 2012 as per MTR.	Work done 2013-2015. Status Feb 2016 Blank cells show either no work done or no evidence seen in the evaluation.	Evaluation Comments
		Government		
8.	B2. Complete the Energy Balance by end of Year 2			Not done. Data is available that can be used to create an energy balance for commercial energy. There appears to have been no studies, reports or data on non SHS energy use, especially biomass in outer islands.
9.	B3. A reviewed National Energy Policy adopted by end of Year 2	2009 National Energy Policy and Action Plan in place.	Project contributed to the Joint National Action Plan for Climate Change Adaptation and Disaster Risk Management, to integrate mitigation and adaptation; and to a new statement "National Climate Change Policy Framework". CC Policy Framework adopted and in place under the OEPPC Jan 2014- National consultations for the 2014 National Energy Policy; 2015- Final review of 2014 NEP.	Completed. Updated national policy in draft form available.  Comment: All the documents are light on the use of data to determine concrete plans and rely on broad restatement of principles.
10.	C1. Existing Legislations and Policies including for the copra industry are reviewed by Year 3 and new amendments and enactments by Year 4	Bill for RE and efficient instruments and equipment passed by the Nitijela (Parliament) , 2011.	Review of legislation completed in 2013. Updated the National Energy Policy and Action Plan.  Policy review completed by Tobolar, "Tobolar Strategic Reform Plan for 2012-2016"- adopted and being implemented. Stated by EPD.	Updated National Energy Policy and Action Plan seen.  Comment: Tobolar document not seen. Does not seem relevant or coherent to ADMIRE.
11.	C2. Commercial energy pricing policies and practices reviewed by Year 3			Not done. As imported energy prices have declined this has become less urgent for RMI leaders.
12.	D1. Confirmed list of bankable projects by Year 3		2013- Completed Market Survey Assessment in partnership with the International Union for Conservation of Nature (IUCN) (Report not seen) 2014-MOU signed between ADMIRE and the	RMI/MEC loan for implementation of RE/EE at the MIDB approved and Loan agreement in place.



No.	Description	To 30 June 2012 as per MTR.	Work done 2013-2015. Status Feb 2016 Blank cells show either no work done or no evidence seen in the evaluation.	Evaluation Comments
			Marshall Islands Development Bank for RE loan mechanism <sup>31</sup> (Initial funding submitted in March 2014); Contract with National Development Bank of Palau. 2015- Grid connected component specifications in place; RE/EELS Policy in place.	Expected MIDB program in Summer 2016.
13.	D2. At least one training workshop and technical assistance to financing institutions by year 5		2014- One training for local financial institutions on 'how to develop a renewable energy and energy efficiency loan scheme'  In January 2015 there was a follow-up training Basic Technical Training for Grid Connected Solar For Installations to be Financed by the Marshall Islands Development Bank. The training report available here: <a href="https://drive.google.com/file/d/0Bw-_5ajzuswuV2VySDR4QTRDb2c/view?usp=sharing">https://drive.google.com/file/d/0Bw-_5ajzuswuV2VySDR4QTRDb2c/view?usp=sharing</a>	Renewable Energy Training for Utilities, Contractors and Businesses held in Majuro on December 7-11, 2015
14.	D3. Technical assistance to atolls on business opportunities in copra trading and shipping by Year 3		2013- Piloted financing scheme with EU/SPC's North REP Project for women on Arno atoll - trade kili bags (handicrafts) and copra as payment for electricity tariffs.	Review of results and report by WUTMI pending.
			2015- biodiesel development pilot project with Tobolar for power generation for a local resort (Majuro and Beran Island, Ailinglaplap) + technical assistance for Tobolar for use of copra/VCO and other coconut industry waste products as renewable energy resource.  Not clear and not seen.	Use of coconut industry waste products for energy production can be very useful. See discussions on copra in this report.
15.	E1. RE in schools' curriculum by Year 4		2013- Development of RE curriculum into the RMI high school curricula; 2014- Curriculum completed. Documents seen and interviews.	This was appreciated by the school authorities.
			2015- Distribution of 206 solar/electric powered fans to primary classes (K-6) in public and private schools on Majuro and Kwajalein	This was appreciated by the school authorities.

<sup>31</sup> The technical assistance resources is via SIDS DOCK funded by Govt of Denmark, information provided by UNDP - ProDoc:

<https://info.undp.org/docs/pdc/Documents/WSM/SIDS%20DOCK%20PIGGAREP+%20ProDoc%20FINAL.docx>

No.	Description	To 30 June 2012 as per MTR.	Work done 2013-2015. Status Feb 2016 Blank cells show either no work done or no evidence seen in the evaluation.	Evaluation Comments
			(involved 25 schools impacting over 3000 young) Interviews.	
			Presentations on renewable energy resources conducted prior to the turnover of fans, ,	
			Private sector training on Solar PV systems in cooperation with IslandEco.	
			Project with WUTMI for the construction and distribution of solar food dehydrators for the women of Arno. Solar dehydrators distributed in Arno, WUTMI interviewed.	To conduct an evaluation and assessment of product in mid-2016 - pending
16.	E2. RE public awareness programmes are operational through the local media by end of Year 1	E2. Building awareness of RE and CC - first school science camp. 2011- collaborated with two national conferences and design and printing of brochures for the Outer Islands (OI) survey+ translations	2013- Presentation on the RMI Energy Sector to Marshall Islands Mayors Association (August 2012) - Not done.  ADMIRE - funding assistance for the distribution (only) of 900 smokeless stoves to the outer atolls through KIO Women's Club and SPC  Financial support to 2012 and 2013 USP Summer Energy Science Camp with 50 youth participants from Majuro and Ebeye. 2014- Information provided and broadcasted in MRD radio show	No results on stoves. Not directly related to ADMIRE.  Report seen.
17.	E3. Two local university and/or tertiary graduates on RE by end of Year 4		Not undertaken.	This was discussed and it was explained that local conditions made it unclear who the trainees should be and how they will be employed after the training.
17.	E3. Two local university and/or tertiary graduates on RE by end of Year 4		Not undertaken.	This was discussed and it was explained that local conditions made it unclear who the trainees should be and how they will be employed after the training.
18.	E4. More than 100 trainees per year	2012- Initiated collaboratio	2013- technical training on SHS in Majuro (8 individuals) + training from six atolls on installation and preventive maintenance of	Completed. The two local contracts for outer islands training seen; the

No.	Description	To 30 June 2012 as per MTR.	Work done 2013-2015. Status Feb 2016 Blank cells show either no work done or no evidence seen in the evaluation.	Evaluation Comments
	participate in the RE training activities of the ADMIRE	n with National Training Council (NTC)/ College of Marshall Islands (CMI) to include RE technical training supported by the ADMIRE into its National Vocational Training Programs.	<p>SHS (150 individuals);</p> <p>2014- Four certified RE technicians: one overseeing the CMI RE Project + three at MEC; ADMIRE- solar PV training to two MEC technicians offered by the University of Guam; Training on basic pre-maintenance on SHS in the outer atoll (12 individuals per atoll); Distribution of end-user/pre-maintenance manuals (co-financed by ADMIRE) for new SHS installations in 2014; financial assistance for SHS training opportunity by CMI and USDOl (11 certified individuals working on RET or conduct train-the -trainer activities)</p> <p>In January 2015 there was a Basic Technical Training for Grid Connected Solar For Installations to be Financed by the Marshall Islands Development Bank. The training report is available here:  <a href="https://drive.google.com/file/d/0Bw-_5ajzuswuV2VySDR4QTRDb2c/view?usp=sharing">https://drive.google.com/file/d/0Bw-_5ajzuswuV2VySDR4QTRDb2c/view?usp=sharing</a>  15 people participated in the workshop</p>	implementers interviewed and reports seen. They suggested activities that were well done.

### 3.8 SOME KEY ADMIRE OUTPUTS & OUTCOMES

66. An effort was made during the field visit and subsequently to locate ADMIRE within the broader context of RMI and specific developments within the energy sector. Energy sources and use in RMI are very largely shaped by its geography and constrained by limited natural resources. There are few traditional indigenous energy sources other than biomass and given the small land area of the country and poor soils, any large-scale expansion of energy production from biomass is inherently limited. Traditionally, waste biomass in the form of agricultural waste (most likely some fuel wood, coconut residues – the shell, husk, and dried leaves/fronds) were most likely used for cooking and also for any small scale agricultural production that requires process heat such as crop drying.

67. PIREP stated that the RMI is overwhelmingly dependent on imported petroleum fuels, which accounted for 78% of gross energy supply in 1990, with the balance 22% being biomass. “Although there are no recent data on biomass consumption”, the mission estimated that in 2003 the share of petroleum, went up to 90% with biomass declining to 10%. IRENA (2013) stated – “there are no recent data on biomass consumption”, but it then estimated that only 2% of the energy use in 2011 was from biomass<sup>32</sup>. PIREP states - a rural energy study was carried out in the RMI in 1994 by ADB but it did not consider biomass use. As far as the PIREP team is aware, “there have been no biomass energy surveys in RMI”. Then PIREP noted a World Bank study of 1992 (page 28) that had estimated that 19,620 tonnes of biomass was used for copra drying and household cooking in 1990. Of the total, mostly coconut residues, 62% was for the drying of copra produced (5,100 tonnes), and the other 38% was for cooking. The most recent information that sheds some further light comes from the North-REP Socio Economic Baseline report<sup>33</sup> (with which ADMIRE partnered) that in its outer island energy survey they found biomass was used “almost universally for cooking; coconut husks, shells and wood were all used”.

68. The evaluation confirms that beyond the North REP survey, there is no reliable study on the use of biomass, and other activities, in the outer islands, which could be located. This is a surprising lacunae, given that there have been multiple efforts to improve energy supply options for the outer islands.

69. The evaluator suggests that if the data and information for RMI energy sources and their use are categorised first into “commercial” or modern energy and “non-commercial” or traditional energy, and then, kept disaggregated for the two to three larger islands and atolls, and separately for all the others without grid connections, a more reliable and useful picture of energy supply and demand in RMI can emerge. Following this schema, it can be said that commercial energy use in RMI is almost 100% derived from fossil fuels (the balance is from the new installations of SPV). The main fuel imports are gasoline for transport; diesel fuel, for transport and electricity generation in the few grids, kerosene – as aviation fuel and household use; and finally LPG. The most recent National Communications for GHG Emissions in RMI (2015) provides some of the latest and most useful data on fossil fuel use, but some of it is also not reliable and there is no effort to estimate biomass use. A possible and useful further work for RMI could be to take all the different sources of data on all energy supply and use in RMI (many referred to here and others are with the MRD) to create a more up to date and accurate energy balance for the country for planning in the future.

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<sup>32</sup> The evaluator believes such confidence is likely misplaced, as for example PIREP while reporting a decline in biomass use also stated “Households which reported using wood as their main cooking fuel increased from 14% in 1988 to 30% in 1999 nationally, with rural wood use increasing dramatically from 36% to 79% of all households”, page viii.

<sup>33</sup> Secretariat of the Pacific Community, 2014. North-REP Socio Economic Baseline report Republic of the Marshall Islands, Suva, Fiji 2014; is available at - [http://prdrse4all.spc.int/production/system/files/north-rep\\_rmi\\_socio\\_economic\\_baseline\\_report.pdf](http://prdrse4all.spc.int/production/system/files/north-rep_rmi_socio_economic_baseline_report.pdf)

### 3.8.1 ADMIRE SUPPORT FOR OUTER ISLAND ELECTRIFICATION

70. Energy surveys for the Outer Island Electrification project were conducted with the objective of establishing of baseline of socio-economic data<sup>34</sup> for North REP project in RMI. Community consultation meetings were also conducted in all the communities surveyed. This process was undertaken to help explain to the communities the procedures and management of the North REP project and the importance of sustainability measures for the SHS. An Outer Island Energy Survey was conducted in Namdrik, Kili and Jaluit in 2012<sup>35</sup>. In all the community consultations, the community showed support towards the North REP project and expressed their support and willingness to assist through manpower and transportation. Also, the community did not raise any objection to collection of the registration/set up fee, monthly fee and the possible increase in the monthly fee to sustain the SHS maintenance. Possibilities for locations for storage during installation were also discussed. Common concerns were raised over collection and disposal of non-operating batteries during all three consultations.

71. In Namdrik, concerns were expressed over the existing local technician and erratic shipping between Namdrik and Majuro. A consultation meeting was also conducted with Marshall Islands Mayor's Association where some mayors also expressed willingness to shift responsibility of collecting monthly fee to the local council, as it would be more effective. A recommendation put forth by MRD was that the collection of payments for maintenance of the SHS should be by the local government council and a collection and disposal mechanism for old non-operating batteries should be developed. In 2013 two separate energy surveys for the Outer Island Electrification project were conducted in Mejit and in Mili. In Mejit<sup>36</sup>, the household survey by the energy team found that solar panels were "in proper shape with only need to replace batteries and light bulbs". The community consultation again explained the project, and the purpose of the monthly fee to support O&M. It was reported that a Finance officer at MEC was now in place to oversee the Outer Island SHS accounts and this would improve the coordination between MRD and MEC. Concerns were raised regarding disposal of used batteries and the difficulty for the local technician to communicate with the MEC Majuro officer or MRD. The community residents emphasized the need to maintain the electricity and lighting for households.

72. Mili<sup>37</sup> consists of a total of 90 islands and has the second largest lagoon in the RMI. During the energy survey, the team found that 9 SHS units had not been installed and many units were found to be unsecured. Further it was found that that the MEC local technicians were no longer employed and there were no monthly collection of fee. Many residents expressed concerns over the lack of monitoring of maintenance of the SHS units. The community members were receptive to the idea of MRD collaborating with Tobolar to create a payment system. One recommendation made by MRD was to coordinate the installation of SHS between MRD and MEC to ensure proper implementation.

73. Notable gaps in the reports are details on the numbers of HH in each location, their previous energy use, the status of earlier SHS installed, the issue of non-payments of O&M fees, the poor maintenance, the resolution of poor services provided by MEC, and to any analysis of future sustainability of SHS installed.

74. Overall the evaluation concludes that this activity to which ADMIRE contributed to has generated (largely attributed to the larger inputs provided by the North REP project and the technical assistance provided via Secretariat of the Pacific Community) to have been relevant and useful to the

<sup>34</sup> is available here: [http://prdrse4all.spc.int/production/system/files/north-rep\\_rmi\\_socio\\_economic\\_baseline\\_report.pdf](http://prdrse4all.spc.int/production/system/files/north-rep_rmi_socio_economic_baseline_report.pdf)

<sup>35</sup> Outer Island Energy Survey report 2012- Namdrik-Kili-Jaluit; the ADMIRE supports provided is in the report 2012

<sup>36</sup> Outer Island Energy trip report for Mejit Island 2013

<sup>37</sup> Outer island energy survey –Mili Atoll 7<sup>th</sup>-14<sup>th</sup> of July 2013

goal of RMI to provide electric supplies for lighting to all residents of the outer islands and to thereby reduce inequality and improve opportunities for the residents.

75. The evaluation considers this as a major step forward for RMI to which ADMIRE has contributed. As seen in Table 9, there are almost 3,000 total SHS installations now in RMI, of which almost half were supported by ADMIRE and the North REP project. Of 25 inhabited islands and 22 without grid electricity, 19 are largely covered by SHS systems. It should be noted that the family numbers are estimates made from the census data which has population. So where it shows more SHS units than families, it is possible that the number of households were under-estimated by the above calculation method used of dividing the population by island/atoll and average family size. On the other hand MRD data on installations and the large gaps in Kili and Wotje needs to be checked.

**Table 10: SHS Installed in RMI**

Sr. No.	Atoll/island	Population(2011 census)	Number of Families (estimated from census)	SHS installed - 2015 Annual Report
1	Marshall	53,158	7,817	2,953
2	Majuro	27,797	4,149	37
3	Kwajalein	11,408	1,374	297
4	Arno	1,794	260	380
5	Jaluit	1,788	288	271
6	Ailinglaplap	1,729	288	451
7	Wotje	859	134	43
8	Namu	780	130	164
9	Mili	738	142	110
10	Ebon	706	136	174
11	Maloelap	682	124	161
12	Enewetak	664	105	110
13	Kili	548	88	0
14	Namdrik	508	98	135
15	Aur	499	94	80
16	Utirik	435	69	60
17	Likiep	401	74	110
18	Ujae	364	52	73
19	Mejit	348	57	82
20	Lae	347	48	51
21	Ailuk	339	63	91
22	Lib	155	18	23
23	Wotho	97	22	27
24	Jabat	84	19	23
25	Rongelap	79		0
26	Bikini	9		0

27	Ujelang			0
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Source: Data on units of SHS installed: SHS Annual report (2015); Data on population RMI Census 2011 and number of families is estimated using the census number for population and the census number for average size of family units in each island/atoll.

76. The evaluation notes that the EPD Annual Report for 2015 states – “key challenges facing off-grid renewable energy still relate to long-term operation and maintenance (O&M)”. This was first commented on in the PIREP study of 2004 (the annex 4 summarises the PIREP report on a series of earlier efforts which have run into challenges from poor equipment and maintenance difficulties). The evaluation supports the EPD statement in 2015, that this needs more attention and a more customized approach by island community is recommended to ensure suitability for each individual outer island community. This must begin with surveys by island of their energy use currently and potential options as well as how the SPV units are performing and improvements made or required for future sustainable O&M for the SPV systems. Finally as RMI increases its SPV installations it needs to develop an improved institutional arrangement for rural and urban SPV electrification

### 3.8.2 Wind Resources

77. Wind resources, can potentially be a very useful supplement to renewable sources in RMI, but remain unknown with regards to its potential to contribute to energy resources, leading to ongoing and unresolved debate over many years on the viability of wind turbines in RMI. The PIREP national report<sup>38</sup> (2005) stated ‘There is a moderate seasonal wind resource, with perhaps sufficient wind for energy development in the northernmost islands. However, there is very little data and none specifically designed for assessing energy potential (emphasis added). It would be reasonable to assess the wind energy potential for Majuro and Ebeye, where power demands are high’. More recently, IRENA stated<sup>39</sup> there is “sufficient wind for energy development in the northernmost islands”. Wind energy can be a very useful supplement not only where current electricity demand is high, but in all islands where supplementing the SPV with wind is feasible. IRENA (2013) also stated – “Some small wind machines are used for battery charging although there are no reports regarding their performance or cost of operation”. Thus it was highly relevant for ADMIRE to support one component focused on wind resource measurements to move the discussions forward.

78. The procurement and installation of the Wind Monitoring Tower (funded by ADMIRE) was carried out in Jaluit (June 14 – 20, 2012) and in Wotje (September 15 – 21, 2012)<sup>40</sup>. This was also equipped to monitor solar irradiation. The installation was done with the technical support from SPC – North REP provided expert in wind energy, who has also prepared commissioning reports.

79. The goal here, as set by ADMIRE, was to determine the extent to which wind turbines could be used as a source of energy and if together with solar PV, wind turbines could complement the supply side, especially during the night time, to reduce battery back-up or diesel generation of electricity.

<sup>38</sup> [http://prdrse4all.spc.int/production/system/files/vol6-marshallisnationalreport\\_000.pdf](http://prdrse4all.spc.int/production/system/files/vol6-marshallisnationalreport_000.pdf), p. IX

<sup>39</sup> IRENA, 2013, Renewable energy opportunities and challenges in the Pacific Islands region: The Republic of the Marshall Islands, Chapter 4, page 8 provides a short summary and though it does not directly reference the PIREP report - Wade, Herbert, Secretariat of the Pacific Regional Environment Programme/Pacific Islands Renewable Energy Project ,2005, “Pacific Regional Energy Assessment 2004 Volume 6 – Marshall Islands; they both report that there were small-scale demonstrations of wind and biogas during the period prior to 1986, when RMI was under US administration, but there have apparently been no further developments. The College of the Marshall Islands in Majuro had plans to put wind turbines on the reef offshore from the college but the status is not known.

<sup>40</sup> Ministry of Resources & Development, Energy Planning Division, RMI. Wind Monitoring Tower for Jaluit and Wotje, Republic of the Marshall Islands, Decommissioning Report, July 2014.

80. Unfortunately in August 2013, the tower in Jaluit fell down, as the guy wires snapped, the 32m mast fell down and damaged the steel pipes, the anemometers and the wind vane. Even more unfortunate the memory card in the data logger could not be located after the accident. After this event, the Energy Planning Division instructed the MEC to bring down the second mast in Wotje as visual inspection showed several snapped guy wires posing danger to school children in the nearby school. In this case, all components of the wind monitoring tower, except for the guy wires, remained in good condition.

81. Status at evaluation: The work was never restarted. Wind monitoring data for the period June 2012 to April 2013 at Jaluit High School and similarly for Wotje to August 2013 (when the mast was taken down) are available with MRD<sup>41</sup>, and reviewed for the evaluation.

82. Recommendation: The data available must be reviewed by a wind energy expert, possibly provided by SPC, which had originally assisted ADMIRE in this work, to provide a recommendation on steps forward.

83. It would be very useful to continue to assess wind energy potentials in RMI and their role for Majuro and Ebeye, which have the main diesel generators, and where supplemental wind power could be most economically valuable immediately, if the data so show. Based on the reports from PIREP (2005) and IRENA (2013), there appear to be unrecorded experiences of using small wind turbines in RMI, possibly in the past or even now in Outer Islands, and an effort should be made to confirm or refute this premise.

### 3.8.3 Copra and biodiesel

84. Much of the income on the outer islands comes from copra sales, but often fluctuating and low export prices do not encourage efficiency in the production and sales. Tobolar, is the government-owned coconut processing company. Tobolar has little interest in using the coconut oil<sup>42</sup> as a biofuel as the F.O.B prices for coconut oil it sells is almost always higher than the CIF prices for diesel, even though the diesel prices are high by world standards due to higher transport costs<sup>43</sup>.

85. This also makes it uneconomical for MEC to encourage the substitution of diesel oil with coconut oil in any form. Both Tobolar<sup>44</sup> and MEC are subsidized by the government (or technically the copra collection to processing is subsidized and so is the difference between MEC revenue collections and expenses, which are both subsidized by the government. The two corporations can and do argue that some or all the subsidies are in effect additional payments to poor farmers whose copra output is paid a high price under government directives and for MEC the price it can collect for electricity had caps which did not cover fuel price changes). However the gap is defined, certainly if Tobolar sells some of its

<sup>41</sup> Report on Wind Monitoring Tower for Jaluit and Wotje, RMI, July 2014.

<sup>42</sup> UNDP requested further substantiation of this statement – first, PIREP noted in 2004, “the mill has a capacity to process about 10,000 tons of copra a year” but often works below capacity. The low export price of coconut oil (at that time) had led Tobolar to look for other markets, including biofuel as a diesel fuel replacement. Tobolar had operated three diesel pickup trucks on biofuel in 2004 and was thinking of “converting its own plant” and transport to coconut oil. At the meeting and interviews with Tobolar staff it was said if using the oil for fuel provided better value they would certainly consider that but that is not usually the case.

<sup>43</sup> This fact that coconut oil prices are higher, and so may make poor substitute for diesel has been found in many other cases - e.g. Biofuel Feasibility Study on Kiritimati Island - [http://prdrse4all.spc.int/production/system/files/biofuel\\_kiritimati.pdf](http://prdrse4all.spc.int/production/system/files/biofuel_kiritimati.pdf); Feasibility study into the use of coconut oil fuel in epc power generation - <http://prdrse4all.spc.int/production/system/files/TR0393.pdf>

<sup>44</sup> See Tobolar audited statements which were only located for 2009 and 2010, where operating subsidies from the RMI government was \$997,000 in 2009 and \$1,340,002 in 2010.



output at a lower price as fuel than as coconut oil and/or MEC purchases the same at a higher price than its current fuel input, the additional cost would have to be subsidized by the government or carried at a loss. During the visit, the newspaper reported<sup>45</sup> that the cabinet released a subsidy funding to Tobolar so that it could clear off its backlog in payments to growers. The FY2016 budget included a \$1.2 million copra subsidy.

86. But a generalized idea that using copra as a fuel would boost demand for copra and also revenues for the poor growers in outer islands has become somehow endemic. Important among other donor led projects with a similar idea is the ADB project: Improved Energy Supply for Poor Households Project, Project amount \$1.76 million; funding source -Japan Fund for Poverty Reduction; Executing agency Ministry of Resources and Development; Status Completed. Implementation period: Aug 2010–Jun 2014<sup>46</sup>.

87. This was stated to follow the 2009 National Energy Policy and Energy Action Plan identify for immediate implementation the following priority reforms of state-owned Marshalls Energy Company: (i) adoption of a new electricity tariff template, (ii) conversion to prepayment meters to support the reconnection of the poor and improve collection rates, (iii) better utility management, (iv) use of domestic fuels or indigenous energy sources to reduce reliance on imported fuels, and (v) reduction of avoidable power system losses through infrastructure upgrades and improvements. The ADB's strategy for the Marshall Islands focused on energy initiatives for economic and social impacts, among which were the high power tariffs, and to develop renewable energy<sup>47</sup>. The fourth item of the project assistance was to provide "blended diesel with locally produced coconut oil to fuel diesel-fired power generators, thereby generating additional income for poor copra producers". This last is also an ADMIRE output and outcome and ADMIRE PSC noted the joint value of work here for both projects.

88. The ADB project was delayed in implementation, the testing of the use of biodiesel has not taken place, there is little evidence of interest in either MEC or Tobolar in this and also little possibility of near term viability of this scheme. This project is mentioned as it is another one with a biofuels component, which never moved forward (though it has some useful and interesting results on the use of pre-paid and smart electric meters in Majuro contributing to reduced use.

89. In reports and interviews with Tobolar, there was a keenness to improve its revenues by the production of additional refined, and newly developed "virgin coconut oil" which is of even higher value than the traditional oil it has produced. Tobolar also aims to increase value addition with the production of soaps and beauty oils, with higher oil quality, with increased capacity of the growers to improve their outputs. This is most likely to make for greater economic value than the use of coconut oil as a fuel replacement.

90. The 2015 Annual Report of EPD states – "Coconut oil looks promising if *concerns about its supply, quality and price* can be successfully addressed" (our emphasis added, and as discussed in this

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<sup>45</sup> The Marshall Islands Journal Volume 47, Number 7, pp. 1,2, February 12, 2016

<sup>46</sup> Japan fund for poverty reduction -9148-RMI: Project end status report: Improved energy supply to poor households, Asian Development Bank, 31 December 2013

<sup>47</sup> The project provided assistance to poor households by (i) installing prepayment meters to help them manage their power consumption; (ii) rehabilitated and extended the distribution systems to improve power supply; (iii) allowed for free of charge connections to unserved households; and (iv) blended diesel with locally produced coconut oil to fuel diesel-fired power generators, thereby generating additional income for poor copra producers. (Source: ADB, Pacific Energy Update 2015, pages 10-11). See Power point – Energy Rapid Assessment by Johnston & Wade who said - "Cost savings to MEC low even if coconut oil is 2/3 diesel price" (but it was in fact higher) and the "maximum practical blend only about 5% of MEC fuel use"

report this is highly unlikely and the idea should be relegated to a time when all the above conditions are aligned, if ever) .

### 3.8.4 Other Partners and Related Activities

91. Concurrent with the UNDP/GEF project there were several parallel international cooperation projects in RMI also with EPD.

92. There are several more ambitious SPV projects planned and implemented. A “Pacific Partnership Fund” has been established with UAE, at the IRENA Pacific Leaders’ Meeting in Abu Dhabi in 2012, to provide up to \$50 million in grants for renewable energy in Pacific island countries over five years. A \$5 million allocated to the RMI is planned to be used to set-up a 600kWp PV system installed near the water reservoir near the Majuro airport, which will include water pumping and extra energy would be fed into the grid. The MEC is in charge locally and when completed would generate “953 MWh of solar in the first year, saving more than 62,000 gallons of diesel fuel and preventing 652 tons of CO<sub>2</sub>”<sup>48</sup>.

93. The government of Taiwan and the Japanese Pacific Environment Community (PEC) Fund, have supported the purchase and installations of over 380 solar streetlights in Majuro, Kwajalein and some of the outer islands. Another 100 units had arrived and plans were for installation in 2016.

94. The PEC Fund (Japan) is supporting the installations of small portable PV powered reverse osmosis (RO) water purification systems in 14 outer atoll communities, located at elementary schools. They provide 150 to 300 gallons of fresh potable water per day and help ensure reliable supplies of safe drinking water for the students and people in the community, who would get one gallon of safe drinking water per person per day. Periods of drought are common in the summer months when sometimes the government has needed to charter emergency ships to distribute drinking water to the affected communities at annual costs of between \$100,000 to \$250,00 annually.

95. Finally, the EPD and IRENA undertook a comprehensive study - Renewables Readiness Assessment has been completed. EPD staff participated in several workshops related to this and other capacity building and knowledge interchange workshops.

## 3.9 Energy and RMI 2008 - 2012

96. It was noted during the evaluation, that from the first initial request from the RMI Government to UNDP for ADMIRE in 2005, its approval in 2008 and now, there have been a number of developments in RMI on energy and especially on renewables which should be brought together, first for planning for the future.

97. The Marshall Islands remains heavily reliant on imported fossil fuels and it is estimated that about 92% of (commercial) energy use in 2015 is from petroleum and on-grid and off-grid solar could total around 6%<sup>49</sup>. Power generation consumes more than half of the fuel imported, with the balance used mainly as transport fuel and fuel imports consist of the largest single item in the country’s imports. The main petroleum imports are gasoline, for transport; diesel fuel, for transport and electricity production in the larger islands; kerosene for household use (and for aviation), and liquefied petroleum gas (LPG). Biomass use is significant but there is little or no data available.

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<sup>48</sup> Source: ENERGY PLANNING DIVISION RMI Annual Report, 2015.

<sup>49</sup> Source: IRENA, 2014 and National Communications to UNFCCC, 2015.

98. Electricity: MEC supplies electricity on Majuro, (and it is reported in Jaluit and Wotje) using 28 MW (nameplate rating) of diesel capacity, de-rated to 18.2 MW, while maximum demand was about 8.5 MW in 2011. On some atolls, a local island committee operates generators and acts as a local utility company<sup>50</sup>.

99. The government of RMI recognizes the energy and power sector as priorities from fiscal, environmental and development perspectives. The people of Marshall Islands also pay very high prices for electricity and for fuel<sup>51</sup>. The RMI is heavily dependent on external assistance, grants averaging 60% of gross domestic product (GDP) and of national expenditures. It is natural that many donors and development partners such as the Japan, USA, UAE, EU, SPC, ADB, UNDP, etc. have also focused their assistance on the energy sector.

100. Unemployment is high and human development indicators are generally low, with considerable poverty on the outer atolls<sup>52</sup>. Hence the idea of copra production for biodiesel has many apparent attractiveness and has been suggested in many reports, without careful thought. Many studies and discussions in RMI suggest that there are many challenges - the low quality of the trees which need more care, low quality of copra, which it was suggested was caused by poor housekeeping and certainly made much worse with the transport challenges in getting copra between the islands, when ships do not pick up the copra for over six months. Ultimately Tobolar and the government officials have said they are working towards improving these constraints, which if successful would make higher value coconut oil even more valued than now, and so its use as a fuel appears to be a highly unlikely option ever.

101. On the other hand there has been a rapid installation of SPV systems, beyond those that have been within the purview of the ADMIRE project. Given the almost complete coverage of the outer islands with SHS it is imperative that future work focuses on determining their sustainability, the value to the homeowners and to unmet energy needs to determine additional work requirements. In addition there should be a more ambitious planning for future SPV use where two directions appear very attractive given the rapid fall in the price of panels. The first would be to go beyond individual home systems to consider fully connected, smart grids powered largely by SPV in the medium sized islands which currently use supplemental small diesel generators. The second would examine the potential for SPV for electric powered and with diesel back up for marine transport<sup>53</sup> between island, currently very expensive and unreliable for many. Any future work on energy in RMI must invest in a new assessment of the status and needs that go considerably beyond the scope of this report.

## 4 ASSESSMENTS

102. The four principal evaluation questions – Relevance, Effectiveness, Efficiency, and Sustainability in the TOR were expanded and examined during the evaluation under twenty questions and issues, and

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<sup>50</sup> IRENA 2013

<sup>51</sup> A “Comparative Report Pacific Region Electricity Bills - June 2015” at [http://www.ura.gov.vu/attachments/article/106/Electricity%20Price%20Comparison%20-%20Pacific%20Area%202015%20FINAL%2020150615%20\(2\).pdf](http://www.ura.gov.vu/attachments/article/106/Electricity%20Price%20Comparison%20-%20Pacific%20Area%202015%20FINAL%2020150615%20(2).pdf)

<sup>52</sup> See for example - UNDP, Pacific MDG Tracking Report, 2010 and 2011; UNICEF, Republic of Marshall Islands, A situation analysis of children, women and youth, 2003; Children in the Republic of the Marshall Islands An Atlas of Social Indicators, UNICEF 2013; and census data GRMI 2011.

<sup>53</sup> Also discussed in a recent IRENA report at [http://www.irena.org/DocumentDownloads/Publications/IRENA\\_Tech\\_Brief\\_RE\\_for%20Shipping\\_2015.pdf](http://www.irena.org/DocumentDownloads/Publications/IRENA_Tech_Brief_RE_for%20Shipping_2015.pdf)

are reported below. The TE examined all 18 activities across the planned outcomes/components, with comparisons between the initial plans, the recommendations made by the MTR with the results at the end of 2015 together with the perceptions of key stakeholders. This is described in tables 7 and 8.

#### 4.1 RELEVANCE

103. The project is in full consonance with the main objectives of the GEF focal area and the priorities of enhancing national ownership of climate change activities and to strengthen countries' capacities. The project goals are also highly congruent with the global agenda on climate change mitigation and to the environment and development priorities at the local and national levels as declared by the RMI in multiple policy statements and goals.

104. The project enabled a small South-South cooperation<sup>54</sup>, through the exchange of resources, and knowledge with SPC during the implementation of the SPV installations and in the installation of the wind tower.

105. The Marshall Islands remains heavily reliant on imported fossil fuels, harming its environment and weakening its economy. It has reiterated its goal to become free of fossil fuels and with good planning and implementation this could be possible, with also reduced costs for energy and increased local employment. Its relevance is judged to be high.

#### 4.2 EFFECTIVENESS

106. The TE examined all 18 activities across the planned outcomes/components, with comparisons between the initial plans, the recommendations made by the MTR with the results at the end of 2015 together with the perceptions of key stakeholders. This is described in tables 9

107. It has already been noted that the progress missed all milestones on timeliness. It has also been noted that the evaluation concurs with the MTR that there were too many components and too many ill-defined activities. The evaluation found that after 2012 with the appointment of the second full time project manager the progress improved and many of the activities planned were undertaken.

108. The project successes in the second period could be seen in Table 7, specifically in the support to training, for maintain SPV systems in the outer islands. The PM contributed to the increased (during the project) capacity within the EPD and MRD to manage both ADMIRE and the large portfolio of other donor supported programming in RMI, some are mentioned where they have a direct relations to ADMIRE and to SPV. The activities undertaken by the PMU was largely successful in providing support to increased awareness, and to the installations of RE and EE in schools, and in several partnerships with local NGO, private sector and community organizations.

109. Communications, public awareness and outreach have been relatively good. This observation is based on the examination of the outreach work and the consultations during the field visit. The project

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<sup>54</sup> UNDP commented it does not appear that the collaboration between ADMIRE (UNDP, GEF) and North-REP (EU, SPC) in Marshall Islands qualifies as South-South corporation (SSC), and suggest using how UNDP defines SSC as available at: [http://ssc.undp.org/content/ssc/about/what\\_is\\_ssc.html](http://ssc.undp.org/content/ssc/about/what_is_ssc.html). The evaluator holds the view expressed in several PIC meetings that given the small size of each country and limited capacities, an important element of cooperation cannot be directly between two small countries but with activities and expertise pooled together by regional organizations of PICs such as the SPC, which was the main partner for ADMIRE and provided experts for many activities undertaken jointly.

has contributed to, in a small but positive way, to progress towards, increased use of RE in RMI, especially in the Outer Islands.

110. The major factors that negatively influenced the project's capacity to successfully achieve results include the poor design, insufficient experience and low capacity in the government departments of RMI due to small staff size, high degree of donor funding compared to domestic, poor management of resources and the very small base of local expertise within and outside the government. The limited capacity within the government has been repeatedly noted in several reviews and statements including by the government of RMI (see RMI Climate Change Finance Assessment<sup>55</sup>). The very small size of both population and the economy, wide geographical distribution of the inhabited area, distance from major markets and between islands create intrinsic issues for RMI that cannot change.

111. Beyond those, the fragmented and unfocused design and implementation of the projects, with very little sharing of resources, information and experience between departments and between the government and non-government actors, are additional factors. In addition it must be added that the Outer islands villages are very expensive in time and costs to access and also they suffer from the lack of frequent transport services, with some reports suggesting that no copra was collected from some outer island locations for over 6 months due to lack of ship arrivals.

112. The key project stakeholders in RMI were well identified, but as mentioned earlier there was no recognition of the many donors, with the exception of the EU North REP project, who have a very large presence in energy assistance in RMI. The project made demands that the identified stakeholders be fully involved but it could not overcome the lack of practice in such cooperation in RMI. The lack of capacities of not only the executing ministries, but across the government and agencies and the lack of staff, had not been fully considered and was overlooked. Country ownership was ensured as stated by the government of RMI was ensured in the design as a NEX project, but "country driven-ness" could not be ensured, where driven-ness would have been shown by the active involvement of the PAC/SC in guiding the work, removing barriers and actively monitoring results with the real participation of the stakeholder. The government and public sector agencies have all "participated" in the project, but with low commitments in time and resources to achieving the outputs and outcomes. The Steering Committee was constituted and met a number of times, but with no notable impacts on the project implementation.

### 4.3 EFFICIENCY

113. The project implementation was highly inefficient. The project was designed for a period of five years and is yet to be completed after 8 years. Inefficiencies and delays were encountered at multiple levels in project management, fund disbursements, launching and completion of activities. They were largely due to institutional factors and not attributable to any individual.

114. Similarly, or due to the above reasons, financial planning and management were weak. Supervision, guidance and technical backstopping remained problematic throughout the project. There were the processes of regular PIR, yearly progress and financial reports; monitoring reports and activity reports as specified. But there was inadequate qualitative information and feedback, and active processes used to adjust the project activities and outputs, overcome challenges and make a systemic contribution to the larger goal of improved capacity in RMI to assess and use RE more effectively.

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<sup>55</sup> Pacific Climate Change Finance Assessment: RMI, 2014.

#### 4.4 SUSTAINABILITY

115. The congruence of RMI needs in RE and the existence of multiple donor resources focused on RE support the long term continuation and enhancement of the efforts promoted by ADMIRE. On the other hand, the narrow and project related sustainability of the solar home systems provided by donors for rural electrification in outer islands remain in question at the end of ADMIRE (and North-REP), given the lack of solutions for the poor collections of maintenance fees, and the poor maintenance of equipment.

#### 4.5 MAINSTREAMING

116. The TOR asked the evaluation to assess the extent to which the project was successfully mainstreamed with other UNDP priorities, including poverty alleviation, improved governance, the prevention and recovery from natural disasters, and gender.

117. The project goals spoke to poverty alleviation in the outer islands and not to any of the others. The stated goals for poverty alleviation were not funded on any real basis. Provisioning of SPV for lighting and small electricity use has been repeatedly found to be beneficial for people who had been without electric power. It does have a poverty reduction effect in the beneficiary families because of reduction of the costs of kerosene for lighting, the improvements in the use of time with higher quality lighting for reading and school work leading to better education for school children and provides for a more healthy environment for women and girls. The ADMIRE project contributed to ongoing experiments in RMI to use products made by women and men in outer islands for payments for the electricity and also contributed to an experiment on using solar dryers for copra drying. But at this time the results remain unknown.

118. The nature of the project to increase domestic capacity and remove barriers to RE, and to new policies could support improved governance, but neither the focus of work nor the results suggest any achievement in this dimension. The project manager did contribute to the integration of the RMI policy document combining mitigation with response and recovery from natural disasters.

#### 4.6 GENDER

119. The project design, implementation and monitoring have been found to have taken into consideration, gender issues and the role of women.

120. The ADMIRE Prodoc does not specifically mention gender as an issue for the project and no special gender considerations were noted. At the same time, a goal of gender equality is to promote an active and visible policy of mainstreaming a gender perspective in all policies and programmes so that, before decisions are taken, an analysis is made of the effects on women and men.

121. While the project has not been focused on analytical work, it should be noted that its focus on SPV for the electrification of rural households would have a number of positive benefits for women and girls (as well as men and boys) because of the reduced use of kerosene for lighting with health and financial benefits and also with an increased ability to use the light in the evening for studies, leisure and improved productivity. ADMIRE also worked with the national NGO for women, WUTMI to enhance productivity through the use of solar driers.

122. It's approach to gender dimensions, as not narrowly focused on women, could be quite appropriate for a small country, where the President, the Secretary of MRD, the Head of Energy and the Project Manager are all women. But it is recommended that in any future work and drawing the project

conclusions, the RMI and UNDP, keep the issue in mind and ensure that the project does consider the potentials for differential impacts by gender.

## 4.7 EVALUATION RATINGS

The TOR specifies an Overall Project Outcome Rating as in the table below and to use obligatory rating scales provided after the table.

**Table 11: Ratings to be assessed**

	<b>Ratings Criteria:</b>	Rating	Comments and where discussed.
1	<b>Monitoring and Evaluation</b>	MU	All M&E instruments and reports were appropriate to learn the project status and lack of progress. But they proved inadequate to enable sufficient corrective measures to be taken to surmount challenges faced..
1A	M&E design at entry	S	See discussions on design.
1B	M&E Plan Implementation	U	As above, the M& plans were implemented exactly as stated, for example para 53-55, but the results on project performance were insufficient.
1C	Overall quality of M&E	U	See Tables 6, and sections 3.7.1 and 3.7.2
2	<b>IA&amp; EA Execution</b>		
2A	Quality of UNDP Implementation	U	See paragraph 45, 53-55, 64-65, 123
2B	Quality of Execution - Executing Agency	U	See paragraph 28, 39, 40, 52, 53-65, 76,78-83, 85-88
2C	Overall quality of Implementation / Execution	U	See paragraphs listed above for 2A and 2B.
3	<b>Assessment of Outcomes</b>		
3A	Relevance	MS	See paragraphs 103-105
3B	Effectiveness	MS	See paragraphs 106-112
3C	Efficiency	MU	See paragraphs 113-114
3D	Overall Project Outcome Rating	MU	Beyond the above, the project had an unsatisfactory rating in the MTR. The ratings have been raised by one level to indicate the considerable improvements in performance in the period 2012 to 2015 compared to that earlier. At the same time the ratings could not be made higher given the considerable challenges faced from the design and then from the implementation.
4	<b>Sustainability</b>		
4A	Financial resources:	L	See paragraphs 110, 113, 114

4B	Socio-political:	ML	See paragraphs 32-34 and 36; 96-101 on the needs, and supportive views of the government and stakeholders. But that is lowered in terms of providing effective support.
4C	Institutional framework and governance:	U	See paragraphs 110, 111, 112
4D	Environmental	L	See paragraphs 110, 111
4E	Overall likelihood of sustainability:	L	The congruence of RMI needs in RE and the existence of multiple donor resources focused on RE support the long term sustainability of the ADMIRE. Goals. On the other hand, more narrowly, sustainability of the solar home systems provided for rural electrification in outer islands remain in question given the lack of solutions for the poor collections of maintenance fees, and the poor maintenance of equipment.

## 5. CONCLUSIONS

123. This evaluation was somewhat unusual in being required to trace the development in the ADMIRE project going back to 2004, when on February 26, 2004, the government of RMI endorsed a request to the GEF for a project development grant (see the PIREP report), which then triggered a GEF grant of \$25,000 towards the project development of ADMIRE. It is seen in Table 3, that the project development grant was approved after 18 months, and the PIF for a Medium Sized Project for RMI was submitted 2007, with the final ADMIRE project as in the ProDoc approved four years after the initial request from RMI. The evaluation noted that the project faced multiple challenges during implementation (see Table 4 for details). Again UNDP was concerned and supported a consultant for a period of three months to assist in moving this and other projects in RMI forward. UNDP then authorised a MTE, which reported in 2012 and the government counterpart agreed to appoint a Project Manager, the project moved to MRD and the project began to show greater activity. One key recommendation of the MTR, that the LFA be revised and simplified did not happen. Hence the evaluation reports in Table 9, along the six outcomes, with 18 activities for the work done, and the outputs as delivered by ADMIRE. Most positively the activities and outputs achieved show how the addition of one full time project manager can make a tremendous difference in the context of RMI.

124. The evaluation then concludes in agreement with the MTR on weaknesses in the project design, but this evaluation report goes further than the MTR which had suggested that the design could be improved by formulating three components in a more thematic fashion - outer islands PV; oil production and processing for energy use; and assessment of other RE (grid connected and wind) options as the three themes and then the barriers could be explored for each. This evaluation adds that the ProDoc (and its base, the report from the PDF grant, relied on and translated poorly the findings from the PIREP report. It is this poor translation of specific conditions and options for RMI were highly distorted. The evaluation also noted that when the project was moved to MRD, the project was much better supported than before. But the additional inputs of a coherent and well-functioning Project Advisory Committee



(PAC), to provide advice and guidance to the project and integrate the cooperation of the identified stakeholders, and a team of experts, to be available to the ADMIRE PM, were never fulfilled. Thus MRD did not add new insights and adaptations to the project implementation plans as conceived in the past.

125. Summing up from the detailed presentations made in Table 9 by ADMIRE components, the evaluation concludes that the ADMIRE project did contribute to the first sub-objective of assisting in determining the potential for wind, but only partially and this needs to be followed up. It assisted in the installation of RE as in SHS systems in the Outer Island by working with the EU funded SPC North project. But all the activities related to copra as a diesel substitute were ill conceived in the design and remain poorly executed. In the second category, building institutional capacity, it has supported the two activities but they remain partially completed and building such local capacity is a much longer term task. In the policy and regulatory area, the outputs are uneven. In the fourth area, there is parallel support that has materialized on making business loans for SHS systems, which makes the ADMIRE inputs useful. The evaluation shows that the project has been most successful in the advocacy and awareness components. But table 9 also shows that many activities remain partially undertaken and reports produced need greater analytical components and more rigour in analysis.

126. The evaluation concludes that the project aims were highly relevant to RMI but also often poorly articulated and developed in the ProDoc. The project picked up in the second period (see Table 7) and its successes, limited as they are, have been largely due to the inputs of the few energy staff in MRD and the PM. The evaluation report provides an account of the concurrent changes in RMI in SHS and RE use, while noting that system maintenance is likely to remain a challenge; discusses the low likelihood of copra as a replacement for diesel; and highlights the continuing need to improve assessment of wind resources, of biomass use and supplies, and to make more ambitious goals for RE use in RMI in the future. And all of the above will require much improved capacity in RMI and also a continued need to leverage external skills and financial resources.

## 6. LESSONS

127. The MTR mentioned that its author had evaluated four SIDS projects funded under the GEF and while with differences three of the four were characterized by little real progress at the time of their MTE. "All three clearly lacked a good project design that did not seem to take into account the special circumstances of small island states", in particular the constraints to human capacity in such small states was always underestimated. The technology focus and barriers were too vaguely defined.

128. The evaluation suggests that if the current GEF or the UNDP process force project design to be one-time interventions, ways should be found to allow "more flexibility", allow for possibilities of a longer-term programmatic approach, possibly with several modules or smaller sub-projects, which address specific issues and barriers. Adaptive capacity in and during execution would have been useful and is important, if it can allow for fine-tuning interventions based on better appreciation of the evolving needs over time.

## 7. RECOMMENDATIONS

129. The recommendations are first aimed at UNDP, the project executing agency and the MRD, the project implementing agency:

### *The Current Project*

130. Clear recommendations which are included in Table 8: ADMIRE Activities and Outputs could be used to complete the ADMIRE project within the rules of UNDP and GEF. It is most important to have the wind data currently available fully analysed and used to resolve a mystery on wind speeds that has been stated for over a decade; the MRD should be able to reinstall the working wind tower and allow additional data to be collected and also must complete the demonstration and testing of the solar pump acquired as planned.

131. Specifically for the ADMIRE project beyond completing the items listed above, the project should complete the activities as approved by MRD and shared with UNDP and listed in the AWP for 2016. The evaluation emphasizes the following from the outstanding activities listed in the AWP – improve the draft 2014 National Energy Policy document by updating all energy statistics in RMI up to 2015, using a much simplified energy balance tool provided by UNDP (the guide can be pared down by over 90% given the specific conditions for RMI with its highly limited uses of energy); coordinate with other agencies and review policies and practices for the maintenance of SPV in the outer islands; for the energy options related to the copra value chain – including VCO and other waste products as renewable energy resource for RMI; and convene a project wrap-up meeting, where this report and all other results of ADMIRE are presented to the stakeholders both government and non-government at a final project wrap up meeting together with recommendations for the future.

132. The above required MRD to provide support for the remainder of the project management, including the completion of the above, the dissemination of Terminal Evaluation and the final Project Completion reports.

### *Future Project Design*

133. UNDP should take note of the individual and special circumstances of RMI in its future programming, facts which are highly specific to RMI, which require adjustments of standardized GEF project templates for the SRF/LFA that may work well in other countries to take these into account.

134. UNDP should examine the budgetary feasibility of more regular and in person follow up and support from the UNDP regional offices (Bangkok, Fiji and Samoa) to its portfolio of work in RMI and ways to work more closely with the local UN coordinating office established RMI.

135. Ensure during its future involvement the actual and active participation in the work required beyond the formal signing of MOUs, of the broad range of stakeholders as listed (from government, the community leaders, private sector, financial institutions and NGOs and take note of the small populations of outer islands together with the difficulties of the participation of stakeholders living there) with the requirement for a strong and effective project/programme Steering Committee/Advisory Committee.

136. Determine mechanisms which can assist more effective collaborations between groups of relevant stakeholders who are needed to work together and facilitate linkages, collaboration and divisions of work with other energy/development/climate change projects/programs that are implemented in RMI by the World Bank, Asian Development Bank, European Union and the principal bilateral donors, as well as integration with the energy-related work of other regional and PIC organizations to avoid duplication of efforts, increasing effectiveness through sharing of information and expertise, through sharing participation in steering/advisory committees, sharing staff, enabling efficient

and effective consultations between various project managers and with stakeholders. In many countries, the national government and/or one of the development partners convenes periodic reviews of sectoral activities to share knowledge and work cooperatively, this should be explored by the UNDP given its global experiences with such mechanisms.

137. Specifically in the area of Energy, follow up with an effort to prepare a consolidated report on the energy situation in RMI, (potentially updating and adding to the RMI reports discussed in para 111-112 above) including better information on biomass energy use and availability without the long term focus hitherto on copra for biodiesel; the data collected needs to be reviewed by a wind energy expert to ascertain the results from the data available and the intact wind monitoring tower should be re-established and a new data collection plan started; a more ambitious and focused programme in the future should explore small scale smart grid PV with supplemental storage/generation for the one or more islands with population between 500 and 2000 in cooperation with other donors.

### ***RMI Government:***

138. The human resources allocated to the climate change responses is low relative to the national priority accorded to climate change. EPD and MRD need strengthening with additional staff to enable it to more effectively coordinate energy activities and meet its international commitments and domestic obligations.

139. A number of mitigation options for RMI are win-win on multiple criteria, not only for GHG mitigation. Integration of planning of RE with water needs, use of additional RE resources such as biomass waste, and larger scale and ambitious integration in smart grid is way for RMI to lead.

140. GRMI has largely accessed the majority of its funding from bilateral sources and its portfolio of multilateral funding is low and poorly performing. It should consider the two sources to have important complementarities in achieving its national goals and take steps to make more effective use of both sources.

141. The government of RMI should explore the possible use of a small portion of the considerable amount of grant funds available to examine the possible role of solar powered vessels of different sizes and using solar, with supplemental wind and diesel (several are now operating globally) that can increase the flexibility of inter-island transport and also reduce costs, thereby resolving a number of development problems including isolation, moving goods to market, education and health, that stem from the difficulties and high costs of such transportation.

### ***For all development partners working with the RMI government:***

142. Development partners supporting the country should consider formal arrangements to strengthen the sharing of information and lessons learnt across whole of the development portfolio and in energy to gain from more effective coordination and harmonisation among them and the GRMI.

143. The development partners and GRMI should examine options to go beyond such coordination to examine the options for budget support mechanisms that have been used currently in RMI and its expansion in the energy sector and related to climate change.

## ANNEX 1: TERMS OF REFERENCE

### TERMINAL EVALUATION TERMS OF REFERENCE

#### INTRODUCTION

In accordance with UNDP and GEF M&E policies and procedures, all full and medium-sized UNDP supported GEF financed projects are required to undergo a terminal evaluation upon completion of implementation. These terms of reference (TOR) sets out the expectations for a Terminal Evaluation (TE) of the *Action for the Development of Marshall Islands Renewable Energies, ADMIRE* (PIMS # 3094).

The essentials of the project to be evaluated are as follows:

#### PROJECT SUMMARY TABLE

Project Title:	<i>Action for the Development of Marshall Islands Renewable Energies, ADMIRE</i>			
GEF Project ID:	2568		<i>at endorsement</i> <i>(Million US\$)</i>	<i>at completion</i> <i>(Million US\$)</i>
UNDP Project ID:	PIMS 3094	GEF financing:	0.975	0.975 (planned)
Country:	Republic of Marshall Islands	IA/EA own:	N/A	~US\$30,000 Amount used for detailed assignment in 2011.
Region:	Asia-Pacific	Government:	1.650	To be determined
Focal Area:	Climate Change Mitigation	Other:	N/A	N/A
FA Objectives, (OP/SP):	SO-5: Promotion of renewable energy for the provision of rural energy services	Total co-financing:	1.650	To be determined
Executing Agency:	Energy Planning Division, Ministry of Resources & Development	Total Project Cost:	2.625	To be determined
Other	Office of Environmental	ProDoc Signature (date project	30 April 2008	

Partners involved:	Policy & Planning (OEPPC), Marshall Energy Company (MEC), Marshall Islands Development Bank (MIDB), Women United Together in the Marshall Islands (WUTMI), University of the South Pacific (USP) RMI Campus.	began):	
		(Operational) Closing Date:	Proposed: 30 April 2013

## OBJECTIVE AND SCOPE

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The project was designed to reduce GHG emissions from the unsustainable uses of fossil fuels (primarily diesel fuel oil) in the RMI through the utilization of the country's renewable energy (RE) resources. The project objective is the removal of barriers to the utilization of available RE resources in the country and application of renewable energy technologies (RETs). This project objective will be achieved through (i) Increased number of RE hardware installations on the ground which enhances productivity and income generation (ii) Enhanced institutional capacity to coordinate, finance, design, supply and maintain RE installations (iii) Improved accessibility of capital for RE businesses (iv) Strengthened legal and regulatory instruments to support RE dissemination, financing and marketing, and (v) Improved awareness, skills and knowledge.

The TE will be conducted according to the guidance, rules and procedures established by UNDP and GEF as reflected in the UNDP Evaluation Guidance for GEF Financed Projects.

The objectives of the evaluation are to assess the achievement of project results, and to draw lessons that can both improve the sustainability of benefits from this project, and aid in the overall enhancement of UNDP programming.

## EVALUATION APPROACH AND METHOD

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An overall approach and method<sup>56</sup> for conducting project terminal evaluations of UNDP supported GEF financed projects has developed over time. The evaluator is expected to frame the evaluation effort using the criteria of **relevance, effectiveness, efficiency, sustainability, and impact**, as defined and explained in the UNDP Guidance for Conducting Terminal Evaluations of UNDP-supported, GEF-financed Projects. A set of questions covering each of these criteria have been drafted and are included with this TOR (*fill in Annex C*) The evaluator is expected to amend, complete and submit this matrix as part of an evaluation inception report, and shall include it as an annex to the final report.

<sup>56</sup> For additional information on methods, see the [Handbook on Planning, Monitoring and Evaluating for Development Results](#), Chapter 7, pg. 163

The evaluation must provide evidence-based information that is credible, reliable and useful. The evaluator is expected to follow a participatory and consultative approach ensuring close engagement with government counterparts, in particular the GEF operational focal point, UNDP Country Office, project team, UNDP GEF Technical Adviser based in the region and key stakeholders. The evaluator is expected to conduct a field mission to the Republic of Marshall Islands, including the following project sites: Arno Atoll, Laura Village, Assumption Elementary School, Majuro Cooperative School, MIDB and Tobolar). Interviews will be held with the following organizations and individuals at a minimum: UNDP Fiji, MRD, OEPPC, MIDB, WUTMI, USP, Tobolar, MEC, and MOE.

The evaluator will review all relevant sources of information, such as the project document, project reports – including Annual APR/PIR, project budget revisions, midterm review, progress reports, and GEF focal area tracking tools, project files, national strategic and legal documents, and any other materials that the evaluator considers useful for this evidence-based assessment. A list of documents that the project team will provide to the evaluator for review is included in [Annex B](#) of this Terms of Reference.

## EVALUATION CRITERIA & RATINGS

An assessment of project performance will be carried out, based against expectations set out in the Project Logical Framework/Results Framework (see [Annex A](#)), which provides performance and impact indicators for project implementation along with their corresponding means of verification. The evaluation will at a minimum cover the criteria of: **relevance, effectiveness, efficiency, sustainability and impact**. Explanations as to the reasons or causes of the project implementation results and realization of the expected outputs and outcomes should be provided. All changes that have been made on the project log frame either due to adaptive management or for whatever compelling reasons behind these should be assessed and explained. Ratings must be provided on the following performance criteria. The completed table must be included in the evaluation executive summary. The obligatory rating scales are included in [Annex D](#).

### Evaluation Ratings:<sup>57</sup>

<b>1. Monitoring and Evaluation</b>	<i>rating</i>	<b>2. IA&amp; EA Execution</b>	<i>rating</i>
M&E design at entry		Quality of UNDP Implementation	
M&E Plan Implementation		Quality of Execution - Executing Agency	
Overall quality of M&E		Overall quality of Implementation / Execution	
<b>3. Assessment of Outcomes</b>	<i>rating</i>	<b>4. Sustainability</b>	<i>rating</i>
Relevance		Financial resources:	
Effectiveness		Socio-political:	

<sup>57</sup> Using a six-point rating scale: 6: Highly Satisfactory, 5: Satisfactory, 4: Marginally Satisfactory, 3: Marginally Unsatisfactory, 2: Unsatisfactory and 1: Highly Unsatisfactory, see section 3.5, page 37 for ratings explanations.

Efficiency		Institutional framework and governance:	
Overall Project Outcome Rating		Environmental :	
		Overall likelihood of sustainability:	

### **PROJECT FINANCE / COFINANCE**

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The Evaluation will assess the key financial aspects of the project, including the extent of co-financing planned and realized. Project cost and funding data will be required, including annual expenditures. Variances between planned and actual expenditures will need to be assessed and explained. Results from recent financial audits, as available, should be taken into consideration. The evaluator(s) will receive assistance from the Country Office (CO) and Project Team to obtain financial data in order to complete the co-financing table below, which will be included in the terminal evaluation report.

### **MAINSTREAMING**

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UNDP supported GEF financed projects are key components in UNDP country programming, as well as regional and global programmes. The evaluation will assess the extent to which the project was successfully mainstreamed with other UNDP priorities, including poverty alleviation, improved governance, the prevention and recovery from natural disasters, and gender.

### **IMPACT**

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The evaluators will assess the extent to which the project is achieving impacts or progressing towards the achievement of impacts. Key findings that should be brought out in the evaluations include whether the project has demonstrated: a) verifiable improvements in ecological status, b) verifiable reductions in stress on ecological systems, and/or c) demonstrated progress towards these impact achievements.<sup>58</sup>

### **CONCLUSIONS, RECOMMENDATIONS & LESSONS**

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The evaluation report must include a chapter providing a set of **conclusions, recommendations and lessons**.

### **IMPLEMENTATION ARRANGEMENTS**

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The principal responsibility for managing this evaluation resides with the UNDP CO in Fiji. The UNDP CO will contract the evaluators and ensure the timely provision of support services within the country for the evaluation team. The Project Team will be responsible for liaising with the Evaluators team to set up stakeholder interviews, arrange field visits, coordinate with the Government etc.

### **EVALUATION TIMEFRAME**

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The total duration of the evaluation will be 30 days according to the following plan:

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<sup>58</sup> A useful tool for gauging progress to impact is the Review of Outcomes to Impacts (ROtI) method

Activity	Timing	Completion Date
<b>Preparation</b>	4 days ( <i>recommended: 2-4</i> )	9 November 2015
<b>Evaluation Mission</b>	15 days ( <i>r: 7-15</i> )	23 November 2015
<b>Draft Evaluation Report</b>	5 days ( <i>r: 5-10</i> )	30 November 2015
<b>Final Report</b>	2 days ( <i>r:: 1-2</i> )	14 December 2015

## EVALUATION DELIVERABLES

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The evaluation team is expected to deliver the following:

Deliverable	Content	Timing	Responsibilities
<b>Inception Report</b>	Evaluator provides clarifications on timing and method	No later than 2 weeks before the evaluation mission.	Evaluator submits to UNDP CO
<b>Presentation</b>	Initial Findings	End of evaluation mission	To project management, UNDP CO
<b>Draft Final Report</b>	Full report, (per annexed template) with annexes	Within 3 weeks of the evaluation mission	Sent to CO, reviewed by RTA, PCU, GEF OFPs
<b>Final Report*</b>	Revised report	Within 1 week of receiving UNDP comments on draft	Sent to CO for uploading to UNDP ERC.

\*When submitting the final evaluation report, the evaluator is required also to provide an 'audit trail', detailing how all received comments have (and have not) been addressed in the final evaluation report.

## TEAM COMPOSITION

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The evaluation team will be composed of *one international evaluator*. The consultant shall have prior experience in evaluating similar projects. Experience with GEF financed projects is an advantage. The evaluator selected should not have participated in the project preparation and/or implementation and should not have conflict of interest with project related activities.

The Team member must present the following qualifications:

- Minimum 15 years of relevant professional experience in the areas of energy and environment or other relevant fields;



- Knowledge of UNDP and GEF;
- Previous experience with results-based monitoring and evaluation methodologies;
- Technical knowledge in the targeted focal area (s);
- Knowledge of renewable energy and climate change projects and national context of renewable energy project and program implementation in Pacific Island Countries (PICs) including RMI (or alternatively familiarity in similar country or regional situations relevant to that of RMI);
- Experience in RMI or other PICs is considered an asset; and
- Excellent working knowledge of English both spoken and written.

#### ANNEX D: RATING SCALES

<p><b><i>Ratings for Outcomes, Effectiveness, Efficiency, M&amp;E, I&amp;E Execution</i></b></p> <p>6: Highly Satisfactory (HS): no shortcomings</p> <p>5: Satisfactory (S): minor shortcomings</p> <p>4: Moderately Satisfactory (MS)</p> <p>3. Moderately Unsatisfactory (MU): significant shortcomings</p> <p>Unsatisfactory (U): major problems</p> <p>2. problems</p> <p>1. Highly Unsatisfactory (HU): severe problems</p>	<p><b><i>Sustainability ratings:</i></b></p> <p>Likely (L): negligible risks to sustainability</p> <p>Moderately Likely (ML): moderate risks</p> <p>Moderately Unlikely (MU): significant risks</p> <p>1. Unlikely (U): severe risks</p>	<p><b><i>Relevance ratings</i></b></p> <p>2. Relevant (R)</p> <p>1.. Not relevant (NR)</p> <p><b><i>Impact Ratings:</i></b></p> <p>3. Significant (S)</p> <p>2. Minimal (M)</p> <p>1. Negligible (N)</p>
<p><i>Additional ratings where relevant:</i></p> <p>Not Applicable (N/A)</p> <p>Unable to Assess (U/A)</p>		

#### ANNEX F: EVALUATION REPORT OUTLINE<sup>4</sup>

- i. Opening page:
- ☐ Title of UNDP supported GEF financed project
  - ☐ UNDP and GEF project ID#s
  - ☐ Evaluation time frame and date of evaluation report
  - ☐ Region and countries included in the project
  - ☐ GEF Operational Program/Strategic Program
  - ☐ Implementing Partner and other project partners

- ☐ Evaluation team members
  - ☐ Acknowledgements
- ii.** Executive Summary
  - ☐ Project Summary Table
  - ☐ Project Description (brief)
  - ☐ Evaluation Rating Table
  - ☐ Summary of conclusions, recommendations and lessons
- iii.** Acronyms and Abbreviations  
(See: UNDP Editorial Manual<sup>5</sup>)
- 1.** Introduction
  - ☐ Purpose of the evaluation
  - ☐ Scope & Methodology
  - ☐ Structure of the evaluation report
- 2.** Project description and development context
  - ☐ Project start and duration
  - ☐ Problems that the project sought to address
  - ☐ Immediate and development objectives of the project
  - ☐ Baseline Indicators established
  - ☐ Main stakeholders
  - ☐ Expected Results
- 3.** Findings  
(In addition to a descriptive assessment, all criteria marked with (\*) must be rated<sup>6</sup>)
- 3.1** Project Design / Formulation
  - ☐ Analysis of LFA/Results Framework (Project logic /strategy; Indicators) including the estimation of actual energy savings and GHG emission reductions realized, whether the stated targets for each indicator in the log frame were achieved
  - ☐ Assumptions and Risks
  - ☐ Lessons from other relevant projects (e.g., same focal area) incorporated into project design
  - ☐ Planned stakeholder participation
  - ☐ Replication approach
  - ☐ UNDP comparative advantage
  - ☐ Linkages between project and other interventions within the sector
  - ☐ Management arrangements
- 3.2** Project Implementation
  - ☐ Adaptive management (changes to the project design and project outputs during implementation) citing the compelling reasons behind, and the impacts of, the changes made
  - ☐ Partnership arrangements (with relevant stakeholders involved in the country/region)
  - ☐ Feedback from M&E activities used for adaptive management
  - ☐ Project Finance
  - ☐ Monitoring and evaluation: design at entry and implementation (\*)
  - ☐ UNDP and Implementing Partner implementation / execution (\*) coordination, and operational issues in particular factors that causes the delays in many project activities
- 3.3** Project Results
  - ☐ Overall results (attainment of objectives) (\*), particularly on the: (a) actual

energy savings realized; (b) actual RE-based energy system capacity installed and operationalized; and, (c) actual GHG emission reductions realized directly from the project.

- Relevance (\*)
- Effectiveness & Efficiency (\*)
- Country ownership
- Mainstreaming
- Sustainability (\*)
- Impact

#### 4. Conclusions, Recommendations & Lessons

- Corrective actions for the design, implementation, monitoring and evaluation of the project
- Actions to follow up or reinforce initial benefits from the project
- Proposals for future directions underlining main objectives
- Best and worst practices in addressing issues relating to relevance, performance and success

#### 5. Annexes

- ToR
- Itinerary
- List of persons interviewed
- Summary of field visits
- List of documents reviewed
- Evaluation Question Matrix
- Questionnaire used and summary of results
- Evaluation Consultant Agreement Form

## ANNEX 2: LIST OF DOCUMENTS REVIEWED

Key project documents such as the approved GEF project brief, the final UNDP project document, the inception workshop report, mid-term evaluation report, the project log-frame and annual budgets and work plans, quarterly progress reports, the annual Project Implementation Review, Project Board and Technical Working Group meeting minutes as available, and other technical reports and documents as relevant, listed below were reviewed.

### PROJECT DOCUMENTS:

- 1 2011 June; ToR; Environmental Consultancy – Republic of Marshall Islands
- 2 2011; Project Implementation Support Mission to Republic of Marshall Islands, April - June, 2011, Terms of Reference.
- 3 ADMIRE report, 2014 December 31; ADMIRE PROJECT: PRE-TRAIN at ISLAND ECO MAJURO MARSHALL ISLANDS
- 4 ADMIRE report, Phase 2, ADMIRE PROJECT: PRE-TRAIN at ISLAND ECO MAJURO MARSHALL ISLANDS; Summary Report Of Phase 2 January To June 2015
- 5 Empower Consultants Limited; 2005 October; Review of Namdrik Atoll Solar Project, RMI-Final Report.
- 6 Republic of the Marshall Islands, United Nations Development Programme/ Global Environment Facility; Akkar J.; 2012 March; ADMIRE Mid Term Review
- 7 Heine A.; Ministry of Resources & Development; RMI; 2012; Outer Island Energy Survey report 2012- Namdrik-Kili-Jaluit.
- 8 Heine A.; Ministry of Resources & Development; RMI; 2013 July; Outer island energy survey –Mili Atoll 7<sup>th</sup>-14<sup>th</sup> of July 2013.
- 9 Heine A.; Ministry of Resources & Development; RMI; 2013 October; Outer Island Energy trip report for Mejit Island 2013.
- 10 Japan Fund for Poverty Reduction; 2010 July; Proposed Grant Assistance Republic of the Marshall Islands
- 11 Japan Fund For Poverty Reduction; 2013 December; Improved Energy Supply To Poor Households; 9148-RMI: Project End Status Report
- 12 Japan International Cooperation Agency (JICA); Okinawa Enetech Co., Inc; 2015 January; Marshall Islands Project on the Formulation of a Self-Sufficient Energy Supply System Final Report
- 13 Joint initiative Government of RMI/ MEC/ UNDP/ SOPAC; DRAFT Pre-feasibility study on Biofuel electrification on remote atolls in The Marshall Islands
- 14 Kugeler I.; Potentials of Coconut Oil as Diesel Substitute in Pacific Island Countries
- 15 Ministry of Resources & Development; 2014 July; Energy Planning Division, RMI. Wind Monitoring Tower for Jaluit and Wotje, Republic of the Marshall Islands, Decommissioning Report.
- 16 Republic of Marshall Islands; 2008 September; Responding to the Emergency, Update Report on the Republic of the Marshall Islands, State of Economic Emergency, Stemming from the Energy and Food Crises
- 17 Republic of Marshall Islands; 2008; Report on a SWOT Workshop on Energy Issues
- 18 Republic of Marshall Islands; 2010; Record of Meetings, Republic of Marshall Islands, Technical Discussions and Joint Strategy Meeting, Outcome Group 4: Sustainable Environmental Management

- 19 Republic of Marshall Islands; 2012 May; Project Proposal- Biofuel and Biodiesel Fuel quality control Development
- 20 Republic of Marshall Islands; 2012; EPD Annual Report
- 21 Republic of Marshall Islands; 2013; EPD Annual Report
- 22 Republic of Marshall Islands; 2014; Pacific Climate Change Finance Assessment:RMI
- 23 Republic of Marshall Islands; 2015; EPD Annual Report
- 24 Republic of Marshall Islands; Majuro Solar Water Pump Demonstration Project , Terms of Reference
- 25 Republic of Marshall Islands; Marshall Islands Solar Water Pump Demonstration Project, Terms of Reference
- 26 Republic of Marshall Islands; Wind Workshop on Wind Data Analysis
- 27 Republic of the Marshall Islands; ADMIRE; 2010 March; Inception Workshop Agenda – Final
- 28 Republic of the Marshall Islands; ADMIRE; RMI ADMIRE INCEPTION WORKSHOP REPORT
- 29 Secretariat of the Pacific Community (SPC); 2014; Republic of Marshall Islands, North REP Socio-Economic Baseline report
- 30 SPREP; Herbert W. et al.; 2005; Pacific Regional Energy Assessment 2004: an assessment of the key energy issues, barriers to the development of renewable energy to mitigate climate change, and capacity development needs to removing the barriers: Marshall Islands National Report
- 31 UN Development Programme; Combined Delivery Report By Project; Report ID: ungl143p for period Jan-Dec 2008
- 32 UN Development Programme; Combined Delivery Report By Project; Report ID: ungl143p for period Jan-Dec 2009
- 33 UN Development Programme; Combined Delivery Report By Project; Report ID: ungl143p for period Jan-Dec 2010
- 34 UN Development Programme; Combined Delivery Report By Project; Report ID: ungl143p for period Jan-Dec 2011
- 35 UN Development Programme; Combined Delivery Report By Project; Report ID: ungl143p for period Jan-Dec 2012
- 36 UN Development Programme; UNDP Project Document- Action for the Development of Marshall Islands Renewable Energies (ADMIRE) (PIMS# 3094)
- 37 United Nations Development Programme; 2010; UNDP Annual Activity Report for the Republic of Marshall Islands
- 38 United Nations Development Programme; RMI Mission Report 21 November – 8 December 2008
- 39 United Nations Development Programme; RMI Mission Report 27 February - 7 March 2010
- 40 United Nations Development Programme; UNDP Annual Work Plan, RMI Country Program Action Plan-Annual Work Plan 2011
- 41 United Nations Development Programme; UNDP Annual Work Plan, RMI Country Program Action Plan-Annual Work Plan 2012
- 42 United Nations Development Programme; UNDP Annual Work Plan, RMI Country Program Action Plan-Annual Work Plan 2013
- 43 United Nations Development Programme/Global Environment Facility; 2012 March; MID-TERM REVIEW, Action for the Development of Marshall Islands Renewable Energies (ADMIRE), Government of the Republic of the Marshall Islands.
- 44 United Nations Development Programme/Global Environment Facility; 2014; Project Implementation Review- PIMS 3094, Marshall Islands: Action for the Development of Marshall Islands Renewable Energies (ADMIRE)

- 45 United Nations Development Programme/Global Environment Facility; 2014; Terms of Reference- PIMS 3094, Marshall Islands: Action for the Development of Marshall Islands Renewable Energies (ADMIRE)
- 46 Soriano M.; Medium-sized project (MSP) proposal request for funding under the GEF Trust Fund.

## RELATED DOCUMENTS

- 1 Eco Ltd; 2016 March; GCF insight: key findings
- 2 European Commission; 2014 December; Evaluation of the European Union’s cooperation with the Pacific Region 2006-2012 Final Report
- 3 IRENA; 2015 June; The Republic Of Marshall Islands Renewables Readiness Assessment
- 4 IRENA; 2013 August; Renewable energy opportunities and challenges in the Pacific Islands region: The Republic of Marshall Islands.
- 5 IRENA; Isaka M. et al.; 2013 August; Pacific Lighthouses Renewable energy opportunities and challenges in the Pacific Islands region
- 6 Republic of the Marshall Islands; 2014 June; National Strategic Plan 2015–2017
- 7 Republic of Marshall Islands; 2013 March; National Water and Sanitation Policy
- 8 Republic of the Marshall Islands; 2011; Census data-GRMI
- 9 Republic of Marshall Islands; Johnston P. et al.; 2008 December; Inception Paper- Development of a New Energy Policy, Energy Action Plan and Energy Project Designs for the Republic of the Marshall Islands, Reference: EP/RMI4/5/NPE1.
- 10 Republic of Marshall Islands; 2002 September; Rio +10; National Report to the World Summit on Sustainable Development
- 11 SEFP World Bank; Raturi A.; 2005 estimated, undated; Status of and Potential for Utilizing Coconut Oil (CNO) In Power Generation and Industrial Use in Pacific Island Countries
- 12 The Journal of Pacific Studies; Mukadam et al.; 2015; Reducing Energy Poverty for Development and Resilience: Case Studies from Vanuatu and the Marshall Islands; Volume 35 Issue 1
- 13 The Marshall Islands Journal; Marty, I.; 2016, February 12; Tobolar to lift production of soaps and oils; Volume 47, Number 7, pp. 18
- 14 The Marshall Islands Journal; 2016, February 12; RMI doesn’t provide data, doesn’t get UN review; Volume 47, Number 7, pp. 1
- 15 The Marshall Islands Journal, Volume 47; Johnson, G.; 2016, February 12; Cabinet frees up cash for copra; Volume 47, Number 7, pp. 1,2
- 16 U.S. Department of the Interior Office of Insular Affairs; Conrad M. et al.; 2015 September; Republic of the Marshall Islands Energy Project Development Options and Technical Assessment -2013
- 17 UNCTAD; 2015; Second generation biofuel markets-state of play, trade and developing country perspectives; UNCTAD/DITC/TED/2015/8
- 18 UNICEF; 2013; Children in the Republic of the Marshall Islands An Atlas of Social Indicators,
- 19 UNICEF; 2003; Republic of Marshall Islands, A situation analysis of children, women and youth
- 20 UNDP; 2011; Pacific MDG Tracking Report
- 21 UNDP; 2010; Pacific MDG Tracking Report
- 22 UNDP; undated; UNDP Project Document - Country-Samoa; Project Title: Pacific Islands Greenhouse Gas Abatement through Renewable Energy “PLUS” Project
- 23 UNDP /GEF; 2012; Terminal Evaluation Report UNDP – GEF Project Developing

Institutional and Legal Capacity to Optimize Information and Monitoring System for Global Environmental Management in Armenia; GEF PIMS ID 3332

- 24 UNDP /GEF; 2006; The UNDP/GEF project document for Pacific Islands Greenhouse Gas Abatement through Renewable Energy Project (PIGGAREP) PIMS Number: 3462.
- 25 Zieroth G.; 2012 April; Biofuel Feasibility study Kiribati Island

### ANNEX 3: MEETINGS ARRANGED AND PERSONS INTERVIEWED

	Name	Position
1	Terry Keju	UN Joint Presence Office
2	Rebecca Lorennij	Secretary, Ministry of Resources & Development, RMI
3	Walter Myazoe	Dy. Chief Energy Planner, Ministry of Resources & Development, RMI
4	Ned Lobwij Dolores deBrum-	Energy Officer, Ministry of Resources & Development, RMI
5	Kattil	Project Manager ADMIRE, Ministry of Resources & Development, RMI
6	Warwick Harris	Deputy Director, OEPPC
7	Steve Wakefield	Acting General Manager, Marshalls Energy Company
8	Frederick deBrum	Director, Economic, Policy, Planning and Statistics Office (EPPSO)
9	Kathryn Relang	Executive Director, WUTMI
10	Jemi Nashion	General Manager, Tobolar
11	Nivedita Govind	Adviser, Tobolar
12	Kanetti Hosia	Assoc. Commissioner, Instructions & Mgmt., RMI Public School Systems
13	Cassiano Jetnil	Assoc. Commissioner, Property & Maintn., RMI Public School Systems
14	Gee Leong Bing	Assoc. Commissioner, Admin. & HR, RMI Public School Systems
15	Riyad Mistry	IslandEco/Climate Change Advisor (OEPPC)
16	William Reiher	VP, College of the Marshall Islands

#### Meetings cancelled due to conflicts in schedule:

1	Amon Tibon	Managing Director, Marshall Islands Development Bank (MIDB)
2	Angeline Heine	Chief Energy Planner, Ministry of Resources & Development, RMI
3	Bruce Kijiner	Secretary, Ministry of Foreign Affairs, RMI
4	Larry Hernandez	Manager, Do It Best
5	Lowell Alik	Director OEPPC



## ANNEX 4: ADDITIONAL INFORMATION: RMI and ADMIRE

**Table 11: Admire Activities by Location**

		2012	2013	2014	2015
1	Majuro	Participation in USP Summer Energy Science Camp	Bio-fuel testing equipment; Technical training on SHS	Solar PV training to two MEC technicians offered by the University of Guam; Standard for coconut oil to be used for power generation MEC	Biodiesel development pilot project; Distribution of 206 solar/electric powered fans to primary classes (for 1 AND 2)
2	Kwajalein			SHS Inspection; solar home systems	Distribution of 206 solar/electric powered fans to primary classes
3	Arno		EU/SPC's North REP Project for women on Arno atoll to trade kili bags (handicrafts)		Solar food dehydrators for the women of Arno
4	Jesuit	Wind monitoring tower;	Energy surveys for SHS	Wind monitoring study; solar home systems	
5	Ailinglaplap				Biodiesel development pilot project
6	Wotje		Wind monitoring tower	Wind monitoring study	
7	Namu	Installation of solar home system;		SHS Inspection;	
8	Mili				
9	Ebon				
10	Maloelap	Installation of solar home system;			
11	Enewetak			Solar home systems	
12	Kili		Energy surveys for SHS	Solar home systems	

13	Namdrik		Energy surveys for SHS	Solar home systems	
14	Aur	Installation of solar home system;		Solar home systems	
15	Utirik	Installation of solar home system;			
16	Likiep				
17	Ujae			SHS Inspection;	
18	Mejit				
19	Lae	Installation of solar home system;		SHS Inspection;	
20	Ailuk	Installation of solar home system;			
21	Lib	Installation of solar home system;		SHS Inspection;	
22	Wotho			SHS Inspection;	
23	Jabat			Solar home systems	

## BIOMASS ENERGY IN RMI

Energy sources and use in RMI are very largely shaped by its geography and constrained by limited natural resources. There are few traditional indigenous energy sources other than biomass and given the small land area of the country and poor soils, any large-scale expansion of energy production from biomass is inherently limited. Traditionally, waste biomass in the form of agricultural waste (most likely some fuel wood, coconut residues<sup>59</sup> – the shell, husk, and dried leaves/fronds) were most likely used for cooking and also for any small scale agricultural production that requires process heat such as crop drying. The major advantage of using coconut biomass as a fuel is that coconut is a permanent crop and available round the year so there is constant whole year supply.

### Coconut Shell and husk

Coconut shell is an agricultural waste and is available in plentiful quantities in coconut growing countries and is widely used for making charcoal. The coconut shell has a high calorific value of

<sup>59</sup> A coconut plantation is an underappreciated bio-energy source, not limited to the oil. Also important, they are a source of a wide variety of products, which are often more valuable and are in addition to the plants' energy potential. A single fruit yields almost as much in husks as in copra with the husk and shells as attractive biomass fuels, traditionally used with open burning and also a good source of charcoal. Activated carbon manufactured from coconut shell is considered extremely effective for the removal of impurities in water treatment processes. The waste biomass can be used to produce charcoal, heat, electricity, fibre board, and organic fertilizer, animal feeds, which are all in addition to the food or fuel from the coconut oil in copra (or fruit).

20.8MJ/kg. It is to be noted that coconut shell and coconut husk are solid fuels and have the peculiarities and problems inherent in this kind of fuel. The higher fixed carbon content leads to the production to a high-quality solid residue which can be used as activated carbon in wastewater treatment. Coconut husk also has a high calorific value of 18.62MJ/kg and can be used as a fuel source.

Beyond this, there is also some potential for biogas production for cooking or small-scale power production from piggeries or other animals, and small biogas plants have been reported. But there are no recent or good data on biomass consumption, disaggregated and by location.

## SPV HISTORY AS PER PIREP

PIREP report covers some of the developments in the use of SPV in RMI (pages 35-40). It suggests around two hundred solar lighting systems were installed on various atolls in the 80s, with most rural dispensaries getting a solar vaccine refrigerator and most atolls received one or more solar powered high frequency radios along with solar powered lighting for public buildings and a few homes. There was an early all PV installation on Utirik, in the mid-1980s with US funds where the entire village was connected to a 120 volt DC battery charged by a 16 kW<sub>peak</sub> solar photovoltaic array. "The system worked poorly, was not well designed to fit the needs of the village, and never provided the desired level of service to the community" and soon fell into disrepair.

In 1993, 20 SHS were installed for Jabat, which had "numerous technical problems" including damage to many batteries. Also in 1993, JICA installed solar powered freezers for ice making and fish storage on Ailinglaplap Atoll (Airok Island), Likiep Atoll (Likiep Island) and Namu Atoll (Majikin Island), plus a radiotelephone and lighting. The installations worked well until when one section of the Likiep freezer failed due to connector corrosion and the freezer system on Ailinglaplap also failed in 2001 due to corrosion.

In 1996, the French Government funded a solar electrification project on Namdrik, which covered 134 household lighting installations, six larger refrigerator power systems and several streetlights. That again did not do well, and "by 1999, few of the household systems remained operative with only the large systems on the chiefs' houses still working well".

In 2000, the PREFACE — an Australian and French jointly funded project under the Secretariat for the Pacific Community (SPC) was to rehabilitate the Namdrik PV project. By the end of 2003, approximately 115 installations had been completed, and "unlike the earlier Namdrik project, community leaders were integrated into the project. Nonetheless, the response of the community for payment of fees has been poor. During the first year, when collection was by the local committee, recorded collections were less than 50%." Problems also included "theft of payments or faulty accounting". In 2002-2003, eleven health centers received solar electricity financed by \$250,000 from U.N Trust Fund grants. This also suffered from challenges. The PIREP report adds further examples and then concludes with the early beginning of ADMIRE.

It states - In April 2003, the MRD proposed a coalition of MRD, MEC and the Marshall Islands Mayors' Association (MIMA) to work toward the rational and sustainable development of solar electrification for the outer islands.

On February 26, 2004, the Government of RMI endorsed a request to the Global Environment Facility (GEF) for a PDF-A grant of \$25,000 to develop a comprehensive program for GEF funding for renewable energy capacity building and barrier reduction relating to solar photovoltaics, biofuel

and wind. The project to be developed is called ADMIRE (Acting for the Development of Marshall Islands Renewable Energies) and was initially proposed during PREFACE implementation. The intent is to bring all government and donors initiatives under one technical and management strategy to avoid duplication, standardize equipment and place implementation and management under one structure. With MRD as its focus, ADMIRE plans to establish and coordinate a multi sectoral effort to promote renewables such as PV, wind, biofuel, solar water heating, bioclimatic design norms and links with energy efficiency activities such as demand side management.

#### PROJECT ADVISORY/STEERING COMMITTEE

The evaluation noted from available project documents and the minutes that the following meetings had been held.

**Table 12**

PSC Meeting Dates	
April 1, 2010 <sup>60</sup>	Available - Yumiko Crisostomo, Thomas Kijiner, Steve Wakefield, Kayo (will be sitting in for Sec. of Finance, Jefferson Barton Not available at this time - Wilbur Heine (Secretary of MIA), Wilfredo Cantilas (Tobolar), May Bing (EPPSO). After Inception
November 2011.	No record with evaluator.
July 18, 2012 <sup>61</sup>	Attendees: Secretary Thomas Kijiner (MRD), Angeline Heine (MRD), Warwick Harris (OEPPC), Bermen Laukon (MEC)  Apologies: Catalino Kijiner (MOF), Jefferson Barton (EPPSO), Steve Wakefield (MEC)
October 5, 2012.	Was proposed for the next meeting of the PSC
December 2012	PSC Meeting held
May 28, 2013	Attendees: Warwick Harris (OEPPC), Angeline Heine (MRD), Roma Alfred (MOF), Steve Wakefield (MEC)
October 11, 2013	Agenda is noted.
March 18, 2014 a	
October 21, 2014	Agenda is noted.
March 26, 2015	Agenda is noted.

In April 2010, the PSC minutes noted, the PMU was under MRD, OEPPC and MRD were ready for the transitioning from OEPPC, but it remained the Executing Authority, with all reporting to be via OEPPC for final reporting to UNDP. It was agreed to record the \$10,000 disbursed to MEC for maintenance work done in the outer islands. An agreement to advertise the Project Manager Post,

<sup>60</sup> Seven persons were listed as members of the PSC: Yumiko Crisostomo (Director OEPPC), Thomas Kijiner Jr., (Secretary, MRD), Jefferson Barton (Secretary of Finance), Wilbur Heine (Secretary of MIA), Steve Wakefield (MEC), Wilfredo Cantilas (Tobolar), May Bing (EPPSO). Not stated but it appears from the lack of reference to any previous meeting in the minutes, to be the first meeting of the PSC.

<sup>61</sup> Dolores deBrum-Kattil was hired in January 30, 2012.

to all Government Agencies, NGOs and others by Monday April 5th, 2010. It recorded that "ADMIRE will not use any means of advertisement that will further incur cost to the project". The then Financial Officer would be transferred out to MRD. A proposal from CMI (proposal not seen) was too expensive at \$600,000. It agreed to the USP-Renewable Energy Science Camp, but the budget was to be lowered. The AusAID energy advisor, was nominated to participate in demonstrations of RE equipment. Finally, under the advice of Secretary MRD, all ADMIRE support to the development of coconut bio-fuel was halted for the time being, "TOBOLAR has internal issues that will need to be resolved first" and people were migrating to the main urban areas of Majuro and Ebeye.

It was noted that MRD had other big projects underway \$1 million with FAO, on removal of old trees, changing them to usable lumber and replanting; and a \$2 million ADB project, which we presume intersected/overlapped with coconut oil biofuels. The procurement of Wind Monitoring Equipment was also entrusted to the AusAID energy advisor. The PSC was keen to find a Marshallese for the Wind Data Analysis Workshop and the CMI was not able to select a Marshallese participant for this workshop. The Training of trainer's for the solar systems in the outer islands by MEC was discussed and so was future travel to Wotje & Jaluit for stock taking, energy survey and energy audits, followed one for Rongrong were considered.

The July 2012 minutes of the PSC meeting noted that the new project manager had been hired on January 30 2012 and the new PMU had been set up at MRD. During the previous six months all responsibility (including finance) had been transferred from OEPPC to MRD; the new PM set up the PMU, communicated with UNDP MCO in Fiji and also the ADMIRE RTA. She initiated the 2012 budget and workplan, and organized and implemented activities and reporting. The Mid Term Review was held during the first quarter of 2012 and the ADMIRE audit was completed in May 2012. The PSC noted with the new set up there would be more consistent quarterly meetings and reporting to ensure that the activities are implemented on a timely basis and in line with the revised 2012 AWP.

The evaluator noted in the PSC meeting minutes available for May 2013, there were several "unresolved matters", such as "ADMIRE contract with the MRD Administrative Secretary", and a revised MOU was pending approval of the Secretary MRD; the setting up of a separate ADMIRE account at the Bank of Guam as recommended by Ministry of Finance (MOF) at a meeting with UNDP, managed by the Project Manager (PM) with members of the Steering Committee (SC) as signatories, which "reached a dead-end therefore it will no longer be pursued". It was stated that "Audit gaps at MOF have still not been resolved. This matter has been taken up by OEPPC and the UN Joint Presence Office". Also, "the confusion at the local tele-com office (NTA) regarding the internet connection for the PM was caused by the Ministry of Finance".

The valuation concludes from this short synopsis that the PAC/PSC never fulfilled the coordinating role envisaged for it; it was limited to a small number of government officials who met infrequently, and not all were ever present; it did not bring together the different stakeholders and the technical resources and people to support the ADMIRE PM were not available.